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The Dublin Builder.

Vol. I.—No. 1.

INTRODUCTORY.

UNLIKE the course usually pursued by intending journalists in the issuing of voluminous preliminary prospectuses—promising all manner of fine things—which not one in *one hundred* ever half read, *we* preferred to announce our purpose simply and briefly, leaving our adopted title to speak for itself, and reserving this space in our opening number for a few introductory remarks as to the circumstances which led us into this undertaking, and matters of detail connected with our proposed tactics. Justly may the numerous classes identified with the Building and Constructive arts in Ireland, writhe under the stigma that they alone of their craft in the three sister kingdoms pursue their career unrepresented by that powerful advocate, "the Press;" and are unable to point to any national and professional periodical devoted to their enlightenment, to the maintenance intact of their rights and privileges, and the forwarding of their general interests.* With a view of filling up the vacuum, our efforts, humble though they be, in the production of this journal, are directed; and zealously shall they be pursued, in the firm conviction that there are both the masses and the inclination in this country—if properly aroused—to support a class periodical conducted with prudence and ability. Sceptical as to the veracity of this some are, and we confess may to an extent justly be; but for obvious reasons *we* shall be pardoned for volunteering the statement, that "a previous undertaking of a similar nature fully justifies this trial." To dilate *here* upon subjects of a personal character, however they may bear upon the assertion just made, would be both bad taste and irrelevant; but for the satisfaction of those who formerly, and have again, entered the lists as our supporters; and to dispel from the minds of others a supposition as to the existence of chimerical elements in *this* speculation, we must remark, that were it not for a combination of proceedings, alike discreditable to the originators and unanticipated by us—but for which public contumely has been heaped upon their heads—the building profession and kindred arts and sciences would not have remained unrepresented during the last two years. With renewed vigour, though clothed in other garments and with different title, we enter upon our mission, but in principles remaining the same, with the introduction of some slight modifications. Though professedly a "class" journal, the projectors of "*The Dublin Builder*" confidently look forward to general support, by the introduction of instructive and popular subjects, and the entire absence from its pages of anything approximating to politics or polemics; they being solely devoted to the admission of such matter *only* as shall serve to enlighten the ignorant, to please and edify the man of education, and to chronicle advancing steps in the path of progress, when such appertain to projects or accomplishments of a scientific, artistic, sanitary, or, we may add, of a philanthropic character.

Pursuing such a course, we hope to find ourselves as welcome visitors in the studio and drawing-room of the professor, as in the humblest domicile of the intelligent mechanic; without being specially identified with either, but devoting ourselves equally, impartially, and independently to serve the interests and contribute to the gratification of both.

Reference to other portions of this journal will convince, that although Ireland has decidedly made improving strides in the several departments of a more immediately professional character, coming under our notice, much more yet remains to be achieved in the sanitary arrangements of our cities and towns, the water supply thereto, more complete ventilation of our public and domestic buildings, erection of national monuments, the demolition of dilapidated dwellings, provision of suitable homes for the living poor, and fitting receptacles for the remnants of mortality in all classes, &c.; presenting ample scope for another class of subjects strictly within *our* province, and which cannot fail to interest the philanthropist and every friend to the well-being of the community at large.

Owing to the absence of a local press devoted to the full and complete publication of matters scientific and artistic—periodically presenting themselves at the lectures and *conversaziones* of our institutes, so universally celebrated as instructing media—much valuable information which there might be imparted is denied to the working man, whose position in society and daily occupations respectively, preclude the possibility of personal attendance. True! the transactions of those institutions to which we refer are separately published and purchaseable, but they are either only gratuitously accessible to members, or are not compatible with the limited resources of an artizan's pocket. One of *our* chief objects shall be, as far as practicable within our moderate compass, to publish such proceedings so as to suit the comprehension of our readers, and not a mere unintelligible synopsis, omitting the gist and marrow of the subject, as is usually presented—seemingly under restraint—by most of our cotemporaries.

To our professional readers our course is so manifest as to call for little explanation, as substantially we shall follow in the wake of our predecessors, labouring, however, under the difficulties which constantly bestrew the path of novitiates, and with which they have had in their turn to contend as we now have.

They who recollect what those periodicals were at first starting, which are now colossal both in point of excellence and circulation, will readily admit that too much ought not to be expected *ab initio*, and that "all great ends are attained by small beginnings."

Such is the anomalous position of the Architectural and Engineering professions now-a-days, the former especially; and so utterly devoid are they of that governmental and legal protection of their rights invariably bestowed on every other, that much may be accomplished in the reformation of existing abuses by their exposition through the medium of a periodical devoted to special interests. Collectively, the members of these professions constitute an important class, and of themselves possess all the elements of strength to form a compact body capable of resisting extraneous shocks if the cohesive particles of "union and good faith" were not absent from the mass. To do justice, however, the Institute of Civil Engineers in Ireland has progressed in a degree towards the advancement of science, and deserves some credit, although considering the host of talent which it comprises within its area of membership, more could have been achieved. Let us, however, hope that a new era may dawn on the existence of this and a kindred institute which is painfully behindhand in fulfilling the object of its mission, though possessing advantages which, to some extent at least, might be turned to account. With much pleasure do we refer to the recent laudable effort made by the Builders of this city to establish an Association, with a view of improving the position of the body, and effecting a more permanent understanding between employer and employeés; and though in this latter respect some misconception has arisen, it is to be hoped that it will prove but a passing cloud, and that good feeling may be speedily restored. Little now remains for us to add, except as regards "*Illustrations*," to which all classes attach more or less interest. In this, however, we are reluctantly compelled to dissappoint general expectation, but we do so advisedly and—a moment's consideration will convince—wisely. To such a position of excellence, in this regard, have the professional and other periodicals now in existence at the other side attained, that we should be placed in a somewhat humiliated position were we to adopt a course which we could not creditably carry out; and in short with necessarily limited resources, *that* would be impracticable, at least during *the first year* of our existence; and if commenced in our infancy we should be both exposing ourselves to mockery and sealing our premature doom. We have an instance of a professional periodical published in Scotland *without* illustrations, and as "caution marks the guarded way" of speculators there, we adopt it as the safest means of ensuring ultimate success.

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* In England there exist several first-class and well-established periodicals devoted to the improvement of science, art, and every branch of mechanics; presenting a never-failing source of instruction and mental recreation; and even Scotland, where the artizan class is neither so numerous nor so notedly excellent in skill and ingenuity as in Ireland, possesses one likewise, flourishing since the period of its establishment.

To those, however, who desire through our medium to publish their designs we say, that being desirous to afford every facility for the exposition of talent, we shall provide a space for meritorious subjects, the blocks—artistically executed—being supplied.

With those classes for whom this journal is sought to be established mainly depend both its longevity and excellence, for *we* but set the machinery at work, and it remains for *them* to assist in its maintenance, as the proceeding involves much responsibility.

Gladly would we have committed this task to abler hands, but none having stepped forward to assume the initiative, we now launch our bark, fully equipped for what we confidently look forward to be a long and prosperous voyage, trusting to be enabled by the assistance of an efficient crew to brave the uncertain sea of speculation, and steer it safely into the haven of prosperity.

THE BELL ROCK LIGHTHOUSE—the most remarkable erection on the shores of Great Britain, is a circular edifice, the foundation stone being nearly at low water level of ordinary spring-tides; and at high water the building is immersed fifteen feet. The two first courses of masonry are curiously dovetailed and jointed, and the successive layers are joggled. The cement used was a mixture of pozzolano, earth, lime, and sand in equal proportions. The stones weigh from one to two tons. The lower course is forty-two feet in diameter, and the building diminishes to thirteen feet. Total height, including the light room, 115 feet. It is solid to a height of thirty feet, then the walls are seven feet thick, but diminish to one foot. There are six flats interiorly, and the light room is of octagonal form covered with a dome of copper, and terminated by a gilt ball. Mr. Robert Stephenson, Engineer.

If we perceive at present little genius, it is because the arts have few inventors in an age where there are so many models.

ART UNION OF IRELAND.

AN association calculated, *par excellence*, to foster that artistic talent for which Ireland, amidst all her difficulties, has maintained a celebrity redounding to her national honour, is eminently entitled to co-operation from all classes; but more especially so where its initiative steps are beset with obstacles naturally resulting from the premature failure of some of its predecessors having similar objects in view, and professing at their onset to confer immense benefits on professional artists and the public at large respectively.

In the subject of our present notice we recognise elements at once embracing novelty, liberality, and judiciousness, and evidencing the fact of its promoters spurning the beaten path marked by former projects, and opening out a wider course both for the aspirations of artists and the cultivation of æsthetic principles in public taste. Matters of detail—the primary careful digestion of which serve to ensure the success of any design—seem to have been treated in this instance with peculiar foresight and study, so as to produce an harmonious whole, free from incongruous features and speculative reckonings.

"The Art Union of Ireland" has adopted rules for its guidance demanding special notice, and which to our mind will contribute materially to the permanency of its establishment; perhaps the most nationally important being the encouragement offered to artists, natives of, or resident in this country, in the appropriation of an annual sum, varying with its income, to be expended in premiums for the best works of art exhibited in the Royal Hibernian Academy; and the next, that of dispensing with the issue of engravings to each member from a single subject chosen by a committee. To the former we must, however, partly take an exception and suggest an amendment, viz., the dispensing of the Academy as the *exclusive* receptacle of premiated works, inasmuch as it shuts out from participation without considerable trouble, unnecessary expense, and some attendant dissatisfaction, several important provincial towns whereat we hope to see periodical Fine Art Exhibitions rather numerous, especially since the inducement of the travelling collection from Marlborough House is at the disposal of parties willing to avail themselves of its valuable accessary aid. For metropolitan purposes, the Royal Hibernian Academy is unquestionably the most fitting medium for the proposed object; but in a matter of national constitution, where success is so much dependent on general patronage, it seems to us that the principle of centralization ought to be prudently avoided as far as possible. Wisely, both in an artistic and pecuniary point of view, has the ordinary system of presenting *each* member with a proof engraving of a *chosen* subject been dispensed with, as the desirable objects are simultaneously attained of assisting the discriminations of small prize-holders entitled to select from a variety of works of art, whether pictures, engravings, statuettes, or casts; and of placing a larger sum to be expended in *chief* prizes at the disposal of the committee than was achievable under the old regimé. Doubtless, finely engraved fac-similes of the *chefs d'œuvres* of eminent artists extensively distributed materially conduce to the cultivation of a refined taste; but the selection is compulsory, and when thousands of thousands of similar impressions are struck off, and subsequently plagiarized and tortured into a variety of forms and materials. the excellence of art dwindles into a hackneyed vulgarism superlatively offensive and distasteful. Let us hope that before the committee finally decide on, and announce the premiums to be awarded to works of art exhibited in 1859, "Architecture" will not be forgotten, for in this department the exhibitions of the Academy have degenerated into a nothingness which no apparent cause can justify. For further particulars relative to this project, we must refer our readers to advertisements and the published prospectuses obtainable from the Secretary; and as the distribution of prizes is intended to take place in April, 1859, we trust that the important array of members collected against that occasion will stamp the operations of the "Art Union of Ireland" with the successful *impresse* which we heartily believe it deserves.

ACQUISITIONS TO THE BRITISH MUSEUM.—About 100 cases of antiquities, the result of excavations in Halicarnassus and Cnidus, have arrived in London, being transmitted thither by Mr Charles Newton, the British Vice-Consul at Mytilene; as also 50 cases of similar treasures from Carthage. Amongst those from Cnidus is a gigantic lion of Parian marble, in a crouching attitude, measuring ten feet in length, by six in height, and weighing eight tons.

CURRENT BUILDING, AND OTHER TOPICS.

Never, perhaps, since the days of James Gandon and Francis Johnston, to whose genius we are indebted for those designs which have rendered our buildings architecturally celebrated, was progress in the beautification of our metropolis and the improvement of its thoroughfares more manifest than at present. On all sides we hear of extensive works projected, and some of those for a length of time regarded as hearsay and mere idle rumour, have assumed a tangible shape, and are in course of completion.

Foremost we notice our Railway Companies contributing their quota, and taking steps to facilitate public conveyance and meet the requirements of increasing traffic by the extension of their lines, or the erection of additional buildings at their present termini. The Liffey branch, from the Broadstone terminus to the North Wall, is a project of much national importance, and a necessary consequence on the unprecedented success of the "Lever Transatlantic Line," to the spirited originator of which all honour is due. To those who have not inspected the map of this line—which has been prepared at the establishment of a fellow-citizen, and as a work of topographical skill and excellence, reflects on him the highest credit [*]—we may remark, that the line will branch by a curve near the terminal buildings, and run almost parallel with the north-easterly side of the Royal Canal, of which the Midland Great Western Railway Company are likewise the proprietors, to a point on North Wall Quay, beyond the last swivel-bridge. The bill will be brought before parliament in February; but lines of deviation being reserved at either side, it would be impossible, in the present stage of proceedings, to define the exact route. It may not be generally known that at the Galway end of this railway a branch is in actual course of construction, from Eyre-square terminus to the docks, thereby ensuring direct railway communication from our quays to the pier whence the trans-Atlantic vessels start. The costly and beautifully executed terminal buildings of this company have, to a great extent, been hidden from public view, owing to the extremely narrow approach thereto by Upper Dominick-street; but this defect is in course of being obviated by the construction of a new street from the Broadstone to the Four Courts *via* portion of Church-street, near to the wing now being erected by Mr. Meade, under the Board of Public Works. Some deviations, however, have been made from the original plan, and the project is likely to be more comprehensive than was at first intended. While in this locality, we direct our footsteps towards the new bridge, destined to supply the place of that time-honoured, but dilapidated, structure familiarly known as "Bloody Bridge." Considerable progress has been made; and the river will be spanned by a single arch resting against chiselled granite abutments, and with cast iron openwork parapets, &c., the design having some architectural merit combined with simplicity and appropriateness. To the Ballast Corporation, and the skill of the engineer, Mr. George Halpin, are the citizens indebted for this decided improvement, as also for the recently erected and beautiful graving dock near the North Wall point, and the two timber wharves in course of erection near Wapping and Fish-streets.

Perhaps the project which commands the greatest share of public attention is the contemplated street, the continuation of Dame-street—to the terminus of the Great Southern and Western Railway, at King's Bridge; and though many doubt its feasibility, we are assured that it is in a fairer way of speedy accomplishment than is generally believed, and that several influential noblemen and gentlemen have taken it up in right earnest, and doubtless will carry it through; so that we may look forward to its completion before many more summers shall have passed over our heads. To save misunderstanding, however, it is well to state, that the parties identified with this undertaking are an independent body, having no connection collectively with our local Corporation, which is unquestionably an advantage rather than otherwise. The roadway will be 60 feet, with pathways at either side of 20 feet, making a total of 100 feet. The metamorphis which will be effected in the various localities through which it is proposed to pass, is palpable; and narrow and crooked streets, with their ruinous and confined dwellings will be razed, and give place to a wide thoroughfare with ranges of first-class commercial establishments at either side. This, at least, is the project; and we doubt not that if carried out at all, it will be in its entirety; and that intending builders will be bound substantially to a plan, so as to ensure uniformity.

We should mention that the designer of this great scheme is Mr. Louch, a local architect and C.E., to whom the citizens have already been under obligations for metropolitan improvements, the result of his valuable suggestions.

Again, in the neighbourhood of Amiens-street, important works are proposed to be carried out by the Dublin and Drogheda Railway Company, in the widening of their present line at the terminus; and the area comprehended by this proposal will embrace many of the ranges of dwellings parallel to, and at right angles, or nearly so, with the railway, which must *de necessitate* be removed, including Halpin's-row, Inkerman, portion of Preston-street, &c., as also the waste ground both in front and rere; and which, when effected, will cause a great and desirable change. The inclined approach for goods to the railway will be opposite to the quoin of terminus at the other side of the roadway, leading to Sheriff-street, and for some distance will run parallel to Amiens-street, curving towards the line. In the immediate vicinity, buildings of a domestic class have sprung up rather more rapidly of late years than might have been anticipated from the nature of the site, which not very long since was regarded as an almost irreclaimable swamp; and we know that many others are now in contemplation, which fully evidence that the north side is manifestly improving, and land formerly pronounced valueless, to be capable of reproduction to the owners. Passing to the south side we find the same steady march in the path of improvement which has so long characterized Rathmines, Rathgar, Roundtown, &c., where villas, single and semi-detached, terraces, &c., are springing up with an almost fairy-like rapidity, and the green sward speedily gives way to macadamized roads and populous thoroughfares, justifying the supposition that there is a universal move in that direction. We hear of a new religious edifice being intended, but do not countenance, as a general principle, the spirit which guides professional gentlemen to tender their services gratuitously, as in the first place it damages the interests of others, and is rarely prompted by any other feeling than that of gratifying vanity.

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[*] Mr. E. J. Harty, Lithographer, &c., Ulster Chambers, Dame-st.

At length we are pleased to find that a committee has been formed with a view of carrying into effect the suggestion of Lord Carlisle, happily thrown out at the inauguration of the Moore Statue, viz., to erect a suitable monument to our late distinguished countryman, "Oliver Goldsmith." Suitable let us hope it may be, or not at all! for all but the perpetrators must look with pain on the sorry production—contiguous to that proposed—assumed to be in honourable commemoration of Ireland's bard, Thomas Moore! Doctor it as they may, it must still remain a perpetual stigma on our artistic taste and national pride; and the only true remedy is a complete and speedy removal, followed by the substitution of a memorial more consistent with good taste, and better in accordance with the *personnel* of the bard; as also the provision of a fitting pedestal for the reception of his well-known diminutive but portly form, rather than the colossal proportions of the broad-backed and brawny figure now resting on the gaunt pedestal in College-street. We understand it has been finally resolved to take off the present prodigious and stooped head, substituting one looking upwards as more consistent with presumed inspiration. Unfortunately, in most of our projects in this country, merit, *modest* merit, is cast in the shade, and designs by struggling artists, however meritorious, must yield to the protegés of influential parties; and never was a case more palpable than this for the distinguished sculptor who has since passed from amongst us, and who submitted a beautiful—and his *last*—model for this statue, at once simple, graceful and truthful (as all his works were), was disregarded, and the execution of the memorial entrusted to another who, whatever may be his talents, had not the national claims of "John Hogan," and certainly did not, in this instance, produce a successful result. Let the errors of the past, however, be avoided; and let the proposed Goldsmith Testimonial be thrown open to a real national competition, and three or four competent artists, selected by the Board of Trinity College, be called in to adjudicate on the designs submitted, when prepared to carry out the one approved without any aftercomings. The recent negociations between the College authorities and the Corporation, with reference to lessening the enclosed area in front, having terminated without effecting the desired end, it behoves the enlightened Board of the venerated Alma Mater to reconsider, under existing circumstances, the details of an arrangement, whereby the double advantage of providing a fitting position for the memorial to him whose career was so intimately identified with the University, and the removal of present impediments to public traffic be attained; not to speak of the improvement which would consequently ensue, architecturally speaking, to the buildings themselves. Close by, and at either side of the University boundary, we hear of new and important structures about being raised; one, a new bank for the Provincial Banking Company, on the site of the Irish Institution, and adjoining houses in College-street, a position peculiarly adapted for the purpose; and the other an extensive club-house, for the Kildare-street Club, which will necessitate the removal of a block of houses in Leinster-street, at its junction with Kildare-street. This building, we understand, will be after the Pall Mall type, on a scale superior to anything yet achieved in Ireland; Messrs. Deane and Woodward, architects, who we doubt not will sustain the high artistic excellence of that firm, and produce a design which may be regarded as an acquisition to the city. We shall at an early period take the opportunity of again alluding to this, as to details of arrangement, &c.

After sundry alterations and deliberations, practically initiative steps towards the erection of the National Gallery for Ireland have been taken, and workmen, under the direction of Messrs. Cockburn and Son, builders, are now busily employed in Leinster Lawn. Externally, the structure will and must, as a consequence, correspond architecturally with the existing Museum; but, internally, the plan will be different; and we sincerely trust the palpable errors of the other, both as regards arrangement and *ventilation*, will be avoided. Enough, however, for our present purpose; we shall again revert to the subject as occasion may require.

Buildings for Public Speaking.—Anything that tends to prevent the voice from being dissipated in the upper parts of a building, must be advantageous to the speaker; hence *sound-boards* are placed over chairs and pulpits. But these ought not to be such as to concentrate the sound in certain points, because it follows on principle that the more we strengthen sound in these points by reflection, the more we diminish its effect in others. The parabolic sound-board is the best, since the parabola has the property of reflecting all the rays of sound which emerge from its focus. The elliptical form of building is undoubtedly the best when we desire that the sound emitted from one focus should converge to another. The nature of the walls and floor is important. If the walls have many openings, the sound will be absorbed, and the voice will not be so effective where there are so many recesses. If there are vaults, &c., under the floor, the space between the latter and the arches should be filled in with sawdust or some other substance to prevent vibration.

A RAMBLE IN OUR CEMETERIES.

Dr. Blair, in his immortal elegy on that certain receptacle of all mortality, "*The Grave*," thus writes:—

> "When self-esteem or others' adulation,
> Would cunningly persuade us we are something
> Above the common level of our kind;
> "*The Grave*" gainsays the smooth-complexioned flattery,
> And with blunt truth acquaints us what we are."

And so it is; when contemplatively inclined, a stroll in our churchyards and cemeteries is, perhaps, the best medium of awakening us to a sense, that while nature dies, and generation after generation passes away, the fruit of man's conception, "art," survives him, and leaves to posterity substantial memorials of his genius and labours. In such a mood, though—acknowledging with blushing candour—perhaps more influenced by love of the artistic than indulging in aspirations of a loftier spirit, our footsteps recently were bent respectively to the cemeteries at Golden Bridge, Glasnevin, and Harold's-Cross; the former situated in the parish of St. James, and adjoining the second lock on the Grand Canal; the second in a north-eastern suburb about two miles from Dublin, and the latter in a south-westerly direction, three miles from the General Post-Office.

Autumn and winter, though each other season likewise brings its own contemplations in such a locality, furnish elements of a corresponding character; and perhaps more suggestive of the withering influences which death lavishly disseminates, equalizing man with the objects of his toil, dear to him while living, but destined in their annual turn to strew his grave with the decayed relics of their verdant beauty.

Before entering upon our more immediate purpose, we subjoin a few particulars relative to the origin and statistics of these establishments, and we shall not fail to notice as we progress, for the gratification of the general reader, the historic and other features of the locality in which they are situated. We may mention that the first extramural burying-ground was that of St. George's, adjoining the Royal Canal, and opened in 1829; also that there is a Jewish cemetery, occupying a quarter of an acre, at Ballybough Bridge, said to have been contemporaneous with Oliver Cromwell.

The cemetery at Golden Bridge was established in 1827, in consequence of an order issued by the late Archbishop of Dublin, Dr. Magee, "that the burial service in any of the churchyards within his jurisdiction should not be read by a Roman Catholic clergyman," and for the expenses attendant thereon the Catholic Association granted £1000. This cemetery, comprising only two Irish acres, was rapidly filled, containing 22,683 bodies, and the Committee of Management subsequently became possessors, for a like purpose, of the ground adjoining the Botanic Gardens at Glasnevin, which was opened as a cemetery in February, 1832, being only nine acres in extent, but enlarged twice until it was extended to 40 acres. The funds arising from the two cemeteries, after paying the necessary expenses, were devoted to the liquidation of the fines, the ground independently being taken at 10 guineas per acre, which to a considerable extent have been paid off; and the committee have given large sums for the purpose of educating the poor—on two occasions upwards of £500 each. The original committee of management was appointed by the Catholic Association, but when a vacancy occurs new members are elected. The number of interments that have taken place in this cemetery since the commencement are—

In the general ground	...	105,914
In the poor ground	...	51,173
Total,		157,087

The poor are buried for 1s. 6d. each!

The Committee for many years gave their services gratuitously but are now paid half-a-guinea for each attendance, amounting in the aggregate to about £100 per annum on the Association.

In point of *locale* and internal arrangement, this cemetery is beautiful, occupying an extensive level area, in a picturesque village, with the meandering Tolka running close by; surrounded by high enclosure walls, with castellated watch-towers at the angles, and bounded by the Botanic Gardens and the high road respectively; most tastefully laid out in plots distinguished by letters, ornamented with shrubs, and approached by spacious and carefully gravelled pathways, with suitable fences at either side. The entrance is simple and appropriate, consisting of a graceful and lofty central arched gateway, surmounted by an entablature, and terminated by the emblem of Christianity; with a curvilinear dwarf wall of chiselled stone supporting an iron railing branching therefrom, and forming a wide area for the turning of vehicles.

Here, in the forenoon of each day, may be seen "the well-plumed hearse come nodding on, attended by the sable tribe" who mournfully convey age and youth alike to the last resting-place of all mankind! Happily, with increasing civilization, the revolting and semi-barbarous scenes which heretofore took place at funerals in this country have gradually become but matters of history, which, for the sake of humanity, 'twere better ever to bury in oblivion; and, on enquiry, we find that now, with very few exceptions, the utmost decorum is observed by all classes, even to the humblest—a fact we voluntarily digress to chronicle, as serving to dispel prejudice from the minds of strangers who judge of our country, on the magnified representations of authors—injudiciously encouraged by ourselves—and which but serve to perpetuate ill feeling and contempt for our national character.

A Roman Catholic chaplain attends daily to recite the burial-service, and the committee, until very recently, had a Protestant chaplain engaged, but, in consequence of the few members of that persuasion interred there, discontinued him. There is a Protestant gentleman on the committee.

The monuments are generally of the usual promiscuous character in point of design, but some very beautiful and tasteful structures nevertheless are to be found in this cemetery. That to which greatest interest is attached is unquestionably O'Connell's, which being in the form of a round tower, after ancient models, and beautifully executed in granite ashler, rears its conical head to a height of 170 feet; and visible to the surrounding country for many miles, marks the spot where are destined to repose the remains of him whom *all* acknowledge to have been "a great man," and which are still in the vault where originally placed after the funeral, having been brought over by the Cemetery Committee, from Genoa, at a cost of £1,200. Underneath the round tower are spacious vaults and a mortuary chapel, and the structure forms the centre of a circle approached by bridges over a *fosse*.

There is a spacious chapel, in which divine service is performed, ornamented with fine paintings, and in the Doric style, after a design by Mr. Patrick Byrne, architect. Eight new vaults have been added, at a cost of about £200—Mr. Beardwood, builder.

In proximity with the entrance is the tomb of another great national boast, John Philpot Curran, whose wit and eloquence have created for him a memorial more perpetual than the massive stonework which covers his remains.

Its superintendence to completion was entrusted to the late Mr. Papworth, architect, who adopted as his model the monument erected at Rome to Scipio Barbatius, and faithfully imitated its classic outline and details. The Association in this instance likewise paid the expenses of bringing over Curran's remains from Paddington, and the erection of the monument was raised by voluntary subscription. Amongst the remarkable persons whose remains repose here likewise we may mention the names of Mr. Ruthven, late M.P. for Dublin, to whom a monument was erected by subscription; Tom Steele, the *fides Achates* of O'Connell; Sir Simon Bradstreet, and John O'Connell. Monuments of an important class distinguish the family vaults of Sir Timothy O'Brien, Chief Justice Monahan, Messrs. Martin, the Misses Lalor, &c.

The Committee offered to bring over the remains of Thomas Moore, and provide a fitting receptacle for them in the cemetery; but the offer was declined by his widow, with warm expressions of gratitude, as also was a similar one made to the family of the late Richard Lalor Sheil.

The ingenious manner of marking the grounds by letters and figures is due to M. J. O'Kelly, Esq. (one of the gentlemen appointed by the Catholic Association as a member of the committee, and now Secretary), a means by which, on reference to the registry, any individual of the thousands there interred can be immediately found.

Next to Pere la Chaise in Paris, Prospect Cemetery at Glasnevin is, perhaps, the most beautiful we have visited, though the comparison may be slightly inconsistent, owing to the different nature of their respective sites—the one being elevated and hilly, the other lying somewhat low and occupying an extensive level surface; but we must remark that we notice in this latter the recent introduction of chapel tombs over the graves, and the yellow wreath decorations so abundant in the former. For the present, however, to save censure for tediousness, we discontinue our notice, with a view of resuming in our next, as regards the cemeteries at the south side.

A FEW PRACTICAL HINTS ON THE VENTILATION OF BUILDINGS.

DOORS and windows ought not to be taken into consideration in connection with the ventilation of buildings; they are provided for facility of ingress and egress to and within the building, and for admitting light to the several apartments, and cannot be applied to promote ventilation in the seasons and under the circumstances which make ventilation most highly desirable. It is not enough to set a window or door open to admit fresh air into an otherwise unventilated apartment, even when windows and doors can be properly set open. The air must be drawn or pressed in, and in either case there must be a way of escape for what the apartment had previously contained; and as two opposite currents of the same kind of fluid can hardly pass one another in the same orifice, the ventilation of an apartment—that is, the establishment of a current of air through it—can only be properly effected by the establishment of opposite currents through different orifices. In this manner it will be found that a fireplace with an open flue from it leading to the outer air will act in concert with an open window; by allowing an up draught to be fed by the window, or by permitting a down draught, according to the state of the atmosphere and the direction of any currents of wind; or as there may or may not be a fire in the chimney or heat affecting its flue from fire in another chimney. Open windows are seldom consistent with fires as sources of warmth, and the common domestic focal fire may not therefore be relied upon as a means of ventilating an apartment in connection with open windows. One-third of the life of civilized man is passed in apartments within buildings under circumstances which for the most part preclude open windows and render fires either inconvenient or unnecessary as a source of warmth. One-third of the lives of three-fourths of the people of England is passed in rooms which have no chimney at all, or of which the chimney opening has a board before it; and of which the doors and windows are all shut as closely as the occupiers can shut them. In the cases of the few who may indulge in bedroom fires in the winter, or of those who will open a bedchamber window an inch or two in the summer, the former allow the fire to divide with them the pent-up air of the apartment; and the latter shut down the registrar flap or put up the chimney board to prevent the circulation which the state of the atmosphere or of the wind might bring about. Air is an inert body, and will not move either in or out of any apartment unless something be done to induce movement; but it yields ready obedience to any action that does not seek to compress it, and responds freely to any endeavour to draw it.

ORIGIN, HISTORY, AND NATURE OF LITHOGRAPHY.

LIKE every other new invention when first brought into notice, this met with all the obstacles which ignorance and prejudice could throw in its way, and it was not until after years of laborious perseverance, accompanied with the difficulty of limited means that the inventor, Senefelder, established his reputation and gained for the new art its due degree of admiration. His inability to meet the printing expenses of his works, suggested the thought of devising some cheaper mode of publication. With this view his intention was first directed to several original and curious modes of stereotype, which, however, his circumstances prevented his maturing. He first experimentalised on metal and composition blocks, and then on plates of copper and tin; also with an etching needle and chemical inks, but found they possessed all the objections found in the stereotyping plan. Experiments on stone slabs followed in rapid succession, and he was pleased to find that he was enabled to take numerous impressions from the original. From this period the art has increased wonderfully and attained a great excellence. Lithography differs from printing by moveable types, wooden blocks or plates, and consists of transmitting impressions to stone, and then working off by a hand-press the quantity required.

The attraction and repulsion exhibited by different substances towards each other are beautifully applied to practical purposes in the process of lithography.[*] The drawing, &c. to be lithographed is written with a peculiar kind of ink, between which and water there is a strong repulsive action, and is transferred by pressure to a fine grained and very porous stone; or a reverse drawing is made at once upon the stone. When an impression is to be taken, the stone is wetted, and freely absorbs the moisture, except in those places that have been inked, which, therefore, will repel the water and remain quite dry. A roller containing the same kind of ink, is next passed over the stone, and the ink adheres only to those places which have repelled the water, the other parts remaining perfectly clean. So delicate is the manipulation required in this process, that touching the stone with the fingers will leave an unctuous mark, to which the ink would adhere, and which, therefore, would be accurately, though unintentionally, transferred to the paper in printing. When the stone is inked, the paper previously damped is placed upon it, and by means of a peculiar hand-press any number of copies may be struck off.

The introduction of colours into lithography is of comparatively recent date, and is achieved by the application of a separate stone for each tint. To such perfection has it been brought, that lithographs now faithfully imitate and almost compete in point of excellence with water-colour drawings.

THE PROPOSED SUEZ CANAL.—This project is about being tried by a Company with a capital of £8,000,000 sterling, in 400,000 shares of £20 each.

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[*] *Lithos*, a stone; and *graphe*, I write (Greek).

THE BUILDERS' ASSOCIATION AND THE OPERATIVES.

THE late meeting of the operatives at the Rotundo was an immense demonstration of that power which exists in the masses, when peacefully and legally exerted. As if organized in the highest degree, they poured forth their thousands upon thousands in the most orderly manner, to show that aggression should not be made upon them with impunity; and sacrificing, when need arose, an immense amount of money, *we* should say very many hundreds of pounds upon this one object. Whether it were wise or not, is not our province to decide; nevertheless, if we might offer an opinion, we should say it was premature. The operatives, naturally alive to the overwhelming and crushing power of capital when exerted in collective force, beheld in the long array of the Builders' Association, names of their most respected employers in coalition and loving brotherhood with a few who had ever warred against them; and interpreting their first and infantile breath as exerted to hurl defiance, no doubt imagined a new and potent organization looming in the future, which would threaten to annihilate the long-cherished rules and regulations of their respective bodies.

What was the origin of this? The Builders' Association issued a declaration in the form of a report, that "they would not recognize the principle which dictates a uniform standard of wages." True, they may not recognize it, but, possibly necessity, public opinion, or some other cause, obliges them to tolerate it.

We will not here enter into the question whether a uniform standard of wages is right or the reverse, or whether or not a change would tend to a depreciation of the value of labour; but for a moment let us consider the relative position of employer and operative. Is it not patent to all that the welfare of the one is intimately associated and identical with the other? Is not the builder more prosperous, while the operative is better fed and better clothed, when wages are at the highest? What is labour but the capital of the working man, which, like other mercantile produce, is borne to the highest market? If in superfluity, it must succumb; if the supply be barely equal to demand, it must hold its position. And if this be true, how can any association or combination (we might say) reduce wages?

Reading the report recently issued by the Builders' Association, we are led to understand they express an opinion of what they consider an absurdity, namely, that all operatives require to be remunerated alike. Farther we cannot incline, they have insinuated a desire to adopt classification as a rule, much less encourage any principle which would tend to a reduction of wages. Indeed, we imagine any onslaught, having the latter for its object, would be rejected with that contumely and contempt it deserves, by an overwhelming majority of the builders of Dublin.

Surely the intelligence and good sense of the operatives (and some of them have shown the mantle has not fallen over them lightly or unsparingly) must teach the puerility of doing battle against a mere opinion. This opinion may be incorrect for aught we are cognizant of, still it is but an opinion, and should be treated for so much as it is worth; therefore would it have been wiser to have awaited a more direct declaration of hostilities on the part of their employers.

But a truce to all this! A new era has opened on building. Machinery is doing its work; and, aided by steam, its giant footfall and iron rule is steadily treading its way through the length and breadth of the land, classifying the employer as well as the employed. The employer who will not evoke its aid will be speedily and quiescently placed *hors de combat*, else he dwindles to the fourth or fifth estate, with but half the independence of the operative, yet still endeavouring to grasp the shadow of his former self.

On the other hand, the operative has need keep watch and ward; as in carpentry, machine-made doors, window-frames, sashes, shutters, and mouldings *ad libitum*, are produced for less than the present cost of labour; as the arts of the sculptor, the marble mason, and stone mason are equally infringed upon, we should not be surprised if ere long the kindred crafts and mysteries of the stonelayer and bricklayer, with others of lesser note, were monopolized to some extent by the great and all-absorbing artizan of modern times. Therefore it behoves both parties to cast aside their petty jealousies, and with a good will, working hand-in-hand together, advantage themselves, while they cannot arrest its progress.

IRISH GRANITE *versus* WELSH WHINSTONE.

A PRACTICAL VIEW OF RECENT PAVEMENT OPERATIONS.

So much has been said and written of late years respecting the pavement of our city, and so great has been the outcry against the lavish expenditure of public money—collected by heavy taxation on the citizens—in mere experimentalizing, that we have jotted down a few incontrovertible facts, founded on calculation and experience, to prove the unjustifiableness of our native material being shelved to give place to the products of other countries, and of enriching Welsh quarry-men to the detriment of our own; as well as expending large sums abroad in the employment of labourers, while thousands are idle at home.

The requisites of a good paving-stone are, hardness combined with roughness; no stone combines these qualities so perfectly as "*granite*;" the feldspar in granite ranks in degree of hardness with steel, but quartz, the other principal component, ranks with hardened steel. The feldspar disintegrates before the quartz and keeps the pavement rough. But the granite must not be surface rock, softened by exposure to atmospheric influence, which from its softness is preferred by the quarrymen, being more easily wrought. Grafton-street was paved with this surface-stone in 1856, in blocks of unequal depth upon a badly-prepared foundation, which very unjustly brought Irish granite into disrepute for paving. A sample of inner close-grained granite paving sets is laid down on Essex-quay, opposite Nos. 4 and 5, procured from Foxrock at the desire of Committee No. 1 of the Dublin Town Council, by Mr. Hugh Kelly, one of its members; these stones cost 15s. 6d. per ton, delivered into Hanover-street depot; 1s. additional, or less, would probably pay cost of royalty and supervision, if the Town Council would themselves work similar granite in the vicinity of Dublin; the total cost of best inner granite would not exceed 16s. 6d. per ton, and might cost much less when wrought on a large scale, and from the inner depths of the rock.

The next best paving-stone readily available in the vicinity of Dublin, is "*limestone*," such as some to be had at Miltown, an easily workable stone, with small crystals through it like mica; this stone may be delivered in Dublin, and cut into sets similar to the shape of the Welch sets, for 7s. per ton.

"*Calp, or black limestone*," comes next; it wears smooth, but by treating it as Sir Richard Griffith recommended that the Penmanmaur stone should be treated, viz., "to make the joints wide, and fill the interstices with gravel and grout," it will afford as good foothold to horses; it costs as much as good limestone, and 1,000 tons of ashlers per week may be obtained.

The green "whinstone" in the vicinity of Dublin is very hard and unworkable; it is so refractory, and cleaves so irregularly, as to render it useless for paving sets; but there seems to be a cleavable variety in Bray Head, and when other quarries nearer Dublin shall be wrought deeper, more cleavable varieties may be obtained.

Upwards of £8,000 worth of Welsh stones were brought into Dublin in 1857 and 1858, at 14s. 6d. per ton, on the Quays, adding carriage, 8d. per ton, makes 15s. 2d. per ton on the streets; these stones are a soft, cleavable species of green whinstone, which will wear smooth and become dangerous after a few years.

In Dublin, if the best pavement be required, nothing can be better than close-grained granite from the interior rock, cut into sets, five inches broad, half an inch asunder, and any length from 9 inches to 16 inches.

But considering that the streets are constantly opened in Dublin for gas and water purposes, Miltown limestone is good enough, quite as good as the Welsh sets which cost double the price—let the streets be brought into section, and paved with small boulder or pebble pavement, well rammed, then lay on an inch or two of concrete, upon which place your limestone sets, half an inch or ¾ inch apart, each set being an oblong block, 6 inches deep, 3 inches broad, and 8 to 12 inches long, with the interstices grouted with ground lime and sharp sand; and this pavement will be found as durable as the Welsh pavement—better because rougher—at half the cost; and all the money spent in Dublin or its immediate vicinity, giving employment at home, where labour is plentiful and work scarce, keeping *our* labourers out of the workhouse, and so lessening the rates, instead of giving employment in Wales, and lessening the rates *there*.

We shall revert to this subject more *in extenso* hereafter.

The Dublin Corporation Paving Committee has advertised for—

18,000 tons of broken whinstone,
15,000 tons of broken limestone,
12,000 tons of round shingle and footway pebble.

AFFILIATION OF SOCIETIES WITH THE ROYAL DUBLIN SOCIETY.

WITH few exceptions, the attempts hitherto made to establish in Ireland—on anything like a permanent basis, capable of reflecting both credit on the promoters, and of extending benefits to the community at large—associations of a scientific or artistic character, have proved comparative failures; and even at the present time there are some which, despite the energy and enthusiasm of some of their members in endeavouring to fulfil the objects of their mission, experience a difficulty in drawing on bare existence. Why it is so? is a subject in itself, embracing too many important causes, to pass over cursorily, so we defer entering on it at present. For such, however, and for others of kindred character, but greater independence and more permanent establishment, a golden opportunity now presents itself—both of adding to their stability, enlarging their educational resources, and contributing to the mental improvement of their fellows, in the invitation of the Royal Dublin Society—that bountiful dispenser of gifts in all that relates to science and art—to come and participate with it share and share alike the innumerable advantages to be derivable from its unremitting labours, during a period extending over a century and a-half.

It is no small favour for a parent Institution like this, comprehending such a galaxy of talent amongst its professors and members—such a magnificent collection of instruction and entertaining *materiel* in its library, museums, galleries, and gardens, thus voluntarily and disinterestedly to open them all freely to others not of its own constitution, rejoicing, as it always has done, to lend a helping hand to those earnestly pursuing their way in the path of progress. Tardy as kindred societies may have been up to the present of availing themselves of the proffered advantages, we doubt not but they will speedily awake to the desirability of doing so; and for general information we append particulars of the chief heads of the arrangement whereby it is intended to carry out this excellent scheme, and we shall feel much pleasure in chronicling the names of each society applying to participate. As yet we can but mention the Dublin Statistical Society and the Dublin Photographic Society.

"The theatre or other apartment to be at the service of associated societies on the same evening as the Royal Dublin Society shall hold its meetings; and the members of both bodies to be permitted to attend." "Members of either societies attending evening meetings are to contribute sessionally 5s. towards a common refreshment fund; and members so paying, to be entitled to purchase for friends an unlimited number of tickets at 6d. each." "Members of associated societies to have free admission to the library, museum, and botanic gardens; without permission to borrow books, introduce visitors, or make use of conversation room." "One member (at least) of council of associated societies to be a member of Royal Dublin Society." "To afford mutual assistance to each other in extending the usefulness and improve the position of the entire body; to obtain for affiliated societies, on favourable terms, all publications connected with Education, Science, Literature, and the Arts, also Parliamentary Papers; to encourage such societies to establish classes for instruction in elementary education, and prepare students as candidates for certificates of the R. D. Society."

"From the bodies in union the R. D. Society requires copies of all reports and proceedings and lists of members, committee, &c. to be furnished to it; a yearly payment of £2 2s. as long as the union continues; and the president or *one* other council member to be a member of R. D. Society, &c., &c."

INSTITUTION OF CIVIL ENGINEERS OF IRELAND.

A MEETING of this body was held on 14th ult.; Mr. B. Mullin, president, in the chair. Mr. Anderson read a paper on "beam and girder bridges," being in continuation of papers read at previous sessions. The author exhibited several colored diagrams, and a beautiful model lattice beam, lent by Professor Downing, of Trinity College, for the occasion. Mr. Anderson paid a tribute to the abilities displayed by Professor Blood, Mr. Bower, Mr. J. Barton, and Mr. Stoney, who assisted him in his investigations. An interesting discussion followed, in which the president, Messrs. Mallet, Stoney, and Bower joined.

ARCHITECTURAL PROGRESS IN BELFAST.

WE were much struck, on the occasion of a late visit, with the numerous additions to the architectural features of this town; the commercial establishments especially being noteworthy for taste, originality, and excellence of design—amongst which we may particularize Hawkins', Lindsay's, Arnott's, and Mackenzie's warehouses, without disparagement to many others also. Unlike Dublin street architecture, there is a uniformity in the ranges, a boldness in the treatment, a lesser display of hackneyed features in the lower portions, and a more careful preservation of harmony in style between upper and lower storeys. The materials of the neighbourhood, doubtless, contribute to the effect of the *toute ensemble*; red brick walling and Scrabo stone or Portland cement dressings, cornices, &c., being predominant, producing a warmth of colour and a contrast very pleasing and artistic. Plate glass, of large dimensions, is coming into general use, and an example worthy of being followed is set in the extreme cleanliness and tasteful dressing of the shop windows. Many public buildings are in progress, but as their importance demands special notice, we defer entering into particulars until a future opportunity.

TURKISH BATHS IN IRELAND.

THE introduction of the "Oriental Hot-air Bath" into Ireland, and more especially the recent project of new buildings to be specially constructed for the purpose at Lincoln-place, Dublin, and subsequently at Bray—as designed by Sir John Benson for Mr. Dargan—having caused a considerable amount of interest and curious inquiry respecting their principle, we subjoin the following extracts from a valuable paper read by Dr. Haughton at the Royal Dublin Society:—

"Two objections are made to the use of the oriental baths; the first, that they are unsuitable to this climate, and the second, that they consumed a great deal of time in taking them, and, therefore, could not be generally resorted to in a mercantile community. In order to show how groundless are these suppositions, I shall lay before you some facts which establish the adaptability of the 'Hammam' to all temperate climates; also the characteristics of the bath. That part of the bath more peculiarly eastern is the hot-air chamber, discoverable amongst some of the oldest ruins, whereas the warm-water bath (such as we use) is quite a modern invention, having been never used by the Greeks at a time when they were considerably proficient in the art of bathing, and were in the habit of making it a daily practice.

"Great truths, although often neglected and even sunk in oblivion, are never suffered by the Creator to be forgotten, but some one always remains to bear witness to them, and in many cases the ruins of their ancient glory remain to declare their excellence, and reproach us with our degeneracy. The importance of physical culture, and its profound appreciation by the ancients, is one instance of this; nor does the additional cultivation now bestowed upon the faculties of the mind, at all exempt us from the evil consequences resulting from neglect of the grosser part of our nature. I may mention a few out of many countries where an inquiring mind may find sermons in stone and mortar on this subject, and convince itself that the salutary practice of bathing always has been, and still is, appreciated in almost every quarter of the world, except the *small portion of it* which we are in the habit of considering to have gone so far a-head of those nations from whom it received the arts and sciences, as to be incapable of learning anything further from them. Interesting remains of the hot-air bath, whose antiquity tradition does not attempt to fathom, still exist in the district of Lebanon, in Assyria, Egypt and Morocco. Italy abounds in them, and even France and England furnish us with abundant evidence that, hundreds of years ago, this kind of bath was in full operation in this very climate. The American Indian is well acquainted with its remedial virtues, and frequently has recourse to it; and the very same thing is now done in different parts of this island by the uneducated peasantry, with the happiest results.

"Two varieties of sweating-houses (as they are called) exist in Ireland; one capable of containing a good many persons, and the other only intended for a single occupant."

The following is from a description by the Rev. Robert Gage:—

"In general, Rathlin is a very healthy place, and many of the people have attained to a good old age. Asthma is the most common disease, probably arising from the sulphureous vapour emitted from the turf or peat, with which it is strongly impregnated. Of late years, however, it has been less frequent, owing, perhaps, to the improved state of the cottages. Pulmonary consumption is very little known here. When the people are attacked with rheumatic pains, they have recourse to a remedy of long standing, in the efficacy of which they have great confidence. In several parts of the island small buildings, called 'sweat-houses,' are erected, somewhat in the shape of a bee-hive, connected with stones and turf neatly put together—the roof formed of same material, with a small hole in the centre. There is also an aperture below, just large enough to admit one person on hands and knees. When required for use, a large fire is lighted in the middle of the floor, and allowed to burn out, by which time the house has become thoroughly heated; the ashes are then swept away, and the patient goes in, having first taken off his clothes, with the exception of his under garment, which he hands to a friend outside. The hole in the roof is then covered with a flat stone, and the entrance is also covered up with sods to prevent the admission of air. The patient remains within until he begins to perspire copiously, when, if young and strong, he plunges into the sea, but the aged or weak retire to bed for a few hours. This primitive vapour bath has been successful in removing pains of long standing, and people from the mainland have come for the express purpose of trying its efficacy. It is not, however, applied exclusively to the cure of disease, for the young women not unfrequently resort to it after burning kelp, to clear their complexions, especially if it should happen *to be near the time of a Ballycastle fair*. As the heating of the sweat-house is considered rather expensive, from the quantity of fuel required, a number of persons go together, and but for the darkness of the place, would present a sufficiently ludicrous appearance. The period of remaining is discretionary with the patients, but at the end of half an hour the house is generally cleared, and the fresh air once more admitted, until its services are again required."*

NEW CHURCHES IN MELBOURNE.

PLANS are at present in course of preparation by Mr. Moran, architect, of this city, for two new Roman Catholic churches, to be built in the diocese of Melbourne. One comprises nave, chancel, sacristy, and tower at north-east angle; is in the early English style, and measures in the total 115 feet by 85 feet; has open timber roof chamfered and stained, triple lancet windows at east and west ends, and single lancets at sides. The other is in the style of 14th century, comprising nave, chancel, sacristy, and lateral chapels, and tower at west end; dimensions—145 feet by 60 feet in the clear, with confessionals outside; open timber work and partially panelled roof, great five-light east and west windows, clerestory and nave; three-light windows, with tracery. An elaborate screen separates nave from chancel. Mr. Moran is also architect to Ballyvaughan and Galway Augustinian new churches.

COMPETITION.

A LIMITED competition is about to take place for a new church to accommodate 1,500 of the Molyneux congregation, the Rev. Dr. Fleury, Minister. The cost will be about £7,000, and the architects competing are Messrs. M'Curdy, Burne, and Rawson Carroll.

IMPROVEMENT OF VICTORIA, AUSTRALIA.—It is intended to expend a sum of £1,545,000 in public works in this colony, which is rapidly extending.

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* To be completed in our next.

Correspondence.

AMATEUR ARCHITECTS AND BUILDERS!

DEAR MR. EDITOR—Amongst the many duties both to the profession and the public which devolve on you in the responsible undertaking you have commenced—and which I sincerely trust you will succeed in carrying out advantageously to yourself—there is not one of less moment than that of showing up, in their true colours, those egotistical and self-sufficient people who assume the office of "architect and builder" with as much confidence, and more so, than if they had been regularly trained to them. What, sir, is it that gives birth to such architectural monstrosities as we daily notice perpetrated in our commercial and domestic dwellings but this? Individuals, rich in pocket but poor in heart, to save the petty commission to which the professional man is entitled—which is only equal to that of the agent who "lets a house or a farm," and *half* what is paid to an auctioneer for a stroke of his hammer—undertake buildings on their own account, commencing with the designing (save the mark!) and ending with the superintendence of the various artificers' works necessary even to completion. Surely it is no wonder to see in such cases walls not parallel, at right angles, or plumb, though intended to be so; windows and doors badly hung, and split in all directions; cracked plastering, leaky roofs and gutters, settlements, &c., not to speak of the general absence in systematic arrangement internally, and suitable elevation externally. Many of this class might as reasonably undertake the designing and construction of a complicated piece of machinery, for all that they know about either, and though at first imagining that they are doing it "very knowingly" by having neither architect nor builder, but acting in the double capacity themselves, and engaging an inferior class of workmen to adapt materials picked up at auctions and rubbish sales; they ultimately find that they have paid "too much for their whistle." With such a course pursued, may I ask, sir, how is to thrive

A MAN WHO UNDERSTANDS AND MUST
LIVE BY HIS BUSINESS.

MERE SKETCHES!

SIR—I should like to know if I, of my professional brethren, am singularly unfortunate in meeting with parties intending to build, who, to guide them in their work, only require an architect's services as regards *mere sketches!* How painfully ludicrous is it to witness the undercurrent of niggardliness so manifest in clients who, to save the professional percentage, seek to barter for a sketch and an *outline* specification, impressively arguing that same could be executed in an immoderately limited period by an *expert* architect, and placeing a value on the *manual* labour thereon, with no consideration for the *mental*, or the time previously occupied in studying for and attaining a professional position. C.

Notes of New Works.

A new District Model-school is to be built at Derry, according to drawings prepared at the office of Public Works. The plan is a parallelogram, with a frontage of about 208 feet, broken by many projections; the main building—two stories high with basement—comprehending a recessed centre of 57 feet in width, with gabled wings at either side of 22 feet in width, in which the drawing-school and pupil-teachers' room are respectively situated, and approached by a corridor which also leads to a maratime school 18 feet square; master's room, office, and boys' school, 50 feet by 40. Beyond main building is a lower connecting structure with high pitched roof, and containing museum and library, infants' and girls' schools, 48 feet by 25; and boys', infants' and girls' class-rooms. The style is early English; and the gable containing pupil-teachers' room has a projecting bay window, with three light-pointed arched windows above it; and the outline of the gable is picturesque, being broken at one side by a buttress surmounted by a chimney flush with front, and quaintly terminating near apex. Dormer windows, tall chimneys, and finials of appropriate character are introduced. In corresponding gable will be a large three-light window, with trefoil heads formed in a large ope. Connected with this gable by a recess of 28 feet, is seemingly a flank divided into 3 bays, with triplet windows and tastefully designed buttresses between, at the termination of which is a projecting gable with 8 light window and wheel over same and a tall projecting chimney at the side. The walling is to be rubble of greenish tint, and the dressings of Scotch stone. The design reflects credit on the author, and is an improvement on other scholastic buildings proposed by the same establishment.

A conventual chapel, 70 feet in length and 20 in breadth, has been added to the Presentation Convent, Enniscorthy.

Building operations at Bray are likely to be more extensive next year than they have been hitherto. Mr. Dargan having purchased a large tract of ground from Mr. Quin, is about erecting two pair of semi-detached villas and terraces of commodious dwelling-houses, also Turkish baths on a large scale; of which, we understand, Mr. Cunningham is the contractor. For the former Mr. Wilkinson is the architect, and for the latter Sir John Benson. A new church is in progress from designs by Mr. Barre; as also are some works of a domestic class from the designs of Messrs. E. Carson, Burne, and J. J. Lyons, architects, respectively.

Mr. Hugh Kelly has been declared the contractor for the erection of the new buildings at Mount Argos, near Kimmage, intended for conventual purposes. The plans were made in Rome, and the superintendence is entrusted to Mr. Patrick Byrne, architect. Full particulars shall appear in next No.

The foundation-stone of a porcelain factory has been laid at Belleek, County Fermanagh.

A new hall for Protestant meeting purposes is to be erected at Cork. Upwards of £700 has been already subscribed; Lord Bandon and Allessandro Gavazzi having contributed £10 and £5 respectively.

The Catholic Young Men's Society has taken the Music-hall in Lower Abbey-street, with a view to its conversion into a lecture theatre, reading-rooms, library, class-rooms, &c., for the use of that body. We understand an architect has tendered his services gratuitously, and that plans have been prepared.

The Ecclesiastical Commissioners are about having extensive works executed at the churches of Desertaghill, Co. Derry, and Tomb (Camolin), Co. Wexford; and they also intend enlarging and repairing the church of Drumkeeran, Co. Fermanagh.

A new convent for the order of St. Bridget is to be built at Goresbridge, Co. Kilkenny; and Lord Castlerosse has subscribed £100.

The Guardians of the Limerick Union are about erecting, for the use of the Catholic inmates, a chapel to cost £500—the dining-hall being at present used for divine worship.

The new parochial church of Blessington is in progress of completion, from the designs of Mr. M'Carthy, R.H.A., architect. It comprises nave, transept, sanctuary and chancel; is in the Gothic style, and measures from east to west, 90 feet, and across transepts, 60 feet. Mr. Robert Farrell, of Lombard-st., the builder. Expenditure about £2,600.

The first stone of a new community residence for the missionary oblates of Mary Immaculate, has been laid at Inchicore.

A colossal statue is to be erected at Carlisle, as a memorial of the late Mr. Samuel Steele.

The new monument to the memory of Hugh Miller, is in progress of erection at Cromarty.

Railway Notes.

Messrs. Malcomson, brothers, have invested £83,000 in preference shares of the Waterford and Limerick Railway.

The Clonmel and Dungarvan line has been abandoned, partly owing to the engineer not being able to complete the plans within the time required by standing orders.

Arrangements have been made for transferring the Waterford and Limerick Railway to the Great Southern and Western.

Mr. Dargan is the contractor for the Tuam and Athenry Railway at £67,000.

The Banbridge and Lisburn Railway is being laid out by Mr. Blakiston, C.E.

The proposed railway from Londonderry to Letterkenny consists of three parts: from Pennyburn to Farland Point, thence to Newtowncunningham through M'Cormick's slob-land, at Inch Level; and at Newtowncunningham another extension under other management. The distance to Letterkenny is 21 miles. Neccessary preliminaries have been completed.

IMPROVEMENTS IN SUBMARINE TELEGRAPHS.—An improved cable has been invented on which the outer fold of wires, instead of being disposed spirally (like an ordinary rope) round the core, are plaited or braided like the woollen covering to the cords of window-blinds.

THE PONTIFICAL RAILWAY CARRIAGES.—The carriages specially constructed for the pope comprise a sort of terrace, an ante-chamber, a throne-room and a bed-room. The throne-room is magnificently fitted up, and decorated with paintings and figures. The bed-room has blue hangings, and is adorned with a superb painting of the Immaculate Conception, by Millet. The exterior is tastefully decorated with objects in bronze.

Reviews.

The Law of Patents, for Inventions in Ireland, and Registration of Designs.—(O'Gorman) Dublin.

WE beg to direct attention to this excellent and most useful treatise, by James P. Byrne, Esq.; and in common with our contemporaries recommend it to the mind of every man who is capable of contriving an invention. Everything that could be said in praise of any work, has been said of it—*we* could scarcely add a word, without repetition. This, however, we may observe, that if, as it was truly said, the first edition was "so very cheap that it should be placed on every library and office table," the second is *cheaper*, for it is published at half the original price. Hitherto Inventors in Ireland—the poorer classes especially—laboured under extreme disadvantages as regarded economy and facility in getting their inventions patented and designs registered, being obliged to place themselves in the hands of London agents, thereby incurring both extra outlay and increased delay, which under many circumstances may prove most detrimental, and which all conversant with the routine observed in some offices in Chancery Lane will readily understand. To remedy this, however, Mr. Byrne has not only prepared a lucid exposition of the law as regards Patents, &c. in this country, but offers through the medium of his own agency a systematic and direct mode of protection combined with comparative enconomy and increased facility.

Rural Architecture. By John White, Architect. Blackie and Son, Glasgow and London, &c.

THE author of this work has fulfilled his task somewhat more creditably than the generality of those who, like him, publish the unmatured offsprings of their imagination in the shape of designs for public or private dwellings; and which are usually replete with features offensive to a professional eye, calculated to act detrimentally on public taste, and materially to injure the practice of legitimate practitioners. Though the designs in the book before us do not, in *some* respects, exactly correspond with *our* taste, either in point of arrangement or external contour, nevertheless, we feel bound—assuming that architects like doctors, *may* differ—to state, that there are many meritorious features introduced, especially in the details, and that from its perusal and examination architectural students may derive many valuable suggestions.

Continental Notes.

A statue of Peter the Hermit has been inaugurated in the gardens of the old monastery of Neumoustier.

A marble statue is about to be raised by public subscription at Nice, in honour of Massena.

The Academy of Fine Arts, at Copenhagen, have elected as honorary members, Sir Charles Eastlake, R.A., Sir Edwin Landseer, Sir Charles Barry, Professors Cockrell and Donaldson.

NEW MONUMENT IN PERE LA CHAISE.—Amongst the recent additions, those of "Rachel," the actress, and "Alfred de Musset," the poet, are the most noteworthy. The former consists of a small Grecian chapel, with the word "Rachel" between two crowns, and a diadem carved over the entrance, and is situated to the right of the Israelite ground; and on that of the latter a marble bust of the deceased has been placed, with a weeping willow in front, and on the extreme side a verse from his work is engraved.

The telegraph between the Dardanelles, Syra and Chio has been successfully laid, but that between Candia and Egypt has been broken.

The new church of St. John the Evangelist, recently erected at Pittston Pa, was solemnly dedicated recently.

Messrs. Deane and Woodward, of this city, architects, designed the new offices recently erected in London for the "*Crown*" Life Assurance Company. The front elevation is of a highly decorative character in the Byzantine style, and a variety of colour is produced by the adaption of different stones, marbles, &c.

Fifteen hundred pounds have been received towards the erection of the George Stephenson monument.

Miscellaneous.

MECHANICAL LABOURS OF THE ANCIENT EGYPTIANS.

The history of Egypt presents nothing more wonderful than the magnitude and durability of the public works which were accomplished by her ancient inhabitants. Prodigal of labour and expense, her architects appear to have planned their structures for the admiration of the most distant posterity, and with the view of rendering the fame of their mechanical powers coeval with the existence of the globe itself. It has been suspected that the omnipotent spirit of religion mingled with the aspiration of a more earthly ambition, in suggesting the labyrinth, and in realizing the vast conception of the pyramids. It must be acknowledged that in countries comparatively rude, vastness of size takes precedence of all other qualities in architectural arrangements; and as a proof of this, it will not be denied that even the pyramids sink into insignificance when compared with an undertaking proposed by Stesicrates to Alexander the Great, viz., the conversion of Mount Athos into a statue of the victorious monarch; the left arm to be the base of a city containing 10,000 inhabitants, and the right to hold an urn, from which a river was to empty itself into the sea. Herodotus speaks of the labyrinth as one of the most surprising efforts of human ingenuity and perseverance; and is said to be superior in magnificence to the temples of Ephesus, Samos, and other Greek structures. There are 3,000 apartments—1,500 above ground, and a like number below. The pyramids during several thousand years have attracted the curiosity of travellers, and given rise to much learned disquisition. In the erection of the largest pyramid 100,000 men were employed, who were relieved every three months; ten years were spent on the road whereon the stones were to be drawn, and twenty years in the formation of the pyramid itself, which is composed of stones skillfully cemented together, and none of them of less dimensions than 30 feet. The machinery for raising the stones is said to have been of wood, and necessarily rude, and by these tier after tier was completed; but *we* fear it must remain for ever a matter of conjecture how solid blocks of many hundred tons weight were separated from the adjoining mountain and lifted into the air by the means then at command. The dimensions of the great pyramid is stated, according to Herodotus, to have been 800 feet at base, and same height, though Davison says the length of the sides was 746 feet, and the height 461 feet only. Various dimensions are given, but it is difficult to know on which to rely. Belzoni ascertained the dimensions of the second pyramid to be at base 684 feet, and height 456 feet. The sphinx, another Egyptian curiosity, representing a *couchant* figure of a beautiful woman combined with the body of a lion or other animal, and with outstretched paws 50 feet in length, was found to be 27 feet high above ground, 30 feet wide at the breast, and its entire length about 113 feet; but, according to Dr. Richardson, it is 120 feet, and the elevation of the head above the sand from 30 to 35 feet. A temple was erected at Sais in honour of Minerva, and the sanctuary brought by Amasis from Elephantine consisted of a *single* stone, and the carriage of it employed 2,000 men—all sailors—for three years; the length being 21 cubits, the width 14 feet, and the height 8 feet. It was placed at the entrance of the temple, and the reason assigned for its being carried no farther is "that the architect, reflecting upon his long fatigue, sighed deeply, and thereby alarmed the king, who considered it as a bad omen." The practice of erecting monolithic temples or sanctuaries hollowed out in a single stone, was very general in Egypt; but we question whether, with all the appliances of machinery now-a-days our mechanics could remove from a quarry and convey to a distance of 400 miles masses of rock 32 feet long, 21 feet broad, and 12 feet in height? Among the mechanical labours of the ancient Egyptians we ought to enumerate some of those extensive canals or water-courses, which were constructed either for the purpose of irrigation or of facilitating the transactions of commerce. In reference to the former class, we may particularize Joseph's river, as only one instance out of many in which the skill of the artificer rivalled the magnificence of nature. As a species of water conveyance, the canal which connected the Nile near Bubastis with the Red Sea at Arsinoë, in the vicinity of the modern Suez, was the most remarkable. Of the 92 miles of inland communication of which it consisted, 65 were accomplished by human labour. Aristotle, Pliny, and Strabo ascribe the cutting of this canal to Sesostris. *Facts* such as *these*, with many others too numerous to mention, suggest to reflective minds the question, "Are *we* progressing in everything?"

Economy of Risk and Labour.—Whatever diminishes the risk to life or health in any mechanical operation, or any exertion of bodily labour, lessens the cost of production by diminishing the premium, which is charged by the producers to cover the risk. The lightning conductor diminishes the risk of property, in the same way that the safety lamp diminishes the risk of life, and by this diminution the rate of insurance is lessened, and the cost of production therefore lessened.

The Positive Influence of Science in the direction of labour, is exhibited in the operations of mechanics and chemistry applied to the arts, in the shape of machines for saving materials and labour, and of processes for attaining the same economy. *These* are the influences of science upon labour; not so direct as the mechanical skill which has contrived the steam-engine, or so indirect as the operation of ethics upon the manufacture of a piece of woollen cloth; but which confer a certain, and in some instances enormous benefit upon productions by the operation of causes which, upon a superficial view, appear to be only matters of laborious but unprofitable speculation.

Building Materials in Co. Wexford.—There is a remarkable sandstone formation nearly in the centre of the county at Knock-a-boka, near the Harrow, bearing a close resemblance to the Caen stone, but which for four or five centuries has remained concealed. It can be worked at one-third cost of granite. In point of durability it is said to be excellent. After the arrival of the Anglo-Normans in the county, they erected several extensive ecclesiastical edifices chiefly of this stone, and many remains of it, where used for columns, fonts, &c., are still found in a high state of preservation. Slate likewise abounds in this county, but it has not been as extensively applied to building purposes as that of other localities in Ireland. The clay in north Wexford is said to produce bricks approximating in quality to the well-formed and durable Flemish bricks; and is capable of being moulded and fashioned like Terra Cotta. Limestone rocks are found in the vicinity of Wexford and Hookhead, and yields a lime stated to be equal to the blue-lias lime of England.

Ancient Fortifications in North America.—In the State of Ohio there are numerous remains. At Cincinnati there is a circular wall or embankment, 800 feet across; the bank is 30 feet thick at the base, and from three to six feet high. There are several others of smaller dimensions, besides four mounds, one of which is 27 feet high, and 440 feet across. On the summit of an elevated hill, two miles below Hamilton, the walls of an ancient fortification enclose 80 acres of ground. In Highland County, two miles west of Chillicotta, there is a wall of stone from 12 to 15 feet high, and 4 or 5 feet thick, which encloses upwards of 100 acres. Near Piqua, in Miami County, there is one which encloses about 17 acres in a circular form; the walls all around are built of stone carried from the river, 600 yards distant. A wall, from 4 to 7 feet high, extends seven miles from the Great to the Little Scioto river. The trees growing on these cannot be less than 400 years old. There are remains of the same kind all the way from Ohio south and south-west to the Floridas. They are also found in Michigan to the north. On the river Huron in that district is a fortress with walls of earth quite the same as those of Ohio and Kentucky; another, 3½ miles below Detroit, enclosing several acres in the midst of an extensive marsh, with a breastwork 3 or 4 feet high. On the west of Lake Michigan is a circular breastwork with flanks reaching to the river, 4 feet high, extending nearly a mile, and capable of protecting 5,000 men. The outlines had been traced in angles, like modern fortifications.

Science and Labor.—Individuals whose occupations are chiefly of a laborious and physical nature, are exceedingly apt to draw invidious comparisons betwixt the value of their own efforts and that of those classes of men who mainly depend for their subsistence on the exercise of their mental faculties. To do so, however, is quite adverse to the principles developed by political economists, and in reality quite unworthy of any man laying claim to the most common understanding. It is only by the extraordinary combination of science with genius and capital, that the working man is furnished with employment, or enabled to support his family; and without a body of men in the country, whose labour consists simply of *thinking*, society would fall in pieces, and poverty visit the fireside of the artisan and peasant. Both mental and physical labourers, however, are working classes, and each should learn to know the value of the other. No one can say that *mental* labourers are not workers; they are, taken as a class, the hardest workers in the community.

Right Direction of Talents dedicated to Art and Literature is all that is required from those who address themselves to those pursuits. He, therefore, who beguiles a vacant hour of its tediousness, by some effort of intellect that captivates the imagination, without poisoning the morals—and he, who by the exercise of his art produces forms of beauty, which awaken in the mind that principle of taste which more than any other faculty requires cultivation—have each bestowed benefits upon the world, which may be accurately enough measured even by the severe limitations of political economy; they are profitable labourers and benefactors of their species.

Workmen's Wages.—If wages were fixed by law at a high rate, and population to continue to increase, the consequence would be, that a portion of workmen would be employed at such rate, but the rest would be reduced to beggary. On the other hand, if the rate fixed by law were too low, then all would be fully employed; but the most industrious and valuable workman would be reduced to a level with the idle and ignorant; which proves that the restrictions which well-meaning people would impose for the better regulation of wages by boards of trade, are worse than useless, inasmuch as their tendency is to prevent the extension of manufactures, and diminish the employment and value of labour. Wages never can be maintained above their natural level by artificial means; their natural level depends upon the proportion which the population or supply of workmen bears to the demand for labour or extent of employment; which depends upon our superior powers of production, improvements in machinery, and amount of accumulated capital. The interest of the workman and his employer are the same, and prosperity depends upon their united industry and ingenuity.

LONGEVITY *versus* OCCUPATION.—*Masons* inhale particles of sand and dust arising from the chippings of stones. Their frequent exposure to the vicissitudes of the weather, muscular exertion in lifting weights, and sometimes their addiction to intemperance, promptly take effect on their physical state. The bronchial membrane often becomes chronically inflamed from the inhalation of the dust, and dissipation makes their constitution susceptible of atmospheric changes, and hence they are frequently affected with pains in their limbs. Masons are shortlived, dying generally before they attain the age of forty. *Miners* suffer considerably when employed in sandstone ore, but not in limestone. They seldom work more than six hours per diem, yet they rarely attain the age of forty. Smelting is a most fatal occupation; the appearance of the men is haggard in the extreme. Fork-grinders who use a *dry* grindstone, die between the ages of twenty-eight and thirty-two, while table-knife grinders who work our *wet* stones, survive to between forty and fifty. *Turning of cast iron* is very trying; *draw-filing cast iron* is a very injurious occupation, the dust being abundant, and rising so as to blacken the mouth and nose. The lining membrane becomes first affected and preternaturally dry; next the air tube, then respiration is difficult, and an habitual cough is produced. The common termination of the existence is bronchial or tubercular consumption. *Filers* are most unhealthy men, and remarkably short-lived. *Plumbers* are exposed to the volatilized oxide of lead which rises during the process of casting. The common working of the metal also seems to be deleterious. *Carpenters* are not supposed to last in their utmost vigour above eight years. Almost every class of artificers is subject to peculiar diseases, occasioned by excessive application.

COMBINATIONS.—There is hardly anything more odious in our great manufacturing and trading system than combinations, whether of masters or workmen. They are neither more nor less than conspiracies to secure private and unnatural advantages at the expense of the public, and in their character are essentially opposed to those generous and really profitable principles of free trade which all sound thinking men are now ready to advocate; and which at least the working classes have been long strenuous in insisting upon as necessary for their welfare. We hold it as an imperishable maxim in our general economy that everything vicious will sooner or latter find its level. Labour, like gold and silver, can be made valuable by its scarcity only and no other contrivance. All the acts of legislation, all the combination and devices amongst workmen and themselves, must fail in rising to a high price that which is redundant.

CITY OF NEW YORK FREE ACADEMY.—This building is situated on the south-east corner of Twenty-third-street and Lexington-avenue in the upper part of the city, being convenient of access from all the great thoroughfares. The style of architecture is the same as that of the towns and colleges of the fourteenth century in Europe. The dimensions are as follows:—length 125 feet and breadth 80 feet, height to eaves 65 feet, and to top of gable 100 feet, to the top of towers 110 feet. It is divided with a basement 9 feet in height, with three other storeys, and a great hall 125 by 60 under the roof, which is of high pitch and constructed of open timber-work with carved ribs, &c.; at intervals dormers are introduced. Expenditure, without the furniture, 46,000 dollars. Mr. Renwick, architect.

PERFECT SCAVENGERING is the first essential to cleanliness, and to the protection of the air from pollution in and about buildings, the *excreta* arising from which are dejected into dry sand or gravel; whilst the soil drainage of buildings will not supersede the necessity of scavengering; nor, having regard to the wholesomeness of the locality, ought it to be preferred to the dry cesspool where the dry cesspool is available to the effect already indicated; unless provision be first made for scouring the contents away, and for removing directly to the upper air the gases which they will evolve in their passage. *Our local Corporation should observe this.*

OAK PAPERS.—The invention of Mr. John Strather, of Hull, for producing oak or "wainscot papers," has lately attracted considerable attention. The grain, being printed from a piece of the wood itself, is perfectly true to nature, and far surpasses any produced from blocks engraved by hand. From the same piece of wood, the pattern can be varied almost *ad infinitum*, for by simply taking off a shaving a different design appears.

Science, when well digested, is nothing but good sense and reason.

DEMAND FOR IRON.—The total make of pig iron in 1857 was 3,659,447 tons, against 3,586,377 tons in 1856. Of this quantity 918,000 tons were made in Scotland, 1000 tons in Ireland, 1,007,776 in Wales, and the remainder in England. The shipments of Scotch pig iron in 1857 were 267,446 tons foreign, and 559,036 coastwise. The foreign quarters to which it was sent were—42,200 tons to the United States, 15,300 to British North America, 67,700 to France, and 81,100 to Germany. To America the shipments are falling off of late, but to France and Germany the supplies of our iron are increasing. The shipments of pig iron, bundle, bar, and rail iron from each of the principal ports in 1857 are particularised. Glasgow, Middlesborough, Newport, Cardiff, and Liverpool are those chiefly interested in the trafic. The exports of British metals in 1857 show a sonsiderable excess in quantity over either of the two preceeding years. The iron and steel of differnt kinds amounted in bulk to 1,539,386 tons, lead 22,100 tons, tin 43,758 cwts., and copper 25,221 tons. In the aggregate, the declared value of our British metals shipped, reached £18,500,000; and this is exclusive of the large imports of foreign and colonial metals, and re-exports of the same—a trade in which no other country comes near us. The active operations of our mining districts, are at least indications of progress.

BOILERS IN KITCHEN RANGES—SERVANTS BEWARE!—If a boiler become red hot, or even nearly so, owing to neglect in keeping a supply of water therein; the water when afterwards thrown into it may assume the spheroidal state, and then flashing into steam of enormous pressure will burst the boiler, causing destruction of property and possibly *loss of life* by the explosion. Even when boilers are self-supplying. they should be carefully watched, for an impediment in the pipe will cause the supply to cease. Water begins to be spheroidal at something less than 500° Fah. Incautious servants sometimes leave the boiler-lid open for several hours, which gives vent to evaporation, and not unfrequently throw in volumes of water into a nearly empty boiler, to the imminent risk of their own lives, for the reasons above stated. Proprietors of houses cannot be too cautious both in seeing their gas *properly* turned off into the street-main, and their kitchen boilers kept constantly filled, or nearly so, with water.

THE SCREW *versus* THE PADDLE.—The various inconveniences attending the use of paddle-wheels have caused them to be more or less superseded by the Archimedean screw. Though its general application to steam-vessels has only been of comparatively recent date, it was used at New York by Mr. Bushnell of Connecticut as early as 1776, to propel a submarine boat contrived to fix to the bottoms of ships an explosive preparation to blow them up. It consists of a variable number of feather-edged paddles constituting portions of a plane wrapped round an axis, in such a manner as to be attached by its edge and form parts of a screw having a thin but very deep thread. The axis to which these are fixed pass through a water-tight compartment into the vessel, and motion communicated to it by a steam-engine. The screw is usually fixed in an aperture in the dead wood exactly in front of the rudder, and is sometimes so arranged as that it may be lifted off when not in use. To produce any effect, it must move with considerable velocity, hardly obtainable from an ordinary steam-engine. The screw causes little disturbance in the water; it is always submerged, which is not the case with paddle-wheels, one or the other of them being, in rough weather, often completely raised out of the water, rendering them not only useless but cumbersome.

SELF-PAYING MUNICIPAL IMPROVEMENTS.—The great alterations made to some of the thoroughfares in Paris during the last seven years, whereby 3,725 old houses have been demolished, and 8,187 new mansions and spacious streets constructed, appear by a recent report of the Prefect de la Seine, to have left, after deducting all expenses, a large balance in favour of the municipal exchequer.

To Correspondents.

WE have to acknowledge the receipt of numerous letters from various parts wishing us success in our undertaking, and for which, as also for the substantial co-operation extended by our Subscribers and Advertisers, we beg to tender our grateful thanks collectively.

NOTICE.

Orders for Subscriptions to, and Advertisements for, THE DUBLIN BUILDER, *will be received at the Proprietors' Office,* 17, *Lower Gardiner-street, or by Mr. Mason,* 24, *D'Olier-street;*

At CORK, *by the Agent, Mr. S. M. Peck,* 40, *South Mall, Mr. Massy, Mr. Murray. and all Booksellers;*

At BELFAST, *by the Agent, Mr. Francis Dowd,* 47, *Townsend-st.; Messrs. Henderson, Phillips, Gribbin, and all Booksellers;*

At GALWAY, *by Mr. T. J. Connolly, and Mr. Wade, Booksellers.*

Yearly Subscription (payable in advance), 3s.; *per post,* 4s.

Miscellaneous.

ART-UNION OF IRELAND,

Established under the auspices of the Irish Institution, according to Act of Parliament, on the system of Money Prizes, with the right of selection in every case by the Prize-holder.

ANNUAL SUBSCRIPTION—ONE GUINEA.

One chance in the Annual Distribution for each Guinea subscribed. The first distribution in April, 1859.

Trustees—Right Hon. Maziere Brady, John Barton, Esq., and Sergeant Berwick, Q.C. Treasurers—The Bank of Ireland and its branches. Secretary—George F. Mulvany, Esq. Clerk—Mr. T. H. Killingley.

Office, No. 73, GRAFTON-STREET, Dublin, where all communications may be addressed, and subscriptions will be received. Prospectuses sent free by post.

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Incorporated A.D. 1720, by Charter of George the First.

Chief Office—ROYAL EXCHANGE, LONDON.
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FIRE, LIFE, & MARINE ASSURANCES, on liberal terms.

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SPECIAL NOTICE.

In case of Death occurring during the Thirty Days allowed for payment of a Life Premium, and before such payment has been made, the Corporation hold themselves liable under the Policy, provided the Premium be subsequently paid on or before the thirtieth day from that upon which it became due.

THOMAS TROUTON, AGENT,
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MOTTU WATCHES.

WE have just received a Consignment

of the above celebrated Geneva Watches, unequalled as Timekeepers, and for their chaste design and exquisite finish. They comprise every variety of escapement, in Gold, Silver, and Enamel, Hunting and Open Cases. They have been manufactured expressly for our establishment, on Cash Terms. and we now offer them for Sale at a small profit on the first cost, and much under the price usually charged for far inferior Watches. We will give ten years' engagement with each Watch.

C. MARSH AND CO.,
Watch and Clock Makers, Jewellers, & Silversmiths
Electroplaters and Gilders,
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(Exactly opposite the Post-office Clock).

N.B.—Workshops on the Premises, for the prompt, efficient, and economical execution of all kinds of Orders and Repairs.

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MATHEMATICAL DRAWING INSTRUMENTS, SCALES, RULES, TAPES, T SQUARES, &c.

JOHN ARCHBUTT, 20, Westminster Bridge Road, Lambeth. near Astley's Theatre, respectfully calls attention to his Stock of the above articles, manufactured by superior workmen. The prices will be found considerably lower than ever charged for articles of similar quality. An illustrated price list forwarded free on application. 8-inch Dumpy Level complete, 6 guineas; 10-inch ditto, 8 guineas; 14-inch ditto, 10 guineas; with compass, 1 guinea each extra. Best 5-inch Theodolite, divided on Silver, 18 guineas.

To Architects, Engineers, Artists, and Amateurs.

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PRINTSELLER & ARTISTS' COLORMAN,
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THOMAS HENSHAW AND CO.,

(Successors to Luke Butler,
5, CHRISTCHURCH-PLACE and 16, KENNEDY'S-LANE),

Wholesale Furnishing and Builders' Ironmongers; also Manufacturing General Ironmongery and Tool Warehouse, 81, MIDDLE ABBEY-STREET — Spade, Shovel, and Tool Works, CLONSKEAGH—beg to call attention to their extensive Stock of Hardware in all its different branches, which they are prepared to supply on the most moderate terms. Iron Wire for Fencing, and Galvanized Wire Netting, at reduced prices. Agents for the Sale of THOMAS PERRY and SONS' Patent Fire-resisting WROUGHT-IRON SAFES, with drill-proof Doors and powder proof Locks. They are the best safeguards in the world against fire and thieves. On the 30th July, 1857, the above were PUBLICLY TESTED at BELFAST, in the presence of many influential gentlemen, and their superiority in resisting prolonged intensity of heat, and in baffling all attempts to effect access by drilling instruments, was placed beyond doubt. *Strength and quality considered, they are cheaper than any other made.*

⁂ Also on Sale, SAUNDERS' PATENT COOKING RANGE, which is the most economical and perfect Cooking Apparatus of the day.

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and BRASS WORKS.—MURPHY, 15, THOMAS-STREET, who obtained the PRIZE MEDALS at LONDON, PARIS, and the several DUBLIN EXHIBITIONS.

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WORKS, DUBLIN.—SHERIDAN, Iron & Brass Founder, Millwright and Engineer, has taken *Gold and Silver Medals for Superior* Church Bells.

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GEORGE HOLMES and Co. are constantly supplied with the above materials of genuine quality. Also Sewerage Pipes, Junctions, Bends, &c. Agents for MAW and Co.'s Mosaic Pavements.

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and other PATENT TILES, for Churches, Entrance Halls. Conservatories, Balconies, &c.; Antique, Geometrical, and Alhambric Mosaics, manufactures of highly decorative character. and extreme durability, Slabs, and Tiles for Fire-places and Hearths, Coverings for Grates, Door Furniture, White Glazed and Ornamental Tiles for Baths, Dairies, and Kitchen Ranges, may be had in great variety at their Manufactory, Stoke-upon-Trent, Staffordshire.—Designs prepared and estimates given on application to A. J. ALDRICH, AGENT, 12, TALBOT-PLACE, DUBLIN.

TO ARCHITECTS, BUILDERS, &c.

—Messrs. MAW and Co. beg to inform Architects, Builders, &c., that they have appointed GEORGE HOLMES and Co., 10, SIR JOHN'S-QUAY, DUBLIN, their AGENTS—from whom can be had designs and estimates of their MOSAIC PAVEMENTS and ENCAUSTIC TILES, now so very generally used for the flooring of Halls, Conservatories, Corridors, &c. These Pavements being "imperishable" will be found not only a highly-decorative but a most economical substitute for ordinary floors and their perishable coverings.

Benthall Works, Broseley, Salop.

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Moulders, and Figure Makers in all its branches. Figures repaired, painted, and bronzed. Alabasters—Marbles repaired and cleaned. Masks taken from living and dead subjects. Likenesses modelled in the best style of art. Centre Pieces in great variety.

⁂ Country Orders punctually attended to.

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V. MOSCHINI (late of G. Nannetti's,

6, Great Brunswick-street) begs to acquaint the Nobility, Gentry, and Clergy of Ireland, that he has opened the above Establishment, for the Sale of Statuary in Plaster of Paris and Portland Cement. also a great variety of Centre-pieces for Ceilings.

Masks taken after Death, on the shortest notice. Busts modelled. Country orders strictly attended to.

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and Ornamental Stucco Plasterers. 40 CAMDEN STREET, Dublin. A large quantity of Figures, Vases, Centre-pieces, &c., always on hands. Country commands strictly attended to. Architectural Designs accurately executed on the shortest notice.

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JOHN MARTIN AND SON will

OFFER by AUCTION, on TUESDAY, 11th January, in their Free and Bonded Stores, NORTH WALL, several Cargoes of North American and Baltic WOOD GOODS.

Further particulars in a future Advertisement.

JAFFRAY BARCROFT, Broker and Measurer.
15th December, 1858.

TO CIVIL ENGINEERS, SURVEYORS, & OTHERS.

FOR SALE, a 5-INCH THEODOLITE,

by Troughton and Simms, London. Price 15 Guineas. This Instrument is divided on Silver, has Tangent Screw Adjustments, Two Eye Pieces, is complete with all the usual fittings in Mahogany Case, Tripod, &c., and is in excellent condition.

To any Gentleman wanting such an Instrument, the above is confidently recommended by JOHN ARCHBUTT, 20, Westminster Bridge Road, Lambeth, London.

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APPRENTICE.—An Architect is desirous

of receiving as Apprentice a well-educated Lad having a talent for Drawing. Address, "Architect," "DUBLIN BUILDER" Office.

TO BUILDERS.—To LET for Ever,

at moderate rents, several Lots of BUILDING GROUND in HEYTESBURY, SYNGE, GRANTHAM and HARRINGTON STREETS. Apply to Messrs. PERRIN and NOLAN, Wicklow; or to JOHN LOUCH, Esq., Architect and Surveyor, 15, Molesworth-street, Dublin.

CITY OF DUBLIN IMPROVEMENT.

ON VIEW, until further notice, at

Mr. BRADY'S Commission Agency Office, No. 86, Middle Abbey-st., Mr. JOHN LOUCH'S MAP of the proposed Grand Parade, extending from Trinity College to the Phœnix Park.

THE M'ANASPIE'S,

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Plain and Ornamental Plasterers in all its departments, Asphalté Workers, &c., have in their Factory a variety of Figures, Vases, Centre Pieces, Chimney Pots, Royal Arms, Fountains, Consoles, Busts, Scagliola Columns, Walls of Rooms, &c. Architects' Designs modelled to Design or Order, at the FACTORY, 31, GREAT BRUNSWICK-ST., DUBLIN.

P.S.—All kinds of Cement Work done to imitate the primitive stones, without colouring or painting, as patented; 16 Premium Medals and many Ordinary Certificates have been received at different Exhibitions for Works in Art, Trade, and Manufacture.

Plastering done from fourpence per yard, &c., &c.

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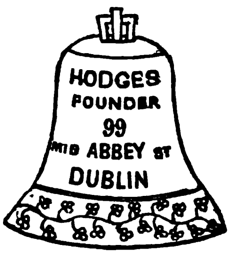

Prize Medal Bells.

TO ARCHITECTS, ENGINEERS, SURVEYORS, &c.

FOR MAPPING, LITHOGRAPHY,

&c., and exceedingly fine drawing, "Tanner's Imitation Crow Quill," the most unique resplendent miniature instrument extant for above purposes—perfectly without a parallel—every pen most delicately finished at apex, by the newly-invented Catacoucha Machines—"Elastic, springy, and durable." 12s. 6d. per gross.

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16, ARTILLERY-PLACE, BUNHILL-ROW, LONDON
One Gross forwarded direct, post free.

The Dublin Builder.

Vol. I.—No. 2.

TOWN DRAINAGE.

PARIS AND DUBLIN COMPARED.

STRANGERS in Paris cannot fail to remark the channels which occasionally cross the foot pavements; for these of late years have been rather generally substituted cast-metal gutters, with a slit in the top for the purpose of cleansing. A large number of the houses in the busiest quarters are occupied in the manner which are designated as "flats," each storey being a separate domicile, approached by a stairs common to all. From each of these flats a small pipe invariably communicates with the down rain-water pipe from the roof, by which means the usual house slops and refuse water are conveyed to the gutters before described; these empty themselves into the roadside channel courses, and thence into the nearest gulley, where they fall into the public sewers, which eventually deposit their contents in the Seine.

It is by no means unusual during the day for these gutters to emit their offensive odours, greatly to the annoyance of passers-by; in very hot weather the nuisance is considerably abated by the public stand pipes being turned on.

Such is what may be designated the public sewerage of Paris! No such convenience as our house drains branching into them exists—night-soil has no access to them—therefore the Seine, unlike our rivers, is nearly as pure and limpid in its course through the city, as before its entrance thereto.

From time immemorial, the cesspool has been the only receptacle for the fœçal refuse of the inhabitants. These cesspools are of two kinds, the fixed and the moveable. The fixed, according to the provisions of a very stringent ordonnance, must be entirely composed of stone, and arched over; the entire set in hydraulic lime and washed river sand, forming a cement capable of resisting any percolation into the surrounding soil. Previously they were of exceedingly rude character, generally built of stone laid dry, and covered with timber or flags, as necessity or convenience might suggest; and possibly they were so erected intentionally, in order that the fluid contents would the more easily permeate through the surrounding strata. The moveable cesspool is generally a wooden cask, with a tight-fitting lid, through which the soil-pipe empties itself. Of late years there has been introduced a moveable cesspool, divided into two compartments—the first of which retains the solid portion of the refuse, while into the latter all the liquid flows, whence it is removed by pumping.

All the cesspools are under the strictest police surveillance, and there is a constant watch kept by this means over them to detect either effluvia or leakage. It is compulsory to have them cleansed at stated periods; but this cannot be done without the proprietor giving notice in writing, and obtaining a police certificate for the purpose.

The small quantity of water used in the Parisian water-closets, there called *cabinets d'aisances*—few of them being continuously supplied with water to turn on, as with us, and being generally acted upon by water poured in once or twice per day—may account, in some measure, for the cesspools not being rapidly filled.

There are in Paris several large companies, composed of wealthy proprietary, called *vidange* companies, who cleanse the cesspools, and derive a large revenue by the disposal of the refuse matter. There are two descriptions of apparatus in use for this purpose, some of the companies having a hydraulic apparatus, others a pneumatic; and we cannot better illustrate this portion of our subject, than by extracting verbatim a description of the process from Mr. Rammell's very able report to the Health of Towns Commission, as ordered to be printed by the British House of Commons.

In speaking of the *Compagnie Richer*, the most important of the *vidange* companies, Mr. Rammell says, "The mode of emptying the excavated or fixed cesspools adopted by this company, and indeed universally in Paris, is to pump their contents into closed carts, for transport. This operation is performed with two descriptions of pumps—one working on what may be called the hydraulic principle, the other on the pneumatic. In the former the valves are placed in the pipe communicating between the cesspool and the cart, and the matter itself is pumped; in the latter the valves are placed beyond the cart, and the air being pumped out of the cart, the matter flows into it to fill up the vacuum so occasioned; the real principle being, of course, the same in both cases, as the matter is forced up by atmospheric pressure. One advantage of the pneumatic system is, that there are no valves to impede the free passage of matter through the suction-pipe; another, that it permits the use of a pipe of larger diameter.

"The cart employed for the pneumatic system consists of an iron cylinder, mounted sometimes upon four, but generally upon two, wheels; the latter arrangement being found to be the more convenient. Previous to use at the cesspool, the carts are drawn to a branch establishment, situate just within the Barrière du Combat, where they are exhausted of air with an air-pump worked by steam-power. A 12-horse engine erected there is capable of exhausting five carts at the same time, the vacuum produced being equal to 28⅜ inches (72 centimetres) of mercury. A cart in good repair will preserve a practical vacuum for 48 hours after exhaustion. The usual capacity of both descriptions of cart is 2,000 litres, the largest size allowed by the police regulations; and the total weight, when full, 3 tons 8 cwt."

These carts are all supplied with suction-hose, which are laid from the cart at the street-door to the cesspool, already provided with an iron flange, which is unscrewed for the introduction of the hose, and the matter is pumped off without any serious annoyance either to the house or the passers-by. All carts must be fitted with an escape-pipe, by which the gases evolved in the process are burned off.

The matter thus extracted is carried either to the *voiree* of Montfauçon, situated a little to the north of Paris, or the new *voiree*, in the forest of Bondy. There, being exposed to atmospheric influence, and thoroughly drained of fluid, it is eventually converted into the highly-prized manure called *poudrette*, which yields an immense revenue to the *vidange* companies. So much for Paris!

Now with regard to Dublin!

It is really a question whether or not our sewerage, eventuating in an immense open drain flowing through the centre of the city, is at all or anything superior to the system which for ages has been adopted by the Parisians. There is no doubt but in Paris, honey-combed as it is by countless cesspools, festering in their fœtid filth, there is, to some extent, a large amount of noxious exhalation always escaping (air-tight though they may be supposed to be); but possibly, by stand pipes, which can all times be easily adjusted, and which severe police regulations compel them to have, the gases generated in them are occasionally ignited, and by the additional assistance of escape-pipes carried like our rain-water, run perpendicularly up the rere of the houses, they are either burned off or escape into an atmosphere much beyond the range of interference with health.

In Dublin we are not behindhand with regard to sewerage. We have branch tubular or other drains from all houses having any approach to respectability; these empty themselves into the Liffey, conveying their poisoned contents to the strand at Clontarf, precipitating and disseminating an amount of deleterious exhalations sufficient to vitiate the atmosphere for miles around the north-eastern suburbs of the city; cast back upon us by every returning tide along the bed of the river, and during the summer months bearing malaria and contagion in their path, which are thence wafted over the entire city.

We cannot assume an object which should be of more importance than an effort at least to remedy this growing evil. Every new district which is being supplied with sewerage—every additional water-closet erected—are but adding their quota of pestiferous contents to a gigantic cesspool in the heart of Dublin.

Certainly the expense of intercepting, by lateral cloachœ discharging into two great reservoirs, where the entire sewage could be collected, deodorized, and converted into manure, would be great at the outset; but it is more than probable eventually there would be produced (as in Paris, and why not in Dublin by a vastly superior mode?) a liberal interest on the investment. This matter has been already discussed by an abler pen than ours; we will, therefore, for the present barely direct attention to its feasibility, and return to it anon.

Dame-street in 1750.—In the middle of the last century the widest part of Dame-street, which was from Crane-lane to Eustace-street, did not exceed 40 feet in breadth; from the corner of George's-lane the street gradually narrowed to the entrance to College-green; and the intermediate portion was about 25 feet wide. The street being principally inhabited by mercers, booksellers, jewellers, and other shopkeepers, was frequently rendered impassable to pedestrians from the concourse of equipages with which, before the Union, it was usually thronged. The first step towards its improvement was made in 1767 by the removal of Swan-alley, Salutation-alley, and other old buildings at the western extremity, preparatory to the erection of the Exchange. The House of Commons having passed a resolution in 1777, that the approach to the Castle from the Parliament House through Dame-street and Palace-street was so narrow as to endanger the lives of passengers, £5,000 was granted to the Commissioners appointed by Act of Parliament for making wide and convenient passages through the city of Dublin, to widen Dame-street between the Castle-gate and George's-lane; the old Castle market was consequently removed, and the "New Buildings" were erected on a part of its site. A portion of the loan, on credit of the coal duties, amounting to £119,529 4s. 6d., was granted in 1790, to be applied to the widening of Dame-street, the Commissioners being empowered to borrow at an interest not exceeding 4 per cent. An Act of Parliament required that all the houses to be built or newly fronted, between Trinity-street and Church-lane, should be thrown back in a line with the "New Buildings" on the south of Dame-street; a similar uniformity was ordered to be observed in all new houses between Eustace-street and Parliament-street. The non-observance of this statute subjected each offender to a fine of £200, and the sheriffs were empowered to prostrate any buildings which exceeded the prescribed bounds. A total sum of £206,646 3s. was expended in the purchase of the ground and houses for opening the avenue from Palace-street to the Houses of Parliament, including, on the south side of Dame-street, the widening of Palace-street, and north end of Great George's-street, the opening of Dame-lane, Dame-court, and part of Trinity-street, and on the north side the opening of Foster-place, the widening of College-green, from thence to Anglesey-street, and part of Anglesey-street. Of the above expenditure, £82,116 18s. 6d. were paid by the sale of ground in the line of the street. The erection of the Commercial buildings on the north side of Dame-street added still further to the improvement and embellishment of the locality; and the last alterations here were made by the Wide-street Commissioners about twenty-five years ago.—*Gilbert's History of the City of Dublin.*

A new police station is to be erected near Broadford, but the magistrates have protested against the site at present selected.

ARCHITECTURAL PHOTOGRAPHIC ASSOCIATION.

The second annual exhibition of this association is now open at 5a, Pall Mall East, London, and its excellence decisively marks the success which, even at a comparatively early period, may attend the operations of a body earnestly and sincerely devoted to the furtherance of the objects for which it was established. We understand that, during the first twelve months of its existence, orders were given for, and distribution made, amongst nearly 1,000 subscribers, of photographs about £1,200 in value. The collection chosen from comprised, not only British photographs, but contributions from many of the most eminent photographers in almost every country of Europe—including Turkey, Greece, Italy, Spain, France, and Germany. In this exhibition a decided step is made in advance. Rome is illustrated in 120 subjects by Macpherson; Venice, by Cimetta; Italy, by Ponti; Spain, by Lonsada; Cairo, and Egypt, and the Holy Land, by Frith, and Robertson, and Beats. Tintern, Raglan, and Chepstow, have furnished a dozen subjects, most exquisitely photographed by Bedford expressly for the association, and Locke has taken some fine views of Salisbury Cathedral and other buildings, on a similar commission. Except Bedford, no British photographer can rival the clearness and sharpness with which the continental buildings are portrayed—in fact, the common remark of those who have visited the different localities is, that the collection takes them, in a most instructive and charming manner, over the ground again. It is proposed to give, on certain Tuesday evenings, some descriptive notices of Rome, Venice, and Cairo, as illustrated by this beautiful and varied collection. We can safely recommend our readers to become subscribers, and by payment of a trifling annual sum, they will be entitled to select subjects from those exhibited. This may be done either by deputy or personally; and to accommodate those whose avocations may not admit of a visit to the exhibition, the committee have placed in the hands of each local honorary secretary in important towns, an illustrated catalogue, classified, priced, &c. Provision is also made to suit subscribers in localities where no honorary secretaries are appointed, by an arrangement to supply catalogues direct, at a mere nominal charge of 5s.

Mr. C. Papworth, 7, Talbot-street, is the local honorary secretary for Dublin; Mr. Lynn, for Belfast; Sir John Benson, for Cork; Mr. Wm. Fogerty, for Limerick; and Rev. J. Graves, for Kilkenny.

NOXIOUS EFFECTS OF GREEN PAPER-HANGINGS.

From a communication by Dr. Alfred Taylor, to the *Medical Times* and *Gazette*, it appears that the material diffusion of arsenic in some papered chambers is now proved to demonstration.

This gentleman says:—A friend, whose library walls were covered with an arsenical-green paper, had suffered for some time from chronic inflammation of the eyes, especially affecting the conjunctivæ of the eyelids. On the discovery that arsenic was contained in the green pigment of the paper in rather large quantity, he caused it to be removed during the summer and replaced by another containing no arsenic. The inflammation from which he had suffered disappeared; but within the last few weeks it has returned. He informed me he had been dusting some books in a bookcase belonging to this room, and he imagined that the dust, which had accumulated for two or three years, had affected his eyes, and had caused a return of the inflammation. Some of the dust was carefully removed from the tops of a few books by a feather, and submitted to a chemical analysis. The dust weighed 1½ grains: it had an olive green colour, and under the microscope it presented the appearance of fibres, with numerous particles of various colours, chiefly of a greyish black. By Reinsch's process, a portion of the dust yielded a deposit of arsenic, and there was, therefore, clear evidence that some of the mineral arsenical pigment formerly on the walls had found its way through the glass doors of the bookcase, and had been deposited in the form of a fine dust on the tops of the books.

After this chemical examination, I procured from the shop of Messrs. Marratt and Short, Opticans, 63, King William-st., London Bridge, a quantity of dust for the purposes of analysis. The walls of a shop are covered with an unglazed arsenical paper; and, as I am informed, they have been so covered for a period of about three years. In collecting this dust, great care was taken not to touch the walls. The quantity thus collected for examination amounted to about 450 grains. It was nearly black, and under the microscope appeared to consist of fibres and sooty particles. It was very light and flocculent. 150 grains of this dust were examined by Reinsch's process; and enough metallic arsenic was obtained from it to coat about ten square inches of copper foil, in addition to a piece of copper gauze. From the latter deposit, by the application of heat, octahedral crystals of arsenic were readily obtained. The cases had not been dusted for a period of nine months.

The cases are secured by glass doors, and lined inside at the back with arsenical paper. Mr. Short removed, by a camel's-hair pencil, a small quantity of dust which had accumulated on the thermometers and barometers, which are locked up within the closet. The quantity thus obtained from the projecting parts of a few instruments amounted to eight-tenths of a grain, of which five-tenths were taken for examination. This half grain of dust sufficed to cover pretty thickly with metallic arsenic a square inch of copper gauze. A portion of this, when heated, yielded a large number of well-defined octahedral crystals of arsenious acid.

These facts lead to the inevitable inference that the air of a room, of which the walls are covered with an unglazed arsenical-green paper, is liable to be charged with the fine dust of the poisonous aceto-arsenite of copper. Those who inhabit these rooms are exposed to breathe the dust. The poison may thus find its way by the pulmonary membrane into the system, or it may effect the eyes, nose, and throat by local action. That so few cases of actual poisoning under these circumstances have occurred is a fortunate circumstance; but only cases of serious mischief would be likely to attract attention. There may have been numerous instances of a disturbance of health, depending on this arsenical paper, which from absence of suspicion has been assigned to other causes. The degree of exposure, state of health, peculiar susceptibility, and the eliminating power of the system, may account for the comparative rareness of these cases. The mode in which the pigment is laid on the paper may be such as to prevent, in some instances, the fine particles of dust from escaping. The fact now demonstrated, that arsenical dust is, and must be, substantially breathed by those who occupy rooms thus papered, explains the similiarity of symptoms observed; justifies the statements made by Dr. Hinds, Dr. Halley, and others; and proves that those who have experimented on this subject with negative results have not taken the right course to arrive at the truth. Their results have, to a certain extent, misled the public, by teaching them to rely on what is now proved to be a false security.

If, as a general rule, the quantity of arsenic which can penetrate the body from this course is small, it is still desirable that arsenic should not be breathed day by day in any proportion. The defenders of this noxious manufacture will hardly go the length of asserting that this arsenical-green, which is a potent poison in the stomach, can exert no injurious effect when taken into the lungs; and yet, unless this assumption be made the inevitable inference is, that these papers should not be used for covering the walls of our dwellings.

ARCHITECTURAL COMPETITIONS.*

WHATEVER may be said in favor of the *principle* of competition, very certain it is that the present system of architectural competition is rife with so many abuses, so many grievances to the profession, as to require a thorough reform. There is more of plausibility than of truth in speaking of it as inciting to that generous emulation among the followers of the art which is calculated to conduce to the advancement of the art itself. In that respect practice completely contradicts theory, it being undeniable that competitions of the kind, conducted, too, in the very suspicious manner in which they now are, almost invariably occasion jealousies and heartburnings, and sometimes open complaints also. Some will say that those who disapprove of competitions need not enter them. Direct compulsion to do so there certainly is not, yet there surely exists an indirect one of no inconsiderable force; because, instead of being reserved for extraordinary and worthy occasions, architectural competitions have of late become almost the exclusively established mode of obtaining designs for any public building, no matter how unimportant it may be, how small the sum to be expended, or how contemptibly paltry the premiums which are held out as baits; one consequence of which is, architects are consequently brought into hostile collision with each other, not openly, indeed, but not therefore the less unfriendly; another, that notwithstanding the specious argument of competition being calculated to draw out talent, and afford opportunities of distinguishing themselves, to those who are unknown to the public, there is quite as much to discourage those who have already an established practice of their own, and deter them from letting go the substance in order to grasp at a *mere shadow*.

How competition works for the profession is tolerably apparent from the fact that it extorts from them a vast amount of labour and time, to say nothing of incidental expense also, which is utterly thrown away. Although only one design can be made use of, fifty sets of drawings are perhaps sent in, and there has in some instances been nearly double that number. One of the rejected obtains a so-called second premium, and it is well if it be such as to repay its author for his trouble and anxiety. As to the rest, they are returned to those to whom they respectively belong, without either comment or compliments, be their merits what they may. Could it be accurately ascertained, the number of drawings which are annually produced without other effect than that of encumbering the portfolios in which they are entombed, would be absolutely startling, and would go far towards proving what an enormous tax competition imposes upon the majority of those who enter into it. Surely it ought to be sufficient to ask in the first instance for mere pencil sketches, a design from which being selected, the finished drawings would afterwards be made? Why should carefully made out drawings be required, when the most elaborate productions of the kind are—if not made use of for the express purpose they were intended for—positively valueless, at least of no money value, being quite unsaleable? A picture of a pigstye, or of a couple of filthy beggar boys, may be hung up in a drawing-room, without any imputation on your taste; not so an architectural drawing, not even a perspective one, no matter how charming the subject or how artistic the treatment, and notwithstanding that it ought to possess a double interest, as combining attractiveness of pictorial execution with the display of architectural forte. Wherefore such is the case, this is not the place to explain; but that so it is, is unhappily too true, since it says very little for the appreciation among us of architecture as art, unless presented in the matter-of-fact shape of actual buildings, and even then it is generally estimated according to its most prosaic and matter-of-fact qualities.

In like manner, as the statistics of competition would render evident the immensity of the tax levied upon the profession, giving us to see how many thousands and tens of thousands of drawings are produced in the course of a few years to no purpose whatever; so would the secret history of competition, were it obtainable, bring to light some strange and not a little ugly facts also. Even what has already partially transpired, in some instances goes far to convict competition committees of what looks like bad faith, and not unfrequently of utter incapacity also. This may sound very uncharitable, yet those who, instead of taking any pains to avert suspicion, conduct their proceedings with such suspicious secrecy cannot reasonably complain if they be suspected of mal-practices. Wherefore such studied concealment, if there be nothing to conceal, nothing to be ashamed of?

Secrecy and irresponsibility are a most foul plot upon the present system of architectural competition; secret tribunals and masked judges are utterly abhorrent to English feeling and English practice. Of course any committee or public body may, just like a private individual, go to an architect and employ him, without being answerable to any one for what they do. Widely different is the case when architects are invited to public competition by public advertisement; and those who send in designs under such circumstances are rightfully entitled to some far better guarantee for fair dealing than the presumptive integrity, and the equally presumptive capacity of judges who, instead of sitting in an open court, closet up and screen themselves behind a curtain. Nothing, however, is suffered to transpire but what cannot be concealed, namely, the final decision, which, if committees are not belied, is not unfrequently what they have most to be ashamed of. In his address to the Institute of Irish Architects, the late Sir Richard Morrison said that, from among designs sent in to competitions, he had known the worst to be sometimes chosen; and, indeed, some of those which have found favour in the eyes of the committees are so exceedingly unsatisfactory that hardly can we suppose them to have been the best offered, without also supposing that there must have been a lamentable lack of talent on the part of the competing architects. The Rejected Addresses have afforded the public no little amusement, and a collection of Competition Designs would perhaps cause them, if not much amusement, a great deal of astonishment, and render them not a little sceptical as to the advantages accruing either to the profession or to architecture itself, from the present system of competition. One most undeniably it is that invests perfectly irresponsible, and, for aught that is ever shown to the contrary, very incompetent individuals too, with not to be questioned authority, and accordingly the power of committing irreparable mischief with perfect impunity. That, unless some very underhand doings are going on, it is the intention of a committee to make choice of what, in their opinion, is the best design submitted to their judgment, may reasonably enough be supposed, yet what avails that and all their good intentions of acting for the best if their judgment itself be defective? Gentlemen may be all honourable men, and what in common parlance are styled "highly respectable men," influential ones also, as being baronets or bankers, mayors or magistrates, persons of ancient or new-baked and money-making aristocracy. Granting, however, that they are not only unimpeachably "respectable," but persons of intelligence also, and sincerely well-meaning, such recommendations ought to go for nothing, if they be at the same time deficient in the main qualification which the actual occasion requires, namely, competency of taste and judgment with regard to architecture. Among the persons who sometimes decide the fate of Designs, there is perhaps hardly one who, at any other time, would venture to express an opinion concerning architecture, or whose opinion, if expressed, would be in the least regarded. On the contrary, were it asked, the reply would most probably be, "I do not profess to be any judge of architecture," a confession that may be heard almost any day in highly respectable society, and in circles where matters of art and taste are fluently discussed. Nevertheless it seems that individual ignorance becomes collective sagacity, when its items are added together into the formidable sum total of a committee, armed with authority that may not be questioned, and fenced in by impenetrable mystery. *Defendit numerus:* association inspires them with confidence, more especially as there are no listeners to overhear their arguments. There are other Pecksniffs besides professional ones, even Pecksniff committees. Nor are they a whit the less Pecksniffian in their constitution; for, being dressed out in "a little brief authority," arrayed in which they play "antic tricks," which cause, not, indeed, angels, nor perhaps architects, but architecture itself to weep, and its friends to groan.

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* By W. H. Leeds, Esq., and published in the Proceedings of the Liverpool Architectural and Archæological Society.

According to the manner in which committees are constituted, architects have not the slightest guarantee for either good faith or discernment on the part of their self-elected and unknown judges. Persons who perhaps scarcely understand the nature of technical architectural drawings at all, who never before gave aught of attentive consideration to any, and who are utterly incapable of putting together in their own minds what is described separately in plans, sections and elevations, so as to form a clear idea of the entire design so represented,—undertake, without the slightest misgiving as to their own sufficiency, to pass a judgment upon a perplexing number of designs, the poorest of which present, probably, some good points to recommend them, while the best may be open to objections,—which by being adroitly magnified, and astutely represented as insuperable, may cause a very superior design to be set aside for a mere common-place one, and as such quite *safe* and *secundum artem.* To go through a score, or, more likely, double that number of separate designs,—to compare and confront them impartially, to weigh all the conflicting *pros* and *cons*, would be, though perhaps a pleasure in itself, no brief one. Nevertheless, self-elected, and, no doubt, also Heaven-enlightened committees, make very short work of it. How they contrive to do so, is a matter as to which they keep us quite in the dark; and so long as it pleases them to do so, there will be abundant room for mistrust and suspicion.

It is important that the public should be informed of more than the bare result of a competition, since hardly can the decision be in every instance a unanimous one. Not only may it happen to be carried by a very small majority, but the superior judgment and the better argument may be on the side of the minority. It may be questioned, however, whether aught deserving the name of discussion takes place, there being nothing to show that it does, nor any reasons adduced to justify the choice determined upon. They may, however, be allowed the advantage of a doubt, although to give them credit for exercising all requisite discrimination excites all the greater regret that the public should not be allowed to profit by the opinions elicited on such occasions, and by the various *pros* and *cons* brought forward on either side. Justice towards competitors absolutely demands disclosure of the kind, because hardly is it to be imagined that among the rejected there has not been a single design of sufficient merit to obtain any approbation at all. The criticism which might be so elicited is, too, all the more desirable, because, as far as the works of contemporaries are concerned, criticism appears to be completely ignored; a strange way by-the-by, of encouraging talent, if only because it holds out impunity to the want of it. Suspicion may be illiberal—in some instances, perhaps, unjust; still it is unavoidable where the obvious and most effectual method of guarding against it is studiously resisted. Where all is calculated to excite it, there will ever be mistrust; nor is it to be denied that unworthy influences have occasionally prevailed over both justice and a due regard to the interests of art and to the credit of our national taste. At all events, it is difficult to believe that some adopted designs could have been the worthiest of those sent in. A collection of Rejected Designs would probably at once edify and scandalize the public. Even from the little that is already known it is very evident that irresponsibility for, does not carry along with it infallibility of, judgment.

The best that can be said in favour of it is, that the inviting architects to what is rather ironically called *open* competition, has the specious appearance of acting liberally towards them, with the sincere desire of obtaining a superior design; the opportunity being so afforded of comparing a number of them all produced for the same purpose. Ample latitude of choice is no doubt convenient and agreeable enough; but it should be recollected that it is furnished at the cost of those who compete, and who have not in return either any valid pledge beforehand that justice will be, or after assurance that it has been, done them. Indeed, there have been strange stories afloat ere now of competitions being got up as a mere blind, and in deference to the wishes of town's people, the eventual decision being all the while snugly settled. It is more decent, however, to suppose that such truly perfidious and fraudulent practices must be altogether imaginary. Little need is there of imputing intentional fraud to those who undertake the management of competitions, when even intending for the best, and acting honourably, they generally contrive to frustrate their avowed and in itself laudable purpose, at the outset. Instead of being full and explicit, the instructions given for the guidance of architects are oftener than not so exceedingly vague and indefinite, that those who prepare designs from them are obliged to work all but entirely in the dark and at hap hazard. In case of a private employer, a professional man has the very great advantage of being able to ascertain what is really required of him. He has the opportunity of conferring immediately with the party whose wishes and taste must be complied with;—of advising, recommending, dissuading, as there may be occasion for doing;—whereas in the case of competitions it is all hit-or-miss—a mere random shot in the dark.

That committees should of themselves be able to draw up sufficiently accurate and detailed instructions to competitors, is hardly to be supposed, yet that difficulty may be easily got over at any time by the equally simple and obvious expedient of employing some competent person to do it for them. Besides which it would be but ordinarily prudent and sensible to allow considerably longer time than is usually done for the preparation of designs. The absurd hurry with which they are frequently asked for, occasions no small inconvenience to those who have to do with competitions, since it imposes upon them the harassing and worrying exertion of working against time, or the necessity of having recourse to extra assistance, to be paid for out of their pockets. On the other hand, such uncalled-for precipitation on the part of the committees is at variance with their own interest. How can well-studied and carefully-considered designs be produced if the time allowed be little more than barely sufficient for the mere manual operation of preparing the requisite drawings? The consequence is, first ideas, however crude or common-place, are per force adopted, and though the drawings themselves may be ably executed, designs are sent in "with all their imperfections on their head." The hardship thus imposed upon architects is all the more provoking when, as has been the case more than once, it afterwards turns out that the committee themselves are in no hurry at all to commence building operations. Not very many years ago there was a rather important competition for a large public building, the designs to be sent in within three months from the date of the first notice of it. Two premiums were offered and paid; yet, as to the building itself, not a stone of it is yet laid; for, marvellous to relate, it was not till after the competition the committee discovered that they had no funds even to begin with! It must, however, be confessed that that affair took place in the sister isle.

Of architectural competition as now conducted, the main errors and defects have been here animadverted upon, not more severely than was necessary, and in such manner, too, it may be presumed, as at the same time to render sufficiently evident how they might be remedied. The most odious feature of all in it is, the impenetrable secrecy thrown over the proceedings in the committee, as if they were nothing less than Eleusinian mysteries. Nor is it the least of the evils attending such secrecy, that it encourages incompetent persons—persons at least who shrink from giving any pledge of their competency—to interfere and pretend to manage what requires from them both taste and judgment. That justice should be blind is a long established and respectable notion; but we have yet to learn that judges and judgments should be equally blind, too, and that the public should be blindfolded into the bargain, as is now done in the case of architectural competitions.

Not the evils and hardships only of the present system, but also the remedies for them, have now been pointed out; there still remains, however, what many or most may consider a very embarrassing, if not wholly unanswerable question: How are the remedies to be administered? What if the patient strenuously refuse to swallow the salutiferous medicaments? Why, if he refuses to be coaxed into doing so, he must be awed into it; and there exists, fortunately, in this land, and in these times, a power which, duly exerted, is capable of awing the objects of it into compliance, however reluctant it may be, with its demands—namely, the force of public opinion.

The enlisting public opinion on their side in opposition to the petty, yet not therefore less vexatious and oppressive tyranny of what have been called "hole and corner committees," depends upon, and must be left to architects themselves. Unless they choose to bestir themselves and make some decided effort to shake off the yoke, they must continue to submit to it; possibly without thereby incurring any reproach, most assuredly without being entitled to any compassion, and the pity which would be ill-bestowed upon its pusillanimous followers, may be more justly reserved for architecture itself.

We understand that the Board of Public Works has refused to sanction the appointment of Mr. Long, C.E., as resident engineer of the Port of Limerick.

TURKISH BATHS IN IRELAND.

(Continued from page 8.)

The *Fermanagh Mail* thus describes one of these baths, on the borders of Fermanagh and Leitrim:—

"It is built of stone and mortar, and brought to a round top. It is sufficiently large for one person to sit on a chair inside, the door being merely large enough to admit a person on his hands and knees. When any of the old people are seized with pains they at once have recourse to the sweat-house, in which is placed a turf fire, which is left till burnt quite down, the door being a large stone, and air tight, and the roof or outside of the house being covered with clay to the depth of about a foot, to prevent the least escape of heat. When the embers are taken out, the floor is strewn with green rushes, and the patient is escorted to the bath by a person carrying a pair of blankets. The invalid creeps in, places himself in a chair, and remains till perspiration rolls off freely. When sufficiently operated on, the person in waiting swaddles him up in the blankets, and off home, and then to bed."

There is another bath at Mount Keeper, County of Tipperary. The Lacedemonians, who considered warm water as enervating, used two kinds of baths—namely, the cold *daily* bath in the Eurotas, and a *dry* sudorific or vapour bath, in a chamber heated with warm air by means of a stove. A sudorific or vapour bath is mentioned as early as the time of Herodotus. The vapour chamber is almost universally used in Hindostan and throughout the Russian Empire, whilst vapour *boxes* and warm-water baths are more used in Western Europe. The Romans carried bathing to great perfection, having five or six chambers in their public *balneæ*, called *thermæ*, supplied by splendid aqueducts, and including gymnasia, walks, lecture-rooms, &c. Remains of Roman baths are common in France, and are also to be seen at Bath, Hovingham, in Yorkshire, and Chester, where the *hypocaustum præfurnium* and cold plunge are in excellent preservation. I have also visited the "Palais des Thermes," in Paris, which is entered from the Hotel de Cluny, and faces the new Boulevard de Sevastopol. In a recess off the principal apartment is a large piscina for cold water, somewhat like that of the Northumberland Baths in this city, and which was made use of after the warm bath, to astringe the pores and produce vital reaction. This is the only important part of the Roman bath which the modern Turks do not copy, although I am informed that the baths at Cairo are provided with them; but in general the Ottomans content themselves with thorough washing by soap and water, and throwing bowlfuls of warm water over themselves. They consider these processes, however, as only accessory, the heated chamber itself being the main thing, without which there can be *no bath*.

In the cooling room, or *frigidarium*, couches are provided, where the clothes are laid and the bathers recline after coming out of the heated rooms, in which shampooing or gentle kneading of the muscles is performed. The use of shampooing, as practised in the Turkish bath, is to accelerate the flow of perspiration. There is a popular delusion respecting the temperature maintained in the Turkish bath, because of freer perspirations; but this is quite incorrect. A hot-air bath is not comfortably warm at 98 degrees, and anything lower will be rather hurtful than otherwise. Drs. Watson and Erasmus Wilson record cases of persons entering ovens heated sufficiently to cook beefsteaks and other articles of food which they took in along with them.* But although the safeguard of cooling by evaporation does exist in the hot-air bath, and constitutes one of its advantages over all other baths, we find that these high temperatures are *never* used by the Turks, simply because they are unnecessary, and the heat communicated to the body is thus absolutely less than in any other kind of bath. There is no other kind in which accidents are less liable to happen, if superintended by a competent person; nor is there any other in which it is possible to remain so long with impunity.

[Note—We understand that the arrangement and design of the proposed baths, on the Turkish principle, about to be erected at Bray, as mentioned in preceding No., is due to Mr. Barter, of Cork.—ED.]

IMPROVEMENT OF PORTRUSH.—This town has rapidly increased under the auspices of Mr. Dargan. It was originally called Skerries, from the curious rocky islets opposite. There was anciently an abbey and monastery here; and two miles to the south is the old church of Ballywillan, in good preservation, and a fine example of 12th century architecture. Near this is a fine specimen of the primæval Irish pillar stone, marking some chieftain's grave. This, with the old church and wonderful basaltic colonnade of Craigahullar, are within a few perches of each other.

ARCHITECTURAL NOTES IN LIMERICK.

EVERYONE who has visited "the Citie of the violated Treatie," even casually, must admit that, in point of position "on Shannon's banks," and in the arrangement of its thoroughfares, it may rank with some of the principal in the United Kingdom. The public buildings of any artistic excellence are not very numerous, though its cathedral is, perhaps, one of the most venerable and noble ecclesiastical structures in Ireland, and the recently-erected St. John's Church, after a design by Mr. Welland, and the now nearly completed Roman Catholic cathedral of St. John, designed by Mr. Hardwick, R.A., are edifices of a very important character, and contribute greatly to the beautification of the city. George's-street is the principal and a noble street, and although a fine business thoroughfare, is a fashionable promenade at a certain hour of the day. Of late years, the street architecture has been much improved, and we feel pleasure in recording a few particulars of the most recent.

Messrs. Cannock, Tait, and Co.'s premises occupy a plot of ground 210 feet long by 125 feet extreme width, the frontage towards George's-street being 66 feet. They have been almost completely rebuilt during the past year, on the entrance into the firm of Mr. Peter Tait, the eminent contractor for army clothing, whose evidence before the Royal Commission on Army Contracts has been recently published, and has attracted much attention.

The greater portion of the space is but one storey in height, roofed with lantern lights towards the north, as in the large Dublin house of Cannock, White, and Co., of Henry-street. The front and some of the rere buildings are of two or three storeys, the upper storeys being appropriated to kitchen, dining, and sitting rooms, library and sleeping rooms, for the assistants. The ground floor is laid out in the departments customary in such establishments, there being two shop-doors, with large glazed porches, mahogany swing-doors, &c. The entrance to the house and for the assistants is on Honan's-quay, some distance from the front.

The front is divided by pilasters and engaged columns into eight bays or upright divisions, and is of three storeys in height, there being a "mezzanine" or "entresol" immediately over the shop windows, and included under the shop cornices. Six of the ground-floor bays, between the pilasters, are glazed with single panes of plate-glass, each pane being nearly 13 feet by 7 feet—the remaining two forming the entrances. The whole are protected by Bennett's patent interlocking revolving shutters. The horizontal transom over the shop and under the entresol windows is divided into a series of eight panels, illuminated and glazed over the colouring, the name and initials of the firm and various floral devices being introduced. The two extreme pieces are boldly rusticated, and the shop entablature enriched with consoles, panels, lions' heads, &c.

The upper portion of the front is treated after the Venetian manner, with engaged Ionic and Corinthian columns and arcuated fenestration, the main cornice being of considerable projection, and an arched balustrade, with large vases and terminals, at the top. The two flanks are treated in a corresponding style with the front, as they rise considerably over the adjoining houses, and the chimney-shafts are panelled and corniced, so as to form effective features. The whole of the front is executed in Portland cement; and the windows throughout glazed with plate-glass.

The architects employed were Mr. Gribbon, of Dublin, and Mr. W. Fogerty, of Limerick, the principal part of the work having been contracted for by Mr. Quin, of Dublin, and executed between the 1st of February and 1st of May, 1858—extraordinary efforts having been used to complete it in time for the spring season. The entire cost, including fixtures, plate-glass, shutters, and new wholesale and carpet rooms, &c., since being added, will amount to about £9,000.

The premises of Messrs. James Hogg and Co., next door, have also been remodelled under the direction of Mr. W. Fogerty, who has also directed extensive operations to the premises of Messrs. Thomas Revington and Co., nearly opposite, which works, with those already described, have greatly enhanced the effect of the principal street.

In addition to the foregoing, we may mention that the Guardians of the Limerick Union have contracted for the formation of a chapel for the use of the inmates of the workhouse, by increasing the length of one of the large school-rooms, with open timbered roof, and fittings, &c. Mr. W. Fogerty is the architect; Mr. Day, contractor. Amount, £540.

A new apsis or chancel has been added to the Asylum Episcopal Chapel, now called Trinity Church. It is semicircular on plan, with vaulted and panelled ceiling, and panelled sides, having three arched windows, with mullions and circular tracery. The arch between church and chancel springs from detached Ionic columns, on pedestals, with enriched entablature and coffered sides to the arch. The interior of the chancel is intended to be illuminated, and the three windows filled with stained glass. The cost of the works has been about £500. Mr. W. Fogerty, architect.

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* What figure do they present when they come out?

MIDLAND GREAT WESTERN RAILWAY.

LIFFEY BRANCH.

In our last number we drew public attention to the proposed extension of the Midland Great Western Railway by a branch from that line to the North Wall Quay.

Of the utility and the advantages of such a branch, nobody, we believe, is willing to entertain a doubt. But it is of paramount importance that a public undertaking of this nature should be constructed, as far as possible, without unnecessary injury to the properties of private individuals, or, what is of greater consequence, the general requirements of the traders and public of the city.

As regards the construction of the branch from its junction with the main line until it arrives at Sheriff-street, no impediment to public traffic or injury to private interest presents itself.

Here, however, the difficulty occurs.

By the plans lodged it is proposed that the line shall cross Sheriff-street, on the east side, at a distance of a few yards from the centre of the present canal bridge, and that a new stone bridge be placed over the canal, the rails to be five feet below the level, thereby necessitating the roadway to be carried over the railway by an arch at an altitude of 11 feet from the present coping of the canal, and consequently 16 feet from the level of the railway. Omitting the injury to private individuals (the owners of property in that locality), we prefer referring to the serious difficulties presented in the way of public traffic. Sheriff-street is the leading thoroughfare to the Graving Dock (that grand and noble structure, a lasting credit to our city, constructed by the Ballast Board according to the plan of their able engineer, Mr. Halpin), and as such must necessarily be a street of great importance; and, in fact, if the dock be used to an extent that its dimensions merit, we hope that steamers, even of the largest class, may be safely laid up there for repair, and our readers will at once feel convinced that in such case the difficulty thrown in the way of the enterprising proprietors of the Seville Iron Works and of other like establishments, in the transmission of the heavy machinery belonging to such vessels, will prove not only a private loss to deserving citizens, but a very serious injury to the commercial shipping enterprize of our city.

We need not individualize the case of our prince merchants, Messrs. Martin, whose business would be most seriously injured, if not completely destroyed, in the event of the interruption, by repairs or otherwise, of the North Wall Quay, as in such an event (their heavy trade being between the canal bridge and the North Lighthouse, and where they have lately erected their most extensive steam saw mills), Sheriff-street would be then the only passage to either their shipping or their works, and the altitude of the proposed bridge would present such a difficulty as would prove almost an insurmountable barrier to their trade.

So strongly were some of the citizens impressed with the injurious effects of the proposed line, that they waited on Mr. Hemans, the engineer of the company, to represent their objections to him. Mr. Hemans received them with his usual urbanity and courtesy, and entered fully into the subject. After much consideration, he stated that he would recommend the Railway Company to construct a level swivel or pontoon bridge, somewhat similar to that at the Broadstone, and candidly gave his opinion that such a bridge would prove to the advantage also of the company, as it would enable them to convert that vast portion of the Royal Canal between Sheriff-street and the Drogheda Railway into a floating dock, for the moorage of vessels with coal and lighter burdens.

Were no other object to be attained, we consider that our fellow-citizens would feel rewarded by having a harbour for colliers at the north side of the city, thus materially lessening the traffic over Carlisle Bridge, and substantially assisting the inhabitants at that side of the river.

Fortified with this approbation of the Railway Company's Engineer, a memorial was prepared, and in the course of a few hours was presented to the Committee No. 1 of the Corporation, signed by the leading merchants of the city. The opinions of Mr. Lefanu and Mr. William Dargan, probably the first engineers in this or any other country, were also solicited on the matter, and they fully coincided with the representations set forth in the memorial.

The Committee No. 1 of the Corporation, in compliance with the memorial, received, on Saturday, the 22nd of January last, a deputation of the citizens interested in the matter; and it is subject of remark that so great was the interest felt that almost every member of the Corporation was present. Mr. Francis Codd, T.C., presided at the Committee. He was most strongly opposed to the views of the deputation, conceiving that merely private interests were concerned. However, after a most lucid explanation of the plans, &c., made by Mr. C. W. H. Archer, who acted as spokesman of the deputation, and after consultation with the City Engineer, the Committee unanimously acceded to the views of the deputation, and approved of the level crossing at Sheriff-street, subject to the conditions of the Railway Company being obliged to construct, in addition to the bridge proposed by them, two other swivel or pontoon bridges—one to connect Mayor-street, and the other on the North Wall Quay.

This approval of the Committee No. 1 is doubly valuable for the reason we have above mentioned—namely, the bringing to the mind of the respected chairman a conviction of the soundness of the views of the deputation—a gentleman whose name and fame in the commercial world has already been fully established, and whose concurrence stamps, far more than any remarks of ours can do, the *bona fides* of their representations. We may remark, *en passant*, that the anxiety evinced by the Corporation in this matter proves that they are not careless or inattentive to the interest of their fellow-citizens, notwithstanding the ill-founded complaints that are made against them.

The matter so remains. We have not heard whether the Railway Company are willing to subscribe to the conditions imposed upon them by the Corporation. We sincerely trust that they will, or at least that these bodies will arrive at some amicable understanding. The Ballast Board, we are sure, will not throw any impediments in their way; but in the mean time it is clearly the duty of the citizens to bestir themselves, and to take care that by their lukewarmness and neglect a sad and grievous injury may not be inflicted in our city, which it is easy now to prevent, but which, to quote from Mr. Lefanu's report, "if now permitted, will be hereafter impossible to remove, and will be regretted by all when it is too late."

A RAMBLE IN OUR CEMETERIES.*

Could we divest ourselves of associations connected with localities, we should designate Mount Jerome a delightful suburban retreat; but the mournful *cortéges* which may be seen each morning pursuing their silent way towards its gates, remind us that here, too, is a last resting-place of humanity, where old and young—rich and poor—sooner or later, are destined to repose. This cemetery is situated at Harold's Cross—a village about three miles south of the General Post-office, and on the high road leading to Rathfarnham—whose history is identified with some of those bloody conflicts which occurred during the period the Danes were in Dublin, and Dalton says that the Archbishop of Dublin, "in right of his palatine of the liberties of the Cross," had a gibbet here. In 1836, a project for the formation of a company of shareholders to establish a cemetery at the south side was matured, and the area now occupied by "The General Cemetery Committee," as it is entitled, comprehending 25 acres 2 roods and 26 perches, was decided on. At first it was but a wild, hilly, and deserted-looking tract, but has been gradually subjected to much improvement, and symmetrically laid out, with radiating gravelled walks and undulating slopes. Comparisons, they say, are odious, but it is a notable fact, that an equivalent amount of taste and care has not been bestowed here on the landscape gardening of the grounds, or the decoration of the graves, as at Glasnevin. This, however, is in a measure accounted for by "difference of opinions," the majority of those interred there being in principle more averse than others to such display. The approach to the cemetery is through a handsome iron-railed gateway, having Gothic cut-stone piers, and a Tudor lodge at one side, designed by Mr. Louch, who was also architect to the church at the other, which, however, is in no way connected with the cemetery. Facing the entrance, and forming a termination to the main walk, is the principal gable-end of a tasteful structure, in early Gothic style, composed interiorly of a nave, separated from side aisles by piers and arches, open timber roof, stained and varnished, and used as a chapel for the performance of the burial service. Mr. William Atkins, of Cork, was the architect. This chapel is decorated with mural tablets, and has a handsome entrance doorway, with traceried window, filled with stained glass, immediately over. We should specially notice the altar-tomb, designed also by Mr. Atkins, and erected to the memory of the Collins family, as a work of considerable merit; as also the slab placed by the chairman and committee of the Great Industrial Exhibition of 1853, in commemoration of the late deputy-chairman, Major Fairfield, and the important services rendered by him on the occasion of that great national undertaking.

Burial-service may be read by the minister of any Gospel, but the committee only permanently engage a Church of England clergyman for the purpose. On one occasion, we understand that the Roman Catholic service was performed in English over the grave, and that interments of Roman Catholics frequently take place here, though it is erroneously believed by many that exclusiveness is observed.

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* See page 5 *ante*.

About 16 acres are devoted to perpetuity ground—*i.e.*, that the entire grave must be purchased to admit of one interment, but may be re-opened, by permission of the purchaser or his representative, until filled—the cost being £4 2s. 6d., and each grave averaging five bodies. When larger space is required, it may be obtained at the rate of five shillings per square foot. To ensure the more perfect stability of the underground works and efficient drainage (to which peculiar attention seems to have been successfully paid), the right of constructing such works is reserved by the committee, who engage their own workmen, and charge according to measurement by schedule of prices, or by bulk sum as per agreement; but as regards monuments, headstones, &c., it is optional with the public. Another portion of the space beyond the circle, at which point terminates the perpetuity ground, is appropriated for those where the privilege of erecting headstones is reserved, and here the cost of each interment is £1 2s. 6d.; but close by is an extensive plot for those where the privilege is not desired, and where 12s. 6d. only is the charge.

Up to the time we write, about 16,250 bodies have been interred! If Mount Jerome cannot boast of containing the ashes of such men as the O'Connells, Curran, Ruthven, or John Hogan, it may proudly claim, notwithstanding, to be the repository of a goodly host of our greatest legislators, scholars, artists, wits, and merchant princes. Perhaps the most striking monument to the eye of a casual visitor is that of the late Mr. Drummond, M.P., Under-Secretary, being surmounted at a considerable height by a large sarcophagus, with a massive tapering pedestal beneath, forming the walls of the vault in which are contained the remains. Wandering amongst the more important vaulted tombs, our eye rested on the names of Lord Plunkett, Chief Justice Bushe, Mr. Justice Moore, General Sir George Cockburn, Thomas Gresham, the late Provost Lloyd, Sir Philip Crampton, Professor M'Cullagh, and others distinguished respectively for their literary, scientific, or philanthropic attainments, and who, though silently reposing in their tombs, are and must perpetually remain alive in the mind of admiring posterity. Amongst those whose avocations during life were more immediately identified with the ordinary readers of our Journal, we must not fail to particularize the names of Sir Richard Morrison, William Vitruvius Morrison, and William Farrell, architects; Arthur Williams, builder; Isaac Weld, M.R.I.A.; Robert L. West, Thomas J. Mulvany, and Thomas Kirk, R.H.A.'s; Thomas Davis, the poet, of whom a colossal marble statue by John Hogan, executed in that artist's usual exquisite style, stands immediately over his grave. Here, too, have we poor "Terry Driscoll," whose hand, wittily and humorously, wielded the pen from an imaginary "Stoneybatter," and is now and for ever chilled by the icy coldness of death—his grave marked by a small but appropriate headstone, with a sculptured figure of Hibernia weeping over an urn, from the chisel of Mr. Joseph Kirk, R.H.A., who has also executed some other monuments in this cemetery. Strange reflections respecting the uncertainty of life, and the folly of devoting one's existence to the earnest pursuit of worldliness and the accumulation of wealth—to be parted with at the door of the tomb—though sought after as if of eternal duration, suggest themselves while rambling in a cemetery; for there do we find for ever laid low those whom as if 'twere but yesterday we met in the ordinary course of business, or mixing amid a gay throng in festive halls. Such feeling must all experience while noting the resting-places of the Pims, Perrys, Guinnesses, Harvies, Findlaters, and a host of others who but recently have quitted this busy world, leaving vacancies to be filled by some who in their turn must again yield to others, and who, doubtless, will worthily perpetuate their honoured names. It would be impossible for us to notice every object of interest in this cemetery, or to name every notable person interred there; but we must *en passant* remark, that many of the monuments are of a massive and superior class, partaking more of a mausoleum character than is observable elsewhere—though occasionally may likewise be found draped figures, broken pillars, terminating vases, &c.—and for its extent it comprehends proportionately a greater number of remains of those with whose names our citizens were more publicly familiar than are to be found in similar establishments.

In drawing this brief history to a close, we must not fail to pay willing tribute to the courtesy of the officials of both cemeteries, who kindly and in a painstaking manner afforded us the fullest information in their power, and which is a pleasing circumstance it does not *always* fall to the lot of a journalist seeking information from public bodies to chronicle.

BOARD OF TRADE RETURNS.—We find by these that the exports of iron during November, as compared with the corresponding months in the two preceding years, were as follows:—

		1856.	1857.	1858.
Pig Iron	...	119,802	108,919	59,537
Bar Iron	...	454,733	388,892	395,436
Wrought Iron	...	329,410	321,454	245,494

PROPOSED WIDENING OF CARLISLE BRIDGE.

THE fact, though curious, is nevertheless true, that every person, whatever may be his occupation, considers he has *some* knowledge of engineering and architecture, or at least feels himself entitled to offer an opinion. This accounts for the anomaly of professional gentlemen submitting designs for proposed works to public committees—composed of members unacquainted either with drawings or the judicious application of scientific or artistic principles—finding themselves obliged to bow to decisions, and tacitly become the media for perpetrating what their experience has taught them to be both unsuitable and non-orthodox, and of which, sooner or later, when the public raises an outcry, all the odium is unjustly heaped on their own heads. When any improvement, municipal or otherwise, is mooted, a perfect mania for suggestions commences, and the newspapers teem with letters from "A Citizen," "A Constant Reader," "Your Subscriber," &c., &c.—all, no doubt, dictated with the best of feeling, but tending rather to complicate than satisfactorily attain the end proposed. These remarks are particularly applicable to the contemplated widening of Carlisle Bridge; and we have, since our last publication, been literally inundated with a host of communications, almost sufficient to sweep away the beautiful structure altogether.

This bridge will not bear to be tampered with, unless by a very skilful hand. The same mind that conceived its design also served to beautify our streets with their world-famed public buildings, and, as a work of *art*, is, for its extent, unsurpassed in the three kingdoms. Suggestions are occasionally valuable in their way; but if every journalist attached importance individually to each, he should find himself pretty much in the same position as a certain fabulous biped and quadruped, whose *finale* is stated to be very ludicrous, and presents a good moral both to youth and adults. Amongst the many communications that have reached us, relative to the improvement of this bridge, we give place to a few particulars culled from one by Mr. J. S. Sloane, which merit consideration, from the fact of the proposal combining both economy, sufficiency of roadway, and non-interference with the architectural features of the structure; and we are reminded that Mr. Sloane exhibited, in our Great Industrial Exhibition of 1853, elaborately-finished drawings of his design.

Mr. Sloane proposes "to remove the cut stone composing the facial ornaments at either side, adding laterally to the arch sheeting, and re-erecting the facial kerb-stone in line with either side of Sackville-street, a strong boarding being substituted for the present ballusters while the works are in progress."

DUNDALK EXCHANGE AND MARKETS COMPETITION.

MANY of our readers will doubtless recollect that the Dundalk Exchange Committee, after a lengthened investigation, awarded the first premium for best plans sent in competition, to Mr. Murray, of Dundalk, and the second to Mr. John Neville; but it was subsequently found that the approved design could not be executed for the stipulated sum of £4,000, and it consequently was rejected. Another competition, limited to the authors of the premiated designs Mr. Thomas Turner, of Belfast, and Messrs. Bellamy and Hardy, of Louth (Lincoln)—took place, in which the latter gentlemen, by a small majority of votes, were declared successful; but no contractor could be found to give the required security—*ergo* these plans also were shelved.

Finally, at a recent public meeting, Mr. Murray was appointed architect to the proposed building, and directed to submit other drawings, but rumour says their execution will exceed £4,000. So runs the course of competition!

NEW WESLEYAN CHAPEL, SCHOOL AND MANSE AT PORTADOWN.

PREVIOUS to the erection of these buildings, which are far advanced towards completion, it had been determined on to extend the premises occupied by the Society, but that being found undesirable, the project was abandoned, and an entirely new structure decided upon. The block comprehends a chapel 60 by 40 feet, with galleries, vestries and vestibule; a spacious school-house adjoining, and containing on the first floor, a large room, 60 by 30 feet, with moveable partition in the centre, so as to form two apartments, one for boys, and another for girls, 30 feet square, and 18 feet high, and four class-rooms, on the ground floor; also a manse, close by, containing dining, drawing-room, library, and five bed-rooms, with out-offices, &c. Exteriorly the design is of plain, but appropriate character, with the exception of the chapel, which has a tetrastyle Corinthian portico with mutuled cornice and pediment, and facing Thomas-street. The flank of the chapel, and front of the school building, are towards New-street. Mr. Boyd of Belfast is the architect, and Messrs. Brown and Ross the builders. The estimated cost of erection is £4,000. Material, whinstone with a quantity of cut-stone dressings.

CONVERSAZIONE AT THE ROYAL DUBLIN SOCIETY.

On the 8th ult. one of those delightful *reunions*, at which all may indulge freely in "the feast of reason and the flow of soul," took place at the Society's house, Kildare-street. Dr. Haughton read a very interesting paper on "The remains of a Roman Bath at Chester," descriptive of the history and characteristics of this and similarly-constituted structures; and in the course of his learned disquisition took occasion to allude in complimentary terms to "The Dublin Builder," as having commenced the important subject of baths on the Oriental system, hoping that it would be enlarged upon. Mr. Reid read a very elaborate paper on "The Theory of the Gyroscope," which, although evidencing a perfect acquaintanceship with the properties of this remarkable invention, nevertheless involved too much abstruseness and variety of algebraic calculations—not put forward impressively or clearly—to command even ordinary interest with the audience. Professor Barker read for Dr. Muspratt a paper on the "St. Ann's Well, Malvern," and for Mr. W. Tate on "The Holy Well, Malvern," and very wisely spared his hearers' patience in listening to a voluminous chemical analysis. Lord Talbot De Malahide, who occupied the chair, retired rather early; and after the papers were read, and some presentations exhibited, the meeting adjourned for refreshments. Another evening meeting took place on the 28th ult., at which Mr. Thomas A. Dillon explained his "improved plan for saving the crews of ships in distress," and Mr. Scriber read a paper on "the Construction of Turret Clocks;" Mr. Murray exhibited "an improved silk throwing machine," and Mr. E. J. Harty some beautifully-executed chromo lithographs.

INSTITUTE OF CIVIL ENGINEERS OF IRELAND.

A monthly meeting of this body took place on Tuesday evening, the 18th ult.; Mr. M. B. Mullins, President, occupied the chair. A paper on "The causes of Failure of Bridges over Mountain Rivers," by Mr. John W. Kelly, was, in his absence, read by the Secretary, which, referring first in general terms "to the frequency of such failures, particularized the damages done by the floods last September, in the Counties of Kerry, Mayo, &c., &c. The author held that such casualties might be prevented by more careful regulation of the water-way, both of the bridge and the channels above and below it, than is usually observed." In the case of the bridge over the Feale at Abbeyfeale, on the borders of County Kerry, a structure often noted by us as spacious and substantial, nevertheless the current of the continuous heavy rains annihilated it, and caused the loss of some lives also, owing, no doubt, to some miscalculation as to the *maximum* force of the stream, which at all times flows rapidly through it.

TOPOGRAPHICAL SKETCHES.

SKERRIES, AND ST. PATRICK'S ISLAND.

We certainly select a rather uninviting and unfrequented locality to form the subject of our present sketch. There are few places in the County Dublin with which the denizen of the metropolis is less familiar than the wild and picturesque beach of Red Island and Skerries. And it is not surprising that such should be the case, since the opportunities afforded for visiting this *locale* are but few, although one of the stations on the Dublin and Drogheda line of railway.

The first novelty which strikes the visitor as he enters the village (situated about one mile from the station, and eighteen from Dublin) is the neatness, order, and cleanliness which pervades, to a very great extent, this little town. No noisome heaps of dirt on the highway, with pigs wallowing therein in swinish bliss, are here to be met with, or ragged, barefooted urchins, devoting their bodily and mental energies to the manufacture of marbles (?) of mud, and uninviting confectionery in the shape of clay-pies. An excellent tambour factory for muslin embroidery, and two good national schools, established many years ago, snatch the children from idleness, and teach the young idea how to achieve better things than a dirt-pie or pagoda of mire.

No visitor can fail to observe the regularity with which the little white-washed cottages of Skerries are built, and the smooth, wide and unsullied surface which its main thoroughfare presents on a fine autumnal day. And, then, only look at the width of the footpaths on either side, resembling nought metropolitan that we can compare them to, unless indeed it might be those of the "Boulevards des Italiens" at Paris. In this particular, but certainly no further (except, perhaps, the civility of its people), does Skerries resemble the gay capital.

We cannot well understand how the main street is not grass-grown more or less. Look down the long thoroughfare, and you scarcely see man, woman, child, or animal, to dot its even surface, a circumstance which does not arise from dearth of inhabitants, for it contains (according to the last census) a population amounting to something like 2,300 people, of which 400 are sailors. This return, we regret to say, is not as respectable as it should be; for, in 1831, the official report announced the Skerries population as 2,556. The town appears to have been known anciently by the Saxon name of Holmpatrick, the first syllable of which, Holme, signifies haven or harbour; and Skerries, in the olden time, was quite a Portsmouth in importance. The addition of "Patrick" to the Holme, may be attributed to the frequent visits paid by the Apostle of Ireland to the village, and for its proximity to St. Patrick's Island, of which we shall speak hereafter.

The only historical circumstance which can be said to be connected with the place is, the landing of Sir Henry Sidney here in 1575, immediately after his appointment by Queen Elizabeth to the Lord Deputyship of Ireland. The harbour, which is tolerably large, is well situated, and affords good shelter in S.W. gales. Prior to the withdrawal of the fishery bounties, the trade of Skerries was very considerable. In 1846, there were two vessels of 60 tons in the port, and forty from 30 to 150 tons, well manned with yawls, and an extensive supply of those invaluable appendages nautically known as "Hands." Upon reference to the Irish newspaper files for 1755, it will be perceived that a grant of £2,000 was awarded by the Irish Parliament for the construction of its pier, which became, however, so much dilapidated by storm in subsequent years, that it remained quite neglected, and would most probably have fallen into utter decay, if the proprietor of the town had not handsomely come forward and repaired it at his own expense.

What is that square embattled tower crowned with pinnacles which appears so haughtily to look down upon its less "stuck-up" neighbours? That, reader, is the parish church, and the capacious pile of building yonder, is the Catholic chapel. Appertaining to these places of worship are opposition national schools, wherein the little villagers receive much educational advantages. In the "good (?) old times," the entire parish of Skerries was always exempt from the intolerable tithe exaction, and of course those notorious and unfortunate riots which were the almost invariable attendant upon the despotic impost. Strewing the graveyard of the church, the antiquarian may find several large tombstones to interest him, three or four of which bear different dates in the fifteenth and sixteenth centuries. Within is a monument erected to the memory of the late landlord of the village, Mr. Hans Hamilton.

Leaving the village behind us, we direct our steps to Red Island, many years ago detached from the mainland, but now united to it in such a manner as to resemble a little promontory rather than an island. It now contains several dwelling-houses, and may be said to form a portion of the village. From the extremity of Red Island (on which there is a martello tower) to the mainland, the harbour is formed, and usually contains some twenty or thirty sailing vessels. In former times, when adverse winds prevented Irish vessels making into Kingstown Harbour, they were often obliged to put into Skerries, and there disembark their passengers, which we need not tell the reader was a very acceptable windfall to the struggling innkeepers of the town. This practice, however, has long been discontinued, and a Kingstown boat putting into Skerries Harbour is a thing unheard of in these enlightened days of telegrams and steam locomotion.

Away to the left, rising dimly in the distance, you may descry the picturesque ruins of an old castle, formerly inhabited by the Knights Templars; and, immediately over the town, two other objects, of less importance in a picturesque point of view, stand out in bare relief against the horizon. These are a brace of old windmills which we did not notice before, and which are merely adverted to now because the history of the conflagration of the principal one, some fifteen years ago, forms quite an epoch in the uneventful annals of Skerries.

With expressive action and glowing cheek, some honest old Fingallian will tell you all about its "total conflag-u-ration" years ago, and what a state of consternation Skerries was in that night.

"Yez may talk of fireworks," he will say; "but by the tables o' war, the Portobello man himself never saw the likes that could compare to the big win'-mill the night it was conshumed. You must know, Sir, the four blades o' the mill were covered entirely wid canvas, all coated over wid pitch, an' as there never was sich a win' blowin' as there happened to be on that night, the flames cotch them in double-quick time, and away it spun round and round, for all the world like a tremendious Catherine's wheel afther bein' fired off."

The Skerries and Balbriggan district is still known by the old Irish territorial designation of Fingal, and its inhabitants rejoice in the distinctive appellation of "Fingallians." This ancient name, according to the Annals of the Four Masters, was applied to a large territory, part of ancient Bregia, extending along the sea-coast between Dublin and Drogheda, and a few miles into the interior, which derived its name from a colony of Norwegians, which settled there in the tenth century. This race of people were called by the Irish *Fionn Ghaile*, which, being anglicised, signifies fair-haired foreigners; while those of the Danish colony, stated to have been established south of the Liffey, near Dublin, were known by the designation of *Dubh Ghaile*, or dark-haired strangers. The territory of Fingal, together with the City of Dublin, was possessed by the Danish and Norwegian colonies for nearly three centuries.

The Fingallians have been always remarkable for much muscular strength, agility and resolution, and it is their constant boast that these characteristic qualities have been creditably sustained by them with all their pristine vigour to the present day.

In a quaint old work entitled "Topographaia Hibernica," published in the last century, we find the race at present under consideration thus spoken of: "This district, situated to the north of Dublin, is inhabited by a people usually called Fingallians; they have a peculiar kind of dialect, in a broken English; short, guttural, and disagreeable to a nice ear." It may be well to say that "this peculiar style of dialect" has almost entirely passed away, and there is nothing about the appearance or voice of a Fingallian at the present day which would render him peculiarly remarkable.

The Skerries guide usually exerts himself considerably in calling the stranger's attention to the print of St. Patrick's foot, which he tells us is indelibly ingrafted in a small rock at the extremity of Red Island, not far from the water's edge. The print (which appears like the impression of a large foot in a mass of petrified mud) is firmly believed to be a genuine relic, by many of the natives. and not a few of them support that the impression of the second foot may be seen on a similar rock at St. Patrick's Island, about three miles away. The Apostle, according to tradition, when expelled by the Pagan inhabitants of the southern side of the Bay, landed on the Island, since called St. Patrick's, and consecrated it. A more interesting little spot, to our thinking, with the exception perhaps of Innisfallen, "where erring man might hope to rest," does not exist in or about Ireland. Regarding it in this light, it is not surprising that we should have felt a desire to set our feet upon its shore, and explore all that remains of that remarkable monastery which hallows the little Island of St. Patrick. With this object in view, we get on board an airy little yacht, the property of our friend already alluded to, away we scudded through the angry sea, making direct for Innispatrick, our swelling canvas well-high kissing the water, at intervals, and ourselves and crew, at every lurch, pitched about from one side of the deck to the other in a manner the most unprovoked and unceremonious. As the gale increased, we thought, with a smile, of the anecdote which described four strong sailors as having been necessary to hold on the captain's hat.

The nearest island to the village is Shenex, on which there has been erected a formidable-looking martello tower, crowned with some pieces of ordnance. This island may be reached at low water from the mainland by all those who do not mind immersion half-way to their knees, and subsequent rheumatic pains. Next to Shenex, is Colt Island, so called, we take it, from a time-honoured tradition which declares that superannuated horses thrive from the moment they eat a blade of grass off the verdant sward which covers it. The Fingallians go so far as to say, that if a garran as attenuated as that which bore La Mancha's Knight is brought over to Colt Island and left there to graze, a striking improvement in the animal's condition is immediately apparent, and ere three weeks elapse (so the tradition goes) the quondam Rozinante may be removed from the magic spot as fresh and vigorous as a young colt. The number of horses which may be seen grazing there decidedly attests that this absurd assertion is firmly believed by many of the inhabitants; but the condition which the animals present is very far indeed from corroborating the truth of it. After the incomparable Colt Isle, comes St. Patrick's; and a few miles further away in the ocean may be seen the Rock of Bill. This small cluster of islands must not be confounded with a little group in the Atlantic called the Skerries, situated on the north-west coast of Antrim, and not far from the Giant's Causeway.

Some knowledge of scaling is essential to reach the top superficies of the island, as its banks. all round, rise somewhat perpendicularly from the water's edge, and the few pathways which have been formed from time to time about it do not much facilitate the ascent. We smiled as we wound our way up, when we bethought us how, more than fourteen hundred years ago, St. Patrick did the same; and, with some fertility of imagination, we pictured the great Apostle to ourselves, sticking his crozier in the ground at every progressive step, in order to assist him in the steep ascent. These banks, as also other portions of the island, are nearly as much burrowed with rabbit-holes as a piece of old wood extensively eaten by the dry-rot; and epicures have frequently confessed over their cups, that there is a peculiar flavour about the little animals which is most delicious and rare—a quality attributed to their living almost exclusively on the "wild thyme" and "nodding violet" which luxuriantly cover the banks of this consecrated spot. If Old Ireland was the Island of Saints *par excellence*, we suppose Innispatrick ought to be the Island of Saints Junior, for it is asserted that the bodies of many of the canonised Irish are interred in and around the ruined monastery. Whether this may be the case or not, we cannot pretend to say, but certain it is that human skeletons have been discovered on more than one occasion in its hallowed precincts.

The island contains about nine acres of ground, which in springtime is covered by an exquisite carpet of wild flowers, whereon the rabbits disport and gambol in the most amusing manner.

The monastery must have been somewhat extensive in its palmy days. as fragments of it may still be seen standing in two or three parts of the island, a great distance removed from each other, but all evidently forming one edifice many centuries ago. The principal fragment stands immediately over the sea, and has a very fine effect when viewed by twilight from the water beneath. According to the Annals of Ulster, a monastery was founded here at a very remote period, which the Danes are recorded to have burnt in the year 797. About 1120 it was re-founded, and dedicated to the Apostle of Ireland. In 1148, as stated in the Annals of the Four Masters, a synod was held here by Gelasius, Archbishop of Armagh, in which fifteen bishops, two hundred priests and several others of the clergy participated. Altogether it is an interesting ruin to the student of Irish history, and well deserves a visit. In the work already referred to ("Four Masters," page 270) we find mention made of this Island, which it may not be irrelevant to quote:—"The place of St. Patrick's landing is supposed to have been on some part of the County Wicklow or Dublin; but being repulsed by the natives he sailed northward, and landed on a small Island on the coast of Bregia, which was subsequently called St. Patrick's, and is situated near Skerries, in the County Dublin."

Inside the ruin a grass-grown earthen hillock marks the spot where a detachment of money-seekers made their excavations some thirty years ago, before the Californian gold-diggings were ever even thought about. The digging, it appears, was prosecuted with considerable industry until they came to a stone arch leading into some vaulted passage, then, as now, completely filled up with clay and rubbish. Whether strength, patience, permission or finances were required to pursue their investigation, or whether it was that a Babel-like confusion unexpectedly ensued, history does not record. Certain it is, they went no further—perhaps from a feeling of superstitious awe. The hole was refilled instantly, and away the diggers went without discovering any money to reward them for their pains. We must not omit mentioning, however, that a few church ornaments were turned up in the excavations, together with a rude square of greenish-coloured glass. St. Patrick's Island was lately advertised to be let; and it more than once occurred to us that if some of our zealous archæologists would take it, and cause the work to be resumed which the money-seekers abandoned so capriciously thirty years ago, they might, in their investigations, find some interesting antiquities to grace the Museum of the Royal Irish Academy.—*The Institute.*

Architecture and the Royal Dublin Society.—On the occasion of the recent distribution of prizes to the pupils in the Society's schools, His Excellency the Lord Lieutenant offered the following pertinent remarks relative to the neglect of architectural education at present apparent there:—"The various subjects in which it appears from the report the pupils have been instructed, must have struck you all as being of a most useful character; but there is one art in which I feel deeply interested—though no proficient—for progress in which I have not observed any prizes awarded to-day—I mean architecture! I think I understand that in the higher walks architecture is included. I hope that it will here attain to considerable importance, and that if, perhaps, as Dr. Waller has said, we all meet again here next year, as I hope we will, I may hear of prizes being awarded to some students for proficiency in that most useful and beautiful art."

The Catholic University Church in Stephen's-green.—This building, recently erected after a model of a church in the Catacombs, has been denounced by the Rev. Mr. Thomas (a votary of Pugin's) of St. George's, Southwark, as "a horrid monster of a building,' and "a horrid thing that frightens the world." Some one replied in a pamphlet entitled, "A Word to the Goths," ridiculing Gothic architecture. Dr. Newman. the Rector of the University, in disclaiming the authorship of the pamphlet, says, "he never set himself against the adoption of Gothic architecture in ecclesiastical structures; and "though at first contemplating its adoption for this church. and thinking it the most beautiful of architectural styles, nevertheless claimed the liberty of preferring for the purpose of worship and devotion a description of building which, though not so beautiful in outline. is more in accordance with the ritual of the present day. more cheerful in its interior, admitting more naturally of rich materials, of large pictures or mosaics, and of mural decorations."

Embellishment of Dublin.—A correspondent of *Saunders's Newsletter* again suggests the oft-repeated wish, "that Sackville-street should be ornamented with trees, like the European and American cities." This would be a consummation, no doubt, but there appear to be much more material improvements which first deserve public attention—very long talked of—but apparently as far off as ever.

Notes of New Works.

The first stone of the new National Gallery of Ireland, with which is incorporated the Dargan Testimonial, was laid on the 29th ult. by His Excellency the Lord Lieutenant. It will form a corresponding wing to the new Museum, built by the Royal Dublin Society, on their lawn at Merrion-square.

A new spire has been erected to the Roman Catholic cathedral at Ballina, of limestone, with twelve spire lights, terminated by a bronzed cross. Total height, 175 feet. Mr. Canning, builder. The cathedral is a Gothic structure, cruciform on plan, has transepts and a nave, and one aisle, also a recently added ribbed ceiling (after a design by Sir John Benson), with ornamental bosses, brackets, &c. The cost was about £35,000.

A new Roman Catholic church is proposed at Crossmolyon, according to plans furnished by Mr. Canning. It is designed to be cruciform on plan, with nave and transepts, tower and spire at west gable, chancel, sacristy, &c.; open timber roof, stained and varnished; and measures 100 feet by 30 feet. Material for walling is rubble limestone, with chiselled dressings. There is but one traceried window. The cost, including erection of spire, will be upwards of £2,000.

A new church is about being erected at Screen, 14 miles from Ballina, similar to the above.

A new convent is being built at Ballina, according to plans by Mr. J. J. M'Carthy, R.H.A., architect.

A neat school-house has been just finished in the town of Ballina, for the Methodist Society, by Mr. Canning, builder.

OYLEGATE CHURCH.—We have received from a correspondent a description of the rise and progress of this building. The walls are now over twenty feet high, and just ready to arch in the side windows, four on either side, which stand 12 feet by 3½ wide, divided by a mullion and tracery, and are neatly jammed, cased, and labeled with chiseled granite, as are also the doorways, the great eastern window in the chancel, and the new one over the grand doorway in front, on each side of which are inserted niches with foot base, labels and ornamental facings of the same well-executed material for statues of the Immaculate Virgin Mary and St. Joseph. The grand five-lighted window, with its catharine wheel and trefoilated tracery, stands 21 feet by 10 wide, and the fine three-lighted one, 12 by 5½ feet wide. The material is of the best quality of bluish quarry stone, unexpectedly found in the old quarries of Jamestown, and gratuitously presented to the parish by the liberality of the proprietor, Nicholas Gray, Esq., Tenny Park, County Kilkenny, who gave the desired site and title. Mr. Patrick Murphy, of Enniscorthy, is to finish the church suitable to the style of the early English, for the sum of £1,259. Sir James Power, Bart., contributed £100; Lady Power, £20; and each of their children, £25; as also did the Rev. Mr. Busher, £40; Mr. Michael Murphy, £50; and Messrs. Michael Sutton and Ryan, £30, &c., &c.

An addition of 40 feet is being made to the Robertstown viaduct, which will make its entire length 360 feet. Mr. Dargan, contractor.

The new warehouse of Messrs. P. Johnstone and Son, now nearly completed in Donegal-street, Belfast, is an amalgamation of the Roman Doric—which prevails in the lower portion—and Corinthian in the upper storeys. The material used in the former is Scottish freestone; the upper part being Portland cement. The building is 100 feet deep, 60 feet high, and has 50 feet frontage. The windows have their frames and sashes, which are of solid mahogany, filled with polished plate glass, supplied by Mr. Sibthorpe, of Dublin. The painting has been done by Mr. Gaskin, of Donegal-street, the stone work by Mr. Robinson, of York-street, the carpentery by Mr. Carlisle, of Donegal-street. The gas-fitting, which is not yet complete, has been entrusted to Mr. R. Stewart, of Victoria-street. This warehouse, which is for the wholesale grocery trade, is of a very important character, and adds another to the list of handsome commercial establishments with what Belfast is adorned.

A new Roman Catholic church is building at Bohola. Messrs. Doolin, builders.

A new school is being built at Coleraine, and when completed will cost about £4,000.

A new Temperance Hall, which will include coffee-rooms and a saving's bank, has been opened in Derry.

PROPOSED NEW INDIA OFFICES IN LONDON.—Messrs. G. G. Scott and Digby Wyatt have been appointed by the Secretary of State for India in Council, joint Architects for erecting the new India Office. It will form a united front with the proposed Foreign Office, and will occupy half the site in Downing-street, which faces Parliament-street. Mr. Scott to design the exterior, and Mr. Wyatt the interior.

A marble statue of General Sir Charles Napier is proposed to be placed in St. Paul's Cathedral.

The Limerick and Ennis railway has been opened for public traffic as far as Clarebridge. The bridge over the Fergus, at Ennis, will be one of the finest structures in the kingdom.

THE DUNDALK AND ENNISKILLEN RAILWAY.—According to a notice understood to have been served on the Government Inspector, the line will be ready for opening to Enniskillen on the 1st of Feb.

A statue of Louis XIV. is about to be placed in the wood of Vincennes, recently converted by the Emperor Napoleon into a park in English style.

VENTILATION FOR CHURCHES, THEATRES, ASSEMBLY ROOMS, &c. —We would suggest as an efficient mode of ventilation: a gas-light, or a number of jets, according to the capacity of the building, to be kept burning at the highest point of the ceiling, immediately under and enclosed by a funnel-shaped flue of cast iron, communicating with a pipe of the same material, which should be carried above the highest point of the roof. This will act in the same manner in drawing a current of air as the ordinary fire-place, causing all the vitiated air of the apartment to ascend to it, and be carried off in its flue. If required to be used during daylight, it can easily be concealed by an ornamental thoroughly-obscured glass globe, or metal centre-piece open only at the sides.

THE STREETS OF CORK.—The local journals, like those of "dear, dirty Dublin," teem with complaints respecting the muddy state of the streets, and one correspondent concludes by saying, that "the mud looks so venerable that it might plead prescription against any one who attempted to disturb it." The Corkonians, however, have not yet seen the farce enacted, as in Dublin, of their Corporation waiting on the magistrates to ask their assistance in making householders sweep before their doors, laying blame on the latter chiefly, and shoving culpability off their own shoulders. Rather a cheap mode of scavenging that for the municipal council to adopt! It should certainly cause a reduction in taxation.

To Correspondents.

C. C. H., Artizan (Your views are erroneous; we disclaim partiality to *any* class, and a re-perusal *ought* to convince you that its tone was quite as favourable to one as the other).—M. M. (We shall take an early opportunity of replying, perhaps personally).—R. R. B., Cork (We note suggestions thankfully, and deem yours valuable).—Workman, Limerick (Copies are obtainable from Mrs Flinn, bookseller, in your city).—R. P., Wexford (The subscription, per post, is 4s. annually in advance).—Intending Subscriber, Cork (You will see our agent's name and address at foot).—C. E., Mudlark (A hackneyed subject). —Viator, X. Y. Z., &c., relative to Carlisle Bridge, noticed elsewhere.

To Advertisers.

Special attention is respectfully directed to the advantages offered by "THE DUBLIN BUILDER" *as a medium for advertisements of a* certain *class. It is* simultaneously *circulated in* BELFAST, CORK, *and* GALWAY, *as well as* DUBLIN, *on the 1st of each month, and its list of patrons comprehends nearly all the principal* ARCHITECTS, CIVIL ENGINEERS, COUNTY SURVEYORS *and* BUILDERS *in Ireland; independent of a host of other parties, whose occupations or tastes are more or less identified with the purposes for which the Journal is being established.*

The heads of some eminent manufacturing firms, both in England and Scotland, have already recognised and adopted it, as a desirable medium, and doubtless their example will be followed by others. Without presuming to state that the extent *of its circulation can compare with some* old *established journals, we must, nevertheless, impress on you, that being a class periodical, it* at once *goes* directly *into the hands of those, for whom certain advertisements are intended, and remains with them as a permanent record; unlike the evanescent character of some other journals, having a more promiscuous circulation.*

"THE DUBLIN BUILDER" *is also to be found at Public Reading-rooms, Libraries, Mechanics' Institutes, Clubs, Hotels. &c., &c. Approved blocks or stereotypes will be inserted in the advertisement pages.*

NOTICE.

Orders for Subscriptions to, and Advertisements for, THE DUBLIN BUILDER, *will be received at the Proprietors' Office,* 17, LOWER GARDINER-ST.; *or by the Wholesale Agents*—GEORGE MASON, 24, *D'Olier-street; and* JOHN PLASTO, 144, *Upper Abbey-street;*

At CORK, *by the Agent, Mr. S. M. Peck,* 40, *South Mall;*

At BELFAST, *by the Agent, Mr. Francis Dowd,* 47, *Townsend-st.; and all Booksellers;*

At GALWAY, *by Mr. T. J. Connolly, and Mr. Wade, Booksellers.*

Agent for LONDON, *Mr. Francis Fisk,* 5, *Lordship-lane, Tottenham N.*

Yearly Subscription (payable in advance), 3s.; *per post,* 4s.

NOTICE.

Owing to a quantity of Advertisements crowding in on the eve of our going to press, and when we had not an opportunity of either increasing the size or publishing a supplement, we find ourselves reluctantly compelled to intrude upon the ordinary reading space. Should we be enabled, however, to retain a similar complement of Advertisements for next or succeeding publications, we shall enlarge the journal without extra charge, and trust that for this number our friends will overlook the encroachment.

Publications.

ARCHITECTURAL AND ENGINEERING BOOKS.—Published every alternate Month, and sent Gratis and Post Free to all parts of the World, E. and F. N. SPON'S Catalogues of Books relating to Architecture, Civil and Mechanical Engineering, Ship-building, and Trades and Manufactures.

Second-hand Books on the above subjects purchased or taken in exchange.

E. and F. N. SPON, Scientific Booksellers, 16, BUCKLERSBURY, LONDON.

Just Published, Price 2s. 6d., free by Post,
THE LAW OF PATENTS
FOR INVENTIONS in IRELAND,
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REGISTRATION OF DESIGNS.
SECOND EDITION
With the Statutes, Rules, Forms, and Cases, to the latest period.
BY JAMES P. BYRNE, ESQ.,
SOLICITOR AND PATENT AGENT.
Sold by the Publisher (O'GORMAN), 33, Upper Ormond Quay.

"A most satisfactory, reliable, and useful manual." —*Warder.*

"A masterpiece; highly and instructively interesting to the man who has the ability to invent."—*Advocate.*

"The work contains much valuable information in a small compass, and is creditably brought out."—*Daily Express.*

"Useful to the public, while it reflects credit on the writer."—*Saunders' Newsletter.*

THE LAND AGENT AND SURVEYOR'S POCKET BOOK, free by post on receipt of forty-eight 1d. stamps, by the Author, D.E. HEFFERNAN, Civil Engineer, Surveyor and Valuator, of over 20 years' varied and extensive practice, 41, Upper Sackville-street.

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PATENT METALLIC BEDSTEADS,
WITH PATENT FAUCET JOINTS.

Attention is respectfully directed to the superiority of these over other descriptions of Metallic Bedsteads.

Whilst excelling all other kinds in the great simplicity of construction, & facility of putting together, they present to the eye a substantial and elegant outline, instead of that meagre and unsightly appearance which has hitherto been so great an objection to other descriptions of Metallic Bedsteads.

The joint, which is extremely simple, has no projecting part, is very accurately fitted, and has no liability to break or get out of order; and the Bedstead when put together is remarkably firm.

Manufactured solely by the IRISH ENGINEERING COMPANY, who invite inspection of their very large and varied Stock, at the SEVILLE IRON WORKS, SEVILLE-PLACE.

VENTILATION—PURE AIR.—A New Patented VENTILATOR applicable to Public Buildings, Houses, Ships, Carriages, &c.

"It is exceedingly ingenious, and the inventor has solved the problem which has so long baffled the calculations of science and experience."—*Atlas.*

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For particulars apply by letter to J. P. BYRNE, Esq., Solicitor, North-West Chambers, 4, Lower Ormond-quay.

NEW INVENTIONS AND DESIGNS
PROTECTED *(pursuant to the Acts of Parliament) for the exclusive use and benefit of the Inventors or Designers. The principles and details of manufacturing all existing Patented Articles, and of making Registered Designs, fully explained. Application by letter to* JAMES P. BYRNE, *Esq., Author of "The Law of Patents and Designs," &c., 4, Lower Ormond-quay, Dublin.*

Oils, Colours, Glass, &c.

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(near D'Olier-street).

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THE Cheapest House in Dublin for Room Papers, Window Glass, and Laminated Lead for Damp Walls, is J. O'LEARY'S, 1, TEMPLE-LANE, DAME-STREET.

PAPER HANGING AND HOUSE PAINTING.
WM. COSGRAVE begs to direct the attention of the Public in general to the superior quality of his Workmanship and Material.
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Importer of Crown and Sheet Window Glass, Oils, Colours, Brushes, &c., &c.,
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THE NEW YEAR.
CHARLES M. STEPHENS, BUILDER, begs leave to return thanks to his many kind friends and the public for their very liberal patronage and support since his commencement in business, especially during the past year; and hopes by strict attention and punctuality, combined with superior workmanship, to merit a continuance of the same in the ensuing year. General satisfaction guaranteed.
Please copy the address—
28, WEXFORD-STREET, DUBLIN.

Statuary, Marbles, Cements.

W. R. MANDERSON, SCULPTOR, and Marble Works, 174, Great Brunswick-street, in returning his sincere thanks to the numerous Patrons who have so liberally supported his Establishment for the last Twenty Years, begs to inform them that he will continue to sell, at the lowest scale of profit, *Marble Chimney-pieces, Monuments, Table-tops, Fonts, &c.*, of the best material and workmanship.

N.B.—Since the commencement of the Crimean War, W. R. M. has been honoured with the execution of 183 *Monuments* (a list of which can be seen).

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KILKENNY MARBLE WORKS.
The Proprietor of the long-established Marble Works at Kilkenny (A.D. 1693), has been induced to open a Branch of his Establishment at No 43, Grafton Street, Dublin; and begs to acquaint the Public that he has now on view a large assortment of CHIMNEY-PIECES, TABLES, FONTS, &c., &c., to which he invites special attention.

These articles are all manufactured by the aid of extensive Water-power and Patent Machinery, by which the polish and finish are superior to any other description of manufacture.

Also, for the convenience of purchasers, GRATES of superior quality, to suit the CHIMNEY-PIECES, will be supplied.

All kinds of STATUARY WORK executed. Designs for ALTARS, MONUMENTS, TOMBS, FIGURES, &c., &c. forwarded on the shortest notice. Orders will be received at No. 43, Grafton-street, or at the Works, Millmount, Kilkenny, addressed to the Proprietor,
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ALABASTER, PORTLAND CEMENT, ROMAN CEMENT. Sold by WM. M. WHEELER, 7, CARRICK-HILL, BELFAST.

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CREAN WM. GIBLAN'S Establishment, 29, GT. BRUNSWICK-ST., DUBLIN, is (since Nannetti's death) the *only one in Ireland* where Architects can procure Classic Examples of the various styles of ARCHITECTURAL ORNAMENTS, COLOSSAL ANTIQUE STATUES. ORNAMENTS for PLEASURE-GROUNDS. SCRIPTURE FIGURES, from one foot to six feet high, of every description.

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J. C. having executed the Plastering of a great many Catholic Churches, also Noblemen's and Gentlemen's Mansions, in different parts of Ireland, is prepared to undertake and execute any orders he may be favoured with in the most artistic style of workmanship, with punctuality and despatch, on the most reasonable terms. Country orders particularly attended to. Estimates furnished free of expense. A large quantity of Scaffolding on hire.

P.S.—I am at present finishing the interior of St. James's Catholic Church, James's-street, in the richest style of Gothic architecture, to which I beg to refer as a specimen of my workmanship.
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2, BESSBOROUGH-PARADE, RATHMINES.

THE M'ANASPIES', DUBLIN ARTISTS and PLASTERERS, is the only House in their line which has received MARKS OF DISTINCTION at the different Exhibitions for Works of Art, Architectural Subjects, and Manufacture, &c.; having on hands busts and moulded capitals representing the Four Evangelists and Twelve Apostles, adapted for corbels, under buttresses, &c., of mediæval buildings; figures, centre-pieces, vases, bosses, &c.

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FIGURES OF ST. JOSEPH AND THE VIRGIN AND CHILD, at
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Casts of those figures, FIVE feet high, and taken from the originals, introduced into Ireland by the Earl of Shrewsbury, may be obtained at above address.

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C. LAVENDER, Manufacturer of Vitrified Glazed Stone Ware Drain Pipes, with Socket Joints, Junctions Bends, Water-closet Basins, Syphon Traps, Hoppers, &c.; Terra Cotta Chimney Tops, Ornamental Vases, &c., in a variety of patterns; Fire Bricks, Blocks and Bearers, Vent Linings, Grate Backs, Gas Retorts, &c.; Ridging, Roofing, Flooring, and Oven Tiles, in great variety; Roman, Portland, Medina, Bath, and Kane's Cements. Plaster of Paris, Gypsum, and Terras Lime.

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168, GREAT BRUNSWICK-STREET.
⁂ Country Orders strictly attended to.

Miscellaneous.

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THE EXHIBITION of BRITISH and FOREIGN PHOTOGRAPHS is OPEN daily, at 5a, PALL MALL EAST, from 9 till dusk; and on Tuesday and Thursday Evenings, from 7 till 10. Admission free to Subscribers to choose their subjects; to the public, One Shilling. Season Tickets, Half-a-Crown. Catalogue, Sixpence. Illustrated Catalogues, to Subscribers, Five Shillings; Non-Subscribers, Seven Shillings and Sixpence.

Particulars as to Subscriptions and choice of subjects may be had on application to the following local Honorary Secretaries:—Dublin, C. Papworth, architect, 7, Talbot-street; Belfast, W. H. Lynn, architect; Cork, Sir John Benson, architect; Limerick, Wm. Fogerty, architect; Kilkenny, Rev. J. Graves, at whose offices Illustrated Catalogues may be inspected between the hours of 10 a.m. and 5 p.m.

HIBERNIAN Gas Light Company.

Committee:

LEONARD THORNHILL, Esq., Chairman.

John Patten, Esq. | Robert Simpson, Esq.
James Haughton, Esq. | Jeremiah Dunne, Esq.

2, Foster-place, Dublin, 1st Jan., 1859.

The Price of Gas is THIS DAY REDUCED to FOUR SHILLINGS and NINEPENCE per Thousand Feet, in accordance with the Notice in previous advertisements.—By Order,

GILBERT SANDERS, *Secretary.*

REDUCTION in the PRICE of GAS.—Notice is hereby Given that the Directors of the Alliance and Dublin Consumers' Gas Company have this day REDUCED the Price of Gas to FOUR SHILLINGS and NINEPENCE per Thousand Cubic Feet.

By Order,
JOHN STEVENSON, *Secretary.*
114, Grafton-st., 1st Jan., 1859.

GAS FITTINGS. — The Alliance and Consumers' Gas Company, expecting that the reduced price of Gas, added to its many other advantages, will produce a largely-increased consumption, and consequently involve the necessity of putting up additional Fittings, have made arrangements for meeting the requirement of the Public in both respects.

Their SHOW-ROOMS are amply stocked with the Newest Designs in CHANDELIERS, BRACKETS, HALL and LOBBY LIGHTS, &c.; and they specially invite an inspection of their GLASS LUSTRES, to the selection of which they have given particular attention.

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JOHN ARCHBUTT, 20, Westminster Bridge Road, Lambeth. near Astley's Theatre, respectfully calls attention to his Stock of the above articles, manufactured by superior workmen. The prices will be found considerably lower than ever charged for articles of similar quality. An illustrated price list forwarded free on application. 8-inch Dumpy Level complete, 6 guineas; 10-inch ditto, 8 guineas; 14-inch ditto, 10 guineas; with compass. 1 guinea each extra. Best 5-inch Theodolite, divided on Silver, 18 guineas.

To Architects, Engineers, Artists, and Amateurs.

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100	„	RED PINE TIMBER.
13	„	ELM
3	„	OAK.
20	„	YELLOW PINE.
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SWIFT'S-ROW, Lower Ormond-quay
(*Near the Metal Bridge*).
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The Dublin Builder.

VOL. I.—No. 3.

THE GAS MOVEMENT!

WHAT DOES GAS COST?

FIGURES, like facts—when based on reliable data—are stubborn things! but capable of being occasionally tortured to answer purposes. The public, therefore, should not confide too much in startling results, produced by a long array of calculations, but satisfy itself of their accuracy by examining items. Without introducing ourselves as practical or experienced gas engineers, capable of teaching the art of manufacturing gas of the best quality, and at the smallest possible cost, nevertheless we *do* claim to be sufficiently conversant with the subject *theoretically* to entitle us to a place amongst those who, for public information—and calling common sense tot heir aid—seek to adjudicate on the conflicting statements recently circulated in our city. Cheap light, as well as cheap food, cheap clothing, and cheap house rent, is a desideratum to which not only the poor man anxiously looks, but also does every member of the community who has a regard for his pocket; and is one of those articles in every-day use which must be affected by the march of improvement towards universal economy. Be assured a mercantile firm will not, from mere philanthropic motives, supply goods to the million at a loss, or that a *bona fide* gas company will light our dwellings without an actual profit on the aggregate supply. But as water finds its level, so does labour and every known article develop, sooner or later, its marketable value; any material deviation, therefore, from the usual tariff, unless where the deterioration of the raw material may justify it, at once excites curiosity, and probably suspicion that chimerical elements must exist in promised advantages. To determine, therefore, if it be practicable to supply the citizens with *better* gas, and at a greatly reduced rate, to that now in use, attended with profit to the manufacturer; and to treat generally of items affecting a principle in which the public must feel deeply interested, is our immediate purpose in devoting a series of articles to the subject; and we are also led to inquire how a company dawning into existence is enabled to supersede those for many years pursuing their operations, and by whom each fall in the market has been turned to greater or lesser account.

To this end let us examine propositions, without, however, wearying our readers with more statistics and figures than are necessary.

The prospectus of a new company, entitled "*The Independent Gas Consumers Company*," projected by Mr. Flintoff, a gentleman whose name has been identified for some years past with agitation respecting gas, both in Dublin and elsewhere, proposes—

> "To supply the city and neighbourhood of Dublin with gas at 3s. 6d. per 1,000 cubic feet, of *better* quality than that at present charged 5s. per 1,000 feet."

And, moreover, that this

> "Is to be a uniform charge to both large and small consumers, free from meter rent; and when the profits of the company exceed 10 per cent. per annum, a further reduction will be made."

In testimony of its capability to perform this, the company (or its projector) advances that—

> "The price of gas in London, Birmingham, Sheffield, and Liverpool varies from 2s. 10½d. to 4s. per 1,000 feet, and one of the Dublin gas companies is supplying the inhabitants of Cork with gas at *Two Shillings and Six pence* per 1,000 feet, while the charge in Dublin, through the absence of competition, is at present 5s., with meter rent, making it about 5s. 3d. per 1,000 feet."

And further that—

> "In consequence of reductions in cost of apparatus, and improved modes of manufacturing gas, a *new* company can erect the most efficient gas works for less than one-fourth of the sum said to be expended by the existing companies."

And that—

> "Her Majesty's Commissioners of Woods and Forests reported in 1847 that good gas can be afforded in Dublin at 3s. 6d. per thousand cubic feet, after paying dividends of ten per cent. per annum on a much larger amount of capital than is now required to erect gas works."

This, doubtless, sounds very well, and if carried out would decidedly prove a great desideratum, and fully account for another paragraph in the prospectus—viz., that,

> "The directors have the pleasure to state, that contracts representing an annual consumption of 212,000,000 of cubic feet of gas have been signed by 6,114 individuals and firms, who are ready to become consumers of gas as soon as the company can supply them. It is also worthy of remark, that before issuing a single advertisement, 437 influential resident consumers of gas have become the holders of a very large proportion of the company's shares."

We are told also that—

> "For the convenience of the public, it is proposed to lay the mains and service pipes of the company, during the night, upon the plan successfully adopted in London, where sixty miles of pipes were laid in the short space or two months."

Confining ourselves for the present to the question of *better* and *cheaper* gas, as promised for 3s. 6d. per 1,000 cubic feet, than that now supplied at 5s., lately reduced to 4s. 9d.; we must remark that the quality remains *yet* to be proved, for there is a vast difference in the illuminating power of the gas extracted from Whitehaven and Newcastle coal, as well as other coal; for instance, Blenkinsop, which is used by and delivered to the Belfast company at 13s. 6d. per ton. If, therefore, the quality be affected, the cheapness becomes a matter for consideration, for an old adage says, "the *best* is the cheapest;" but, for aught we know, the illuminating power of the proposed gas may be intended to be *superexcellent*; and we heartily wish, for the sake of the consumers and the citizens generally, it may prove so.

With respect to item No. 2, we unhesitatingly must subscribe to the universal opinion as to the obnoxiousness, and, we may add, as to the palpable injustice of "meter-rent" at all, for with quite as much reason might merchants and traders impose a tax on the public for the conveyances and materials requisite for the delivery of their goods to customers, as a gas company for the supply of gas by meter to their houses, at its own quoted prices; besides which, the apparatuses intended to determine the value of the quantity delivered to the consumer, are supplied by the companies themselves, and what guarantee is therefore afforded to the public of the accuracy of their just action towards manufacturers and consumers? That meters, like clocks, watches, and all mechanical indicators, will at least occasionally get out of order, is an admitted fact, but a question at once suggests itself, who is to *pay* for the irregularity in the former case? Various are the complaints that have reached our ears, and those, too, from intelligent parties, some of whom state openly that when their consumption is but *one-third* at one time what it is at another during a similar period, the demand made by the company, according to the index of the meter, actually exceeds in quantity and amount what it was previously.

Now we can also adduce a fact that where a small account for a quarter's gas supply was 3s. 6d., the meter-rent was 2s., or better than *one-half* the cost of the gas; thereby charging a total of *five shillings and sixpence* for about *seven hundred feet* of gas, whereas we are told that it is purchaseable at *four shillings and nine pence* per *thousand* cubic feet. We must urge the desirability of dispensing with meter-rent altogether, and *if* the intention to do so of the "Independent Gas Consumers Company" be faithfully carried out, it shall have earned worthily the gratitude of the public,

With reference to the comparative value of gas in London and the other towns named in the prospectus of this company, as compared with Dublin, we find a difficulty in tracing any analogy, except as regards London; and we shall presently show that instead of coal being cheaper in Dublin than London, it is precisely *vice versa*, *ergo*, the gas companies there can afford to sell cheaper than ours, allowing themselves a remunerative percentage on the capital stock.

Strange that, although the report of the Commissioners of Woods and Forests is quoted as an authority to justify an undertaking to supply gas in Dublin at 3s. 6d. per 1000 c. f., there is not a word from this potent agitator respecting the parliamentary return laid before the House of Commons on motion of Mr. Brotherton, showing the price of gas, per 1,000 cubic feet, charged by companies established by parliamentary authority in England, and which clearly shows that in Sunderland and other districts, where the best coal can be had at 5s. 6d. per ton—*instead of 18s. 9d., as in Dublin*—and is literally tumbled out of the pit into the retort-house, the minimum price of gas is 3s. 9d.; or that in Bath, Harrowgate, and Hartlepool, towns in the midst of coal districts, the charge ranges from 7s. 6d. to 4s. 6d.

Again, we are told that "the price of coal had really little or nothing to do with the price of gas;" if so, why not at once adopt a uniform rate in the United Kingdom, and cease further agitation? But this code of reasoning is not quite palatable to our taste, and rather opposed to common sense. Where the raw material is increased or decreased in value, and labour the same or nearly so, it appears to us a patent fact that the cost of manufacture and supply *must*, of necessity, be proportionate. Referring to the latest freights of Newcastle coal, we find them as follows—viz., London, 6s. 3d. to 6s. 6d. per ton; Dublin, 10s.; and Cork, 9s. 3d.—which at once falsifies the statement that coal is 20 per cent. cheaper in London than Dublin.

Our space reminds us that we must postpone the further consideration of items until next number.

JENNING'S PATENT DRAIN PIPES.—A model of this invention having been recently submitted to our notice, we examined minutely the principle on which its claims for superiority to the ordinary pipes hitherto in use are founded; and we feel much pleasure in reporting the result of our examination to be highly satisfactory. The great objection to tubular drain pipes for general purposes is the frequency of stoppages, occasioned by the accumulation of soil, which the force of the liquid was insufficient to carry away in its course, and the consequent temporary uselessness of the pipes in performing their duty, until considerable expense has been undergone in excavating and removing lengths of the drain, to ascertain the cause of the impediment. By a simple contrivance of placing each tube resting at both ends in rebated cradles, the upper joints being covered by saddles of similar construction, this obstacle is successfully overcome; for when a stoppage takes place, the immediate position of the defect is ascertained, and facility for its speedy cure presented, by the removal of the saddle, whereby the pipe may be cleansed; or if it be broken, a new length can be substituted, by lifting it out of the cradles, without interfering with the rest of the drain. The invention is at once simple, ingenious, efficacious, and economical; we hope to see it coming into general use.

THE SEVEN CHURCHES—GLENDALOUGH, WICKLOW.

THE lone and singularly wild valley of Glendalough, in the county of Wicklow, lying at a distance of about 24 miles from Dublin, presents a scene which, for stern and desolate grandeur, is in many respects unsurpassed. Huge, gloomy mountains upon which clouds almost continually rest, encompass, and in some places overhang, the silent and almost uninhabited glen. Two little lakes, now appearing in the deepest shadow, now reflecting the blue vault, according as the clouds above them come or go—a winding stream, and grey rocks jutting here and there from out the heath—form its natural features. A noble monastic establishment, round which a city subsequently rose, flourished and decayed, was founded here in the early part of the sixth century by St. Kevin. The ruins of many ecclesiastical structures yet remain, and "the long, continuous shadow of the lofty and slender Round Tower moves slowly, from morn till eve, over wasted churches, crumbling oratories, shattered crosses, scathed yew-trees, and tombs, now undistinguishable, of bishops, abbots, and anchorites." How few of the gay tourists by whom the glen is yearly visited, view these ruins with any other feeling than that of idle and ignorant curiosity! Their ears have been poisoned with the lying tales (inventions of the last half century) which the wretched men and women, miscalled guides of the place, have composed for the entertainment of the thoughtless. They wander unmoved among shrines which, nearly thirteen centuries ago, were raised in honour of their God, by men joyous and thankful in the feeling of certain immortality—men whose fathers in their youth had reverenced the Druid as a more than human counsellor.

A gentle morning in spring beheld the writer descending the sequestered road which leads to the valley of the Seven Churches. This exquisite scene of loneliness and gloom was cheered at the moment by a partial gleam of sunshine, which shone on the deserted churches, and flung the shadow of the round tower, a "gnomon raised by time to count his centuries," across the uneven plain on which it stands. I paused to look upon the lake which lay beyond the ruins; a cold and motionless expanse of water, prisoned in by mountains of rugged granite, with scanty traces of foliage to qualify the rudeness of the clifted heights. Yet there was more of a religious sadness than of sternness or terror in the character of the scene. It was a fitting solitude for the abode of those who fled to its quiet sanctuaries in ages long gone by, to repair the passionate excesses of early life, or to preserve their youthful innocence, and meditate in sorrow, rather than in anger, on the thoughtlessness of men.

Here it is, returning from the turmoil of London and agitating pursuits, that the wanderer feels all the folly and idleness of life which he has led; that his heart sickens at the recollection of the dissipation of cities; that he opens his soul to nature as to a long-forsaken mother, and thinks, with an aching bosom, of the purity, the simplicity, the religious regularity of his childhood. Here it is, that we seem once more, in the keenness of awakened memory, to lose those friends that have been snatched away from us by death or distance; that the still reproaches of that mysterious principle in our nature, which points to the eternal object of our existence, steal upward through the tumult of our passions and our interests, and speak to our hearts like the voice of a long-forgotten friend. The rocks and woods, the lakes and water-falls, the ruins and the sober day-light, and the whisper of the persuasive wind, in scenes like this, convince the heart more readily than volumes of ingenious controversy, read over with aching head and weary eyes in the midnight chamber.

Here we feel the truth that it is too bright even for the eagle-eye of reason to contemplate. Ambition seems a dream, philosophy a guess; our spirit seems to mount above its tenement, and to behold the passions, the faculties, the sciences, and the occupations of man, at that leisurely elevation, where alone it can become acquainted with their relative value. Here we discover all the superiority of virtue over knowledge, and remember, with all that zest which feeling gives, even to the oldest truths, those fundamental principles of virtue, which, in our days of feverish enquiry, we were accustomed to despise for their want of novelty.

As the thrilling music of the Christian churches first drew those tears from the eyes of St. Augustin, which he afterwards shed from a purer and loftier impulse; so here we are won back to the love of innocence by the poetry of nature. She reproaches us with having so long preferred, to her infinite varieties of form and colour, of sound and fragrance, the coarseness of scenic imitations, and all the low artificial mockeries of her excellence which the palaces of art present to us. She seems to open her arms, and invite us to "return!" to blush for the meanness of our taste; to forsake the theatre, the picture gallery, the library; to study character in her towns and villages, beauty in her plains and valleys, sublimity in her mountains, and wisdom in the economy of her mighty system.
—*Gerald Griffin.*

THE BRONZE HORSES OF LYSIPPUS.

IN the last number of "THE DUBLIN BUILDER" we adverted to the exhibition of the London Photographic Association, and in glancing over their illustrated catalogue were struck by many subjects of historic interest. No. 133, Cimetta, Venice, the Bronze Horses, Portico of St. Mark, recall to mind so many recollections of the past, that we cannot refrain from giving them a brief record in our present number. History tells us "these horses, four in number, were sculptured by Lysippus, of Sicyon, about 300 years before the Christian era, and originally embellished the Temple of Minerva, at Corinth," and they had nearly grown old in the atmosphere of their own unclouded clime, when the nationality of Greece was absorbed by the gigantic power of the then mistress of the world. Corinth was totally destroyed, 145 years B.C., under the Consul, L. Mummius, and these horses were seized among the spoils of the city, and borne in triumph to imperial Rome, where they long graced the façade of the Temple of Peace, that magnificent creation of Vespasian, described by Josephus, "of such unexampled splendour as to astonish every beholder," where spoliation had accumulated with questionable taste—the enduring monuments and priceless gems of all that was intellectual and refined in art, the sculpture and painting of Greece mingling in lavish profusion with the gold of the barbarian, and the costly adornments, the sacred vessels, and holy garniture, sacrilegiously stripped from the Temple of Jerusalem, to grace the festive rites and religious mysteries at the altar of the twin sister of Athenæa.

But Rome had already beheld her palmiest day; a new home for her people was arising in the East. Constantine had cast his eyes on the sunny waters of the Bosphorus, and where Byzantium stood he planted a new religion and a new and peerless city, while Rome unwillingly relinquished her priceless treasures to her infant rival; and here, far away from their pagan home, encircled by gorgeous temples of the cross and gilded domes dedicated to the saints, the marble-built palaces of a luxuriant aristocracy grew around and eclipsed, in a measure, these inimitable models of Grecian art.

Again a new scene opens! The Western Empire was fading in decay, while the Eastern was succumbing to pressure from without. A gorgeous and a queenly city had emerged from the blue waves of the Adriatic; this was Venice, daughter of the sea, "enthroned in her hundred isles." In the beginning of the 13th century, Alexius, Emperor of Constantinople, being deposed, the Venetians were invited to assist in restoring his lost dignity, and during the tumults which followed, they laid siege to Constantinople, which eventuated in the capitulation of that city; and again the bronze horses were borne back to Italy, this time to preside over the waters of the Adriatic.

Here they remained until the close of the 18th century. Venice had long lost her prestige. A new and unquiet spirit was abroad. France had built herself in blood a dynasty of her own choice. Napoleon the First, in all his dazzling panoply of power, and amid his dreams of universal rule, had still leisure for a taste for all that is majestic and beautiful in art. The sculpture, the paintings, and even the relics of the architecture of European capitals, enriched Paris, and these horses were lowered from the Portico of St. Mark, to grace, for a little day, in the sunshine of his prosperity, the arch of the Place de Carrousel.

At length the star of the great conqueror had climbed to its ascendant, and was already upon the wane and finally, before its setting on the rocky shore of St. Helena, by the Convention of Paris the despoiled cities of Europe were permitted to reclaim their own; the Louvre, and with it all Paris, yielded forth its treasures, and the bronze horses were restored to their present resting-place on the Portico of St. Mark at Venice, where they stand an undying record, of 2,000 years and upwards, of the strange mutabilities of all that is earthly.

ON THE CAUSE OF FAILURE OF BRIDGES ON MOUNTAIN RIVERS.*

IT is quite a common occurrence to hear of bridges on mountain rivers being swept away by floods, and thoroughfares rendered dangerous or impassable, in consequence—sometimes causing serious accidents, and at all times much public inconvenience. The great rains and floods that occurred in September last have been productive of wide-spread damage in these respects In the mountainous districts of Kerry, Mayo, &c., the casualties have been numerous and important; and apart from the many inconveniences arising from them, the large expenditure rendered necessary for repairing the damages, is of no slight consequence, amounting, as it must do, to large sums of money.

If there be any principle or contrivance, by means of which these casualties may be prevented, or their number diminished, its discussion before this Institution would be desirable, in order that, if deemed practicable, it may obtain a larger degree of notice and confidence than it otherwise could be expected to receive. Believing that there is such a principle, and that its application is practicable and simple, induces me to submit this brief paper on the subject to your consideration. The writer should, perhaps, feel a degree of apprehension that if the principle were such as he imagines it to be, its simplicity must long ere now have insured its more general application; but we are all aware of the curious fact, that many common occurrences of great interest pass before us, day after day, without investigation—our perfect familiarity with their effects, rendering us quite unconscious of our ignorance of the causes; in short, we do not think of raising questions, being satisfied we know all about them.

This is particularly the case with occurrences that are familiar to us from early youth upwards, and amongst them may, perhaps, be classed mountain floods and the casualties attending them.

If we hear of the destruction of bridges on mountain rivers it is merely the old story, and, of course, followed by the old reply—"Oh, the great floods swept them away." If required by any chance to assign reasons, we very off-handedly name the insufficiency of size of arch, badness of foundation, inferiority of masonry, or, possibly, the piers or abutments being badly placed with reference to the direction of the current. We rarely, perhaps, invesgate the exact manner in which the floods act in producing the catastrophe.

No doubt a bridge labouring under any one or more of the deficiencies mentioned, is very liable to give way under the force and action of a mountain flood; but it is submitted that a bridge may be all right in these particulars, and yet that there is another requirement, without which it is by no means secure.

What, then, is this additional requirement? It is that the channel or water-way, for some short distance above, through, and below the bridge. should be of equal discharging capacity, and more particularly that the channel below should, on no account, be of greater water-way or discharging capacity than the arch or arches of the bridge. It is the great head of water above, and sudden fall through or at the down-stream face of the bridge, that produces all the damage. Reduce the channel below to the discharging capacity of the bridge, and the character of the action of the descending waters is changed, the sudden falls disappear, and the object sought is attained If the bridge afford sufficient water-way there is no reason why the channel below it should be larger; whilst if it do not afford sufficient water-way, it becomes doubly necessary, if the bridge is to be preserved, that the channel below it should be reduced to an equal capacity. If the bridge be of greater water-way than the channel immediately above it, then the portion of the channel immediately below should be brought to an equality of discharging power with that above the bridge; either by increasing the capacity of the latter, or reducing that of the former, as local circumstances shall render most expedient, bearing in mind that the channel below is, on no occasion, to be of greater discharging capacity than the bridge, and that the object sought to be attained is to convey the floods, in a comparatively moderate incline and velocity, through, and for some distance below the bridge. This can be done, it is submitted, by regulating the discharging capacity of the channel as above suggested.

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* Read by J. W. Kelly, Esq., C.E., Ennis, at a meeting of the Institute of Civil Engineers, on the 18th ult.

It is quite a common occurrence to find a deep hole scoured away just at the down-stream face of a bridge. This is caused by the great action of the water as it issues from the arch, which not unfrequently may be seen pouring forth as if issuing from a sluice. Of course the extension of the holes up under the arches is a mere matter of time, more or less remote, according to the tenacity of the foundation and the frequency and scouring power of the floods. In order to save the bridges in such cases, the practice is often resorted to of filling the holes with stones, &c.; but the destructive cause remaining, a few subsequent floods, if not the very first, scoop out the holes again, and the destructive action proceeds as before. But even where no such holes could be formed—the bridge being built on the solid rock—they have often yielded under the force of a large head of water, generally to the action of the flood upon the (too often inferior) masonry of the piers and abutments.

The remedy in all these cases, as above stated, is to contract the channel below the bridge, so as to overcome the falls, and instead of allowing the floods to roll down in destructive rapids through the bridge, to raise them into comparatively deep volumes of water, moving with an easy incline and velocity.

The manner in which the necessary contraction of the channel may be effected will vary with local circumstances. In general, rough, hammer-dressed side walls will be found best and most convenient. They should be brought to the required width apart at or a little below the bridge, and after running parallel for 10 or 15 yards down stream, to commence to open out *gradually* to the general width of the channel. Where stones cannot be conveniently procured, the simple contrivance of projecting jetties, formed of rough piles and wicker-work, will be found useful.

The writer had an opportunity of seeing the principle here advanced tested on two occasions. The first was in the case of a new arch, 25 feet span, over a mountain river, and erected on a very compact limestone gravel foundation. At the downstream face of the bridge the channel was wider than it by about three feet at bottom, and owing to the side slopes it was about 18 feet, at flood level, wider than the arch. There was a weir about 80 yards below the bridge, and the channel opened out gradually still wider down to the weir-basin. The result was, that the floods, which at best were rapid enough, attained a sudden fall on issuing through the arch into the comparatively wide channel below; and a corresponding scouring power was brought to bear on the centre of the channel, just at the downstream face of the bridge. A hole was in course of quick formation, but detected ere it was scooped more than a foot in depth. The channel was immediately reduced to the width of the arch by means of rough hammer dressed side walls, which, after some ten yards below the bridge, were made to open out gradually towards the weir-basin. The expectations formed were perfectly realized—the floods subsequently came through the arch, and for some distance downstream in a comparatively easy incline, producing no further harm. And had the former state of things been suffered to continue, it is probable that in a very few years the bridge would have been reduced to a most precarious position.

The second instance was a small accommodation bridge, some 12 feet span, of rubble masonry, and not more than about eight feet in width between the parapets. It was built over the old course of a mountain river, and was intended only for passing the waters of a small tributary—over nine-tenths of the waters of the catchment basin, being intended to be sent down in a new channel. Just after the completion of the small rubble bridge, and ere the new channel was ready for opening, a flood occurred, which had to be sent round by the old course. The bridge, although fully equal to the purposes it was intended to serve, was altogether insufficient in water-way for discharging the mountain floods of the whole catchment-basin; and the waters rose in consequence nearly two feet over the soffit of the up-stream side. Fortunately, the channel, some 20 yards below the bridge, although deepened, was much contracted in width (not, it must be confessed, through design or in anticipation of an event of this sort, but merely to dispose of the spoil), and the water-way was only about equal to that of the bridge. The result was, there was very little "head water," the difference of level between the flood waters above and below the bridge being only a few inches, and the fresh rubble structure, which, under other circumstances, would be endangered, was quite safe.

It is, perhaps, unnecessary to pursue this simple subject any farther. If the principle treated of be sound, it needs no further illustration.

The questions to which attention is solicited are, whether even a sufficiency of water-way and good masonry in bridges over mountain rivers, are sufficient to ensure their stability, unless the flood waters are conveyed in a comparatively tranquil manner through the arches? and whether the adjustment of the channel adjoining the bridge, as above described, is not the most simple and effectual, if not the only way of effecting this object? Also whether the application of the same means is not calculated, in many cases, to save bridges labouring under defective water-way and masonry? It is not, of course, intended to advocate defects of any kind in bridge building; but it may often be desirable to maintain even a defective bridge, to avoid public inconvenience or the expense of building a new one.

In connection with this subject, it may not be out of place to draw attention to a remark very often made—namely, that the proper provision for water-way in bridges is generally disregarded, or forms but a very secondary consideration with roadmakers. That it has been so heretofore must, perhaps, be admitted to be the fact. In prosecuting the arterial drainage of Ireland, which lay generally in the lower parts of the country, it is well known that most of the bridges encountered were so defective in water-way and other respects, as to involve the necessity of having them taken down and rebuilt; and the numerous casualties we hear of from time to time would lead to the inference, that a want of due attention to similar requisites must prevail, to some extent, in the higher parts also. It is, perhaps, needless to observe, that this state of things is not attributable to the present county surveyors, than whom, it is well known, it would be difficult to find a more intelligent body of men in any profession; and under whose surveillance, we are justified in expecting that due attention shall be paid to the double purpose a bridge should serve; and that whilst making provision for the roadway, the no less essential desideratum of making ample provision for the waterway, shall not be neglected. This latter desideratum, involving the consideration of the extent and physical character of the catchment-basin of each river or stream, is not so simple, as may have been too often imagined; on the contrary, it is calculated to exercise one's reflection and ingenuity, but at all events, it is both necessary and important it should not be disregarded. Curtailing the legitimate cost of a roadway, by making bridges of inadequate waterway and inferior masonry, is questionable economy; and the old adage that "whatever is worth doing at all, is worth doing well," is, perhaps, in no case more worthy of application than in bridge building.

The recent failures of so many bridges on mountain rivers, renders, perhaps, the present time opportune for raising the question as to the cause of those failures; and it is with this view, and not through any impression of being able to meet the subject with any particular interest, that the writer takes the liberty of submitting this brief paper to your notice.

ARCHÆOLOGICAL JOTTINGS.

KILMALLOCK.

> "Thus shall Memory often, in dreams sublime,
> Catch a glimpse of the days that are over,
> And, sighing, look through the waves of Time
> For the long-faded glories they cover."—*Moore.*

THERE are many localities in Ireland well worth the attention of the historian, the antiquary and the archæologist—places famous in legend and full of storied renown. From houses, now ruinous and desolate, there once resounded the clang of warriors, and the eloquence of learned men. From places now tenanted by placid cows, or nibbling sheep, there arose the conflict of armed bands, the roar of cannon, the rattle of musketry, the shout of conquest, or the groan of agony; churches where no longer worshippers kneel—abbeys, once stately, and beautiful even in decay, stud the Emerald Isle, and to a locality rich in all these memorials of departed greatness, we now propose to conduct the reader.

Kilmallock, in the county of Limerick, displays evidence of being a considerable place in former days. Its lordly castles and decayed mansions witnessed many remarkable events. Few places are better calculated to awaken our sympathies with the fallen, reminding the visitor of the transient nature of all sublunary things. A great incongruity prevails: thatched cabins lean against stone embattled mansions; houses once tenanted by nobles are propped up by huckster shops: all bespeak the changes which time and war have made.

At our last visit the town seemed deserted, and Baalbec only equalled it in solitude. Our footfall alone sounded along the empty street, and as we entered the ruined mansions no prying eyes watched our movements, no inquisitive voice disturbed our meditations. We could see the blue sky gleaming over the unroofed dwellings, and our mind wandered back to the days of their splendour, and imagination supplied the building materials, and formed a spacious and picturesque town. The place was anciently called Killochia, Kilmocheallog, and Kilmaloge, whence Kilmallock, or the church of Molock. The absence of records of early ages in this county prevents our tracing its history for several centuries, but the magnificence of the ruins, which obtained for it the proud yet mournful appellation of the Baalbec of Ireland, evince its progress to distinction. All its earlier history is lost in the obscurity of its remote origin, and the interest given to every spot trodden by the feet of the good or the brave, in days gone by, is unfelt. But the massive stronghold of the Anglo-Norman, the castellated mansion of the Elizabethan age, the square lofty fortalice of the Cromwellian adventurer—these are before us, ruined indeed, but their identity perfect.

It was a corporate town, with extensive liberties and municipal privileges, at a very early date of the English in this country. Its privileges as a borough are recited in a charter of Edward III., by virtue of which that monarch granted, to the provost and commonalty of Kilmaloge, certain tolls and customs towards keeping the fortifications in a state of repair. It was defended by a stone wall of great strength, fortified by mounds of earth, and having four gateways, protected by lofty and commanding towers built over them. These were called St. John's-gate, Water-gate, Ivy-gate, and Blosom's-gate, of which only the last is standing. A Dominican friary was founded in A.D. 1291, east of the town, by Gilbert, son of John of Callan, Lord of Offaly, which was richly endowed. It lasted until the general suppression of monasteries, when it was granted by Queen Elizabeth to the corporation. Money was coined here by permission of Edward IV., and in 1483 this is named among the chief towns in which a coin of Richard III., then recently stuck, was made current by act of Parliament. It was selected as a principal military station by the English, and shared all the storms of battle which desolated the country. Being a place of great importance, it was speedily repaired by the English, encouraged by Sir Henry Sydney, Lord Deputy, and that Governor appointed a strong garrison for its defence. It was not destined to much repose; the subjection of Fitzmaurice brought only a short respite of peace, and the clamours of war were anew to shake the walled town.

We ought not turn away and leave behind a place so full of recollections of that once proud and most puissant family of Desmond, without recording something of their origin and their fame, ere their sun, after traversing his restless course, sunk into the obscurity of eternal night for this world. The fate of Rome may be regarded as analogous to that of the fate of the house of Desmond. While her possessions were limited and compact, Rome feared no foe, and resisted all dangers; she governed herself: but when her armies added kingdom after kingdom to her dominions, when her eagle wings reached from the western isles of Europe (ultima Thule) to the realms of the sun, her empire was too great to be controlled by the power residing at Rome, a new seat of government arose at the city of Constantine, the mighty empire tottered with its own weight, and the Roman empire had its decline and fall. Thus fell the race of Desmond!

The family of Fitz-Gerald is .of Anglo-Norman descent, and Maurice Fitz-Gerald, the founder of the family, whence the princely race of Geraldines, including Leinster-Desmond, knights of Glin, Kerry, Mackridge, &c., are sprung, came over with Strongbow. It would be a far cry, and a long chapter, to trace their career, and the various ways and means by which they acquired territory in four counties, extending over one hundred miles, and containing considerably over 600,000 acres of land, of the English acreage. According to Sir John Davis, Maurice Fitz-Gerald, the first Earl of Desmond, raised the greatness of his house by Irish oppressions and exactions; and among the ruins of his boldly situated Castle of Strancally, hanging over the beautiful Blackwater in Munster, still yawns a gloomy chasm, evidently the work of art, sloping down to the river. This is called the Murdering Hole, and the local tradition asserts that, when the lord of the castle fixed his eyes on an estate in the neighbourhood, he used to invite the owner to partake of his good cheer, and when the feast was partaken of, and the wine had done its work on the unsuspecting guest, the assassin's blow robbed the victim of life, and the Murdering Hole gaped to facilitate the plunge of the body in the rolling waters speeding to the Atlantic.

Of the ancient town of Kilmallock, there are yet considerable remains. The castle in which the Earl of Castlehaven kept his munitions of war, yet rears its solid structure, and, underneath its gloomy archway, a road led outside the walls, the direction of which is now changed. On each side of the main street, the eye surveys castellated mansions — or, rather, what once were such — their embattled parapets yet attesting their claim to distinction, and their tall gables, and taller chimneys looking contemptuously down upon mud cabins or gaudy shops in their vicinage. These houses were once inhabited by families of distinction. One of the dwellings within the walls is said to have belonged to the Earl of Buckingham; another to the family of Godsill. The houses in the main street are so well built, and the materials so durable, they are likely to last a long time: indeed, the square window-frames, and spacious fire-places, are so well carved, that the stone-work seems to bid defiance to time, and retains all the impress of the sculptor's chisel in its pristine sharpness. An enemy, more destructive than the tooth of time, however, is at work amid the ruins, and many of the striking features of the past daily disappear, put to some less worthy, though more useful, purpose. Mr. Weld, writing in 1812, observes of the then state of the houses: "The plans are nearly the same; they present two or more gable-ends to the street, and are divided into three stories. The entrances, by spacious portals with semicircular arches, open into small halls, which communicate with broad passages that probably contained the stairs, whence there are doorways leading to the principal apartments. The windows, of a square form, and small in proportion to the size of the rooms, are divided into compartments by one or more uprights, and sometimes by a cross of stone. The chimney-pieces are large and lofty, and the fire-places calculated for containing huge piles of wood." Yet the fires no longer burn, the ashes on the hearths are cold; the generations who lived, and loved, and died, in these dwellings are no more, and even their names have not reached us. Here is a spot for moralizing! The scene of human power, and human pride, is around us—walls that rung with revelry when the board was spread, and the wine-cup quaffed, and the floor swept by the rustling silk of dames, and trodden by the knightly feet of warriors. All is now still and cheerless—the tenants are gone—and the wind of winter, and the summer shower, occupy the place at will.

We turned from the abodes of the stout men-at-arms and industrious burghers, to visit the temples of religion. They are somewhat more respected than the houses of men, for the Irish are essentially a people reverent of the Supreme Being, though passion frequently blinds them to His great attribute—mercy! The remains of the Dominican monastery are well worth minute examination. They are situated near a small river called the Luback, and consist of a lofty square central tower or steeple, and the choir, nave, and part of the transept. The east window is a specimen of the pure Gothic, and the venerable ruins have called forth the admiration of many an antiquary. Sir Richard Hoare observed of this monastery: "It surpasses, in decoration and good sculpture, any I have yet seen in Ireland, but does not seem older than the reign of King Edward III." In the chancel stands the broken tomb of the last White Knight, called so, according to Camden, from his snow-white hair. He was a Fitz-Gerald, one of the powerful Desmonds, and the maternal ancestor of the present Earl of Kingston. Mr. Crofton Croker has copied, from the slab of the tomb, the following inscription:—

I. H. S.
HIC TVMVLVS ERECTVS FV
IT IN MEMORIAM ILLIVS STE
MMATIS GERALDINORUM QVI
VVLGO VOCANTVR EQVITES
ALBI
IOHANNES CVM FILIO SVO
EDMVNDO ET MAVRICIO FI
LIO PREEFATI EDMVNDI
ET MVLTI ALII EIVSDEM FAMIL
IEE HIC TVMVLANVR PREEF
ATVS

—*From "Institute Magazine."*

TOWER AND SPIRE OF ROMAN CATHOLIC CHURCH, NAAS.

The parish priest, in a letter to *The Freeman*, thus describes this portion of the building:—This evening is one of no ordinary joy in Naas; for our beautiful and majestic spire is completed. It was commenced, seven years since, by my venerable predecessor, the Rev. Gerald Doyle. It is 200 feet high. The style is what is called the "transitional;" that is, what prevailed between "the early English" and "the decorated" periods. The tower consists of three stages. In the first there is a very handsome two-light mullioned window, decorated. In the second stage there are three long lancet windows. In the third stage there are four beautiful two-light tracery windows, the jambs and arches of which are deeply moulded, and have caps and bases. The spire has broaches at its angles, and it too is divided into three stages. In the first there are two-light windows, with deeply-moulded jambs, caps and bases, and canopied heads, surmounted by handsome stone crosses. In the third and second stages there are single-light windows, with canopied head and crosses. The spire is surmounted by a gilded iron cross 13 feet high and 8 feet wide, most elaborately traced. The cross is kept in its position by an iron bar about 30 feet long, which passes through two iron cradles, set into the work, and connected with a weight of nearly one ton, which is suspended over a massive floor. On the cross is a vane, of admirable beauty, in the shape of a cock, remarkable for great richness and lightness combined. The buttresses are very handsome, diminished upon each story by water tables, terminating upon the last stage of the tower. The tower has two handsome, newelled stairways, with chiselled soffits. The bell possesses great softness, delicacy, harmony and power of tone. Mr. J. J. M'Carthy, R.H.A., is the architect.

SANITARY CONSIDERATIONS.

SEWERAGE.

THIS is certainly the *quæstio vexata* of the day; and one so immediately connected with our comforts and health, that the consideration of it should no longer be deferred, because of the difficulty which surrounds it, and which, perhaps, is one of the causes why the evil has not been grappled with and overcome before the present time. No doubt there are other difficulties, such as custom, convenience, fashion, and the dictum of those in power, who uphold the present sewerage system, aided by those around and dependent on them, who, perhaps, fear to differ. But all these difficulties would, we believe, give way before a full development of the ascertained and incontrovertible facts which may now be brought to bear upon the subject. Perhaps, then, there could be few more useful occupations than to analyze the theories and practice of the past and present, and endeavour to make them useful for the government of the future.

When the Metropolitan Sewage Commissioners felt themselves in their first dilemma, and found the covered sewers choking with filth, the open ones redolent with odours, and the River Thames exhibiting unmistakeable signs and significations of what was being discharged into it, they appealed to the public at large for propositions to lift them out of the slough, and some two or three hundred labourers of the day set their shoulders to the wheel. But one shoved in one direction, another in an opposite; one up, another down; some this way, others that; more in ways that the utmost ingenuity could not discover the object of—and the unhappy Commissioners were left sticking in a mass of mud and filth, which has been increasing from that time to the present, and which bids fair to increase until the sewers fill to the brim, and the rivers can hold no more. In the interim, however, three of the leading engineers of the day declared that the existing sewerage system was a wise one, and could not be departed from, but that "intercepting sewers" should be constructed; and the Commissioners of Health decreed that every householder in London should be forced by law to discharge the whole filth of his domicile into the street sewer; that the sewers should be *forced* to discharge the entire into the "intercepting sewer"—water being *forced* into all the sewers in such quantity as was never heard of before, and which, it is to be hoped, never will be again; for few things could be more fallacious in principle and wasteful of water than the so-called "flushing." Designs for "intercepting sewers" therefore became the fashion—nay, the rage—and one of so magnificent an extent was promulgated, that it far outdid the Thames Tunnel; for it was proposed that it should pass *seven* times under the bed of the river, running in a direct line towards the sea. But, fortunately for the citizens of London, the proposition was one of such magnitude that it fell to the ground, crushing the unhappy engineer. He, however, was the only sufferer, except those who had to read, for about twelve months, debates upon a subject which was about as profitless as any that had ever occupied the time of the debaters or the public.

Well, then came the *new* Metropolitan Commissioners, who were at once to cleanse the Augean stable; but they debated so long upon the question, and did so little, that the Government decided upon appointing the well-known "Committee of Referees," whose labours have been handed down, for the benefit of posterity, in a blue book of some 300 pages. But three other engineers, appointed on behalf of the Commissioners, have since, in the most merciless manner, utterly torn it to pieces; and they have so clearly demonstrated to the authorities of the day that "intercepting sewers" are the *ne plus ultra* of perfection, that the Chancellor of the Exchequer has granted to the Commissioners a reward, it may be said, in the shape of £3,000,000, to be expended in any manner they like; and they have decided on sinking it all in "intercepting sewers" accordingly.

Such are the simple facts of a ten years' battle; the results to the public of London being, that they have to pay £3,000,000 for the expenses of the war—that the sewers of the metropolis are fuller of filth than ever—that, according to the Chief Commissioner's statement to the Chairman of the Board of Works, the removal of the matter from the sewers, where they became useless by being choked, was, last year, considerably above £200,000, and was daily increasing—and that the river has become so inundated by filth and noxiousness, that passengers sicken! and bargemen die! whilst the windows of the Houses of Parliament are obliged to be closed up by "chemically prepared canvas," to intercept the poison of the atmosphere.

Would it not be well, then, that in Dublin, and Ireland generally, we should take warning by what has been done, and left undone, in the metropolis of the world, and not pin our faith, as we have been doing, upon the dictum of its public bodies, who, it can scarcely be doubted, have plainly shown their views to be wrong. It may be fairly asked, if they were right, would the Thames be in its dreadful state of noxiousness? and would its sewers be so filled with foulness, that some £150 *a-day* has been expended for *lime* to cast into them, with the hope of arresting the discharge of their fatal gases? If there were no other cause for awakening us to our own position, this fact alone should do so; because it must be plain to all who give thought to the subject, that this great question of sanitary advancement has but little chance of successful issue, if it be left in the hands of those who could adopt so utterly fallacious a means for acccomplishing the required end—namely, *the discharge of the matter of the sewer, in a purified state, into the river*—the avowed and attempted object.

The merest tyro in town drainage should know—first, that the action of lime upon night-soil afloat in sewers is, *at once to precipitate it to the bottom*, and, next, that whilst being precipitated, the usual gaseous products of the decomposing matter *are acted upon and fully liberated from*, in place of being held, as they otherwise would be, *in* the matter and the water, until gradually evolved. Thus the course taken, at the cost of £150 a-day, was to choke the sewers with a *concrete* formed of lime and animal matter (than which there could scarcely be found a more perfect water cement), and to discharge at once into the atmosphere the whole of the deleterious emanations.

It is scarcely necessary to remark upon such facts. But surely it cannot be expected that where utter want of knowledge of the elements to be dealt with has been thus plainly exhibited, that the same powers of conception will be adequate to devise means for curing an evil, of the cause and foundation of which, that conception is so ignorant. Will the physician cure the disease of which he does not know the origin?

No more will the engineer be successful whilst ignorant of the foundation he has to build upon. Hence, then, the necessity to learn and investigate what are the causes which produce the necessity for improvements in our sewerage system; and, with permission, we shall go, step by step, into the investigation.

THE NEW NATIONAL GALLERY.

A STATUE OF THE QUEEN!

WHATEVER may be our opinion as to the acquisition, in an artistic point of view, of the structure now in progress of erection on the lawn of the Royal Dublin Society, we regard with pleasure the event which took place on the 29th ult., when the corner-stone of the intended repository for our national fine-art treasures was laid, and the long talked-of undertaking thereby rendered *un fait accompli.* Exteriorly it is to harmonize in style with the corresponding wing erected for museum purposes by the Society, after designs gratuitously furnished by Mr. Clarendon; but according as the building progresses a very palpable awkwardness, owing to the nature of the site, will gradually develop itself. The wings are laid out parallel, but the Society House, which forms the back-ground, or third side of the quadrangle, is not at right angles thereto, but presents an acute angle to one wing, and an obtuse to the other. Some taste and judiciousness may now be well displayed in the laying out of the space between the wings, and we heartily unite in the opinion of the correspondent of our able cotemporary, *The Builder*, who, in describing the structure, concludes by saying, "here is a glorious site for a few statues of eminent men." So intimately has the site been identified with an important era in our national history, already commenced to be in part perpetuated by the association of the "Dargan Testimonial" with the National Gallery, that it may not be amiss to suggest, that a worthy claimant for a pedestal is the distinguished individual who was graciously pleased to honour the Exhibition with her presence—need we say we mean Her Majesty the Queen!

Strange that, with all the boasted loyalty of her Majesty's subjects in this realm, our metropolis does not even contain a single memente of either of her visits, whether statue or otherwise; and a favourable opportunity now presents itself, which, if taken advantage of, will both advance an artistic object, and serve to cement stronger the good will which is happily becoming more and more apparent between the sister isles and our own.

The following is a brief outline of the history of this project, to which we also add a few particulars of the new structure:—

At the close of the Great Exhibition of 1853, the public sense of the services of our fellow-citizen, William Dargan, in connection with that exhibition. expressed itself in the formation of a committee charged with the erection of some testimonial in his honour; and for this purpose a public subscription was accordingly set on foot. The committee after much consideration, resolved to devote the amount of the Dargan Fund to aid in the foundation of a National Gallery; and the committee of the "Irish Institution" received with satisfaction the announcement, that as soon as fit measures were taken for the formation of a permament public body, proper to carry out the trust, and a fitting site secured, the sum of £5,000 should be placed at their disposal. To carry out the necessary conditions, was the next immediate object of those who took an active interest in the "Irish Institution." The Royal Dublin Society had in 1853 resolved on the erection of extensive buildings for the accommodation of their Museum of Natural History. A committee of the institution, appointed to consider the various sites in Dublin proper for a National Gallery, reported in 1854 that the best site available would be that of Leinster-lawn, Merrion-square, if the consent of the Dublin Society could be obtained to the occupation of a portion of it for the purpose. Conferences accordingly took place between the committee of the institution and the council of the society, and the result was that the society, showing the most friendly desire to aid in the objects proposed by the institution, unhesitatingly agreed to give up a portion of the lawn for the National Gallery, provided only that the building might be made to correspond externally with their new Museum, the former occupying the northern, and the latter the southern side of the lawn, so as to leave the open space of grass and pleasure-ground unbroken between the Society House and Merrion-square. The arrangement having been agreed to, the plans for the museum were immediately altered accordingly, and the erection of that building postponed for a short period, in order to allow time to procure the necessary means to defray the expenses of the gallery. In accordance with the design agreed upon, bills were introduced, and the governors and guardians of the National Gallery of Ireland are now incorporated under the act 17 and 18 Victoria, cap. 99 (10th of August, 1854), amended by that of the 18 and 19 Victoria, cap. 44 (2nd of July, 1855). The acts provide, in the first place, for the erection of the intended building; and as not only the objects of different parts of the building are different, and the authorities of the library different from those of the gallery, but also the sums to be applied to the expenses of the work are to be derived from different sources, the trust, so far as the erection of a proper edifice is concerned, is specially committed to five building trustees named in the act. These are—the Earl of Charlemont (the President of the "Irish Institution"), Richard Griffith, Esq., LL D. (Chairman of the Board of Works), Colonel Larcom (the Under Secretary), and George Roe and Thomas Hutton, Esqrs., both active members of the committee of the Dargan Testimonial; the former having also acted as chairman of the committee of the Exhibition, in 1853.

The machinery being thus perfected, it remained only to obtain the necessary means to complete a building large enough for the purposes contemplated. A rough calculation, made after the estimates for the corresponding edifice to be constructed for the Royal Dublin Society had been framed in detail, satisfied the committee of the institution that the necessary building could not be finished, even in the plainest form, for less than between £10,000 and £11,000; while the Dargan Fund, will not, it is believed, supply more than £5,000. Under these circumstances, the Government approved of a grant of £6,000 in aid of the undertaking. Of this sum one-half, or £3,000, was voted in the estimates of 1855, and the remaining £3,000 was included in those of the last session (1856).

An additional grant of £5,000 was made by parliament in the last year, it having been ascertained that a larger sum was requisite to enable the trustees to commence the erection; bnt it seems to us that the Government purse strings will have to be opened still further, for we have reason to know that the expenditure of the building will exceed £24,000 instead of £12,000 as stated. It is, however, a notable fact that in the case of The National Gallery of Scotland, recently established, a sum of £30,000 was granted by parliament in several successive votes between the years 1847 and 1858, independent of a sum of £20,000 previously devoted by the Board of Manufactures of Scotland, whose funds are under the control of the Treasury.

A portion of the building will be devoted to the reception of Archbishop Narcissus Marsh's library, which at present occupies an obscure position near St. Patrick's Cathedral; and internally the National Gallery will comprise, on the ground floor, a sculpture hall, to be called the Dargan Hall, 114 feet in length, by 40 feet in width, by 23 feet in height; and a library apartment of 91 feet by 40 feet, in which the volumes of Marsh's library are to be placed. At the end of the sculpture hall a splendid staircase will lead to the great picture gallery, which will be 126 feet in length by 40 feet in breadth. In a portion of the building is introduced a second library apartment, and some officials' rooms. The galleries will afford much greater space for the display of artistic works than those likely to be available in the first instance. Externally the building will have chiselled granite rusticated basement, blank windows, with Portland stone dressings, and ornamental frieze and cantilever roof. The probable cost of construction will be £24,000. Messrs. Cockburn and Sons are the builders.

RESTORATIONS AT ST. PATRICK'S CATHEDRAL.

FOR many years past a series of works has been in progress with a view of saving from total dilapidation this tottering fabric, and so completely has it been metamorphosed by the different hands to whose care the restorations have been entrusted, that excepting the main walls, comparatively few of the chief features of the original venerable edifice remains.

Much more, however, still is required to be done, to save portions from certain if not speedy ruin; the southern transept and wall of nave being in a precarious state, although the latter—which is alarmingly ont of the perpendicular—has been underpinned, and massive limestone piers built to sustain the arcade on which an enormous superincumbent mass presses, and which, unless *taken* down, we predict is pretty sure to *come* down, drawing with it the framed timber roof, crushing the southern aisle and adjoining portions, and effecting an amount of damage impossible to calculate. Some of the chief works executed of late years comprise the lowering, by several feet, of the floor of nave where service is performed, the tiling thereof and newly facing of piers; the complete remodelling of the furniture, including pews, choristers' benches, lecterns, &c., which are now constructed in framed and panelled oak wainscot of an appropriate and substantial character. New doors of similar material and corresponding design, and ornamental iron railings have likewise been added. Several of the old monuments have been shifted from one position to another, and two effigies—one evidently that of a Knight Templar—recovered from beneath the floor of the nave, have been fixed in the west-end wall at either side of entrance doorway. A very beautiful mural monument and stained glass window, in memory of the fallen officers and men of the 18th Royal Irish, are of recent construction, and with the tattered banner of the regiment hanging close by, are features of considerable interest in the northern aisle; as also is a monument in the northern transept, erected to the deceased members of the late Master Goold's family. At the east end a new chapter-house—not yet finished—has been in course of construction, and on plan is three parts of a cross, with ranges of slender clustered columns, consisting of a central shaft of Caen stone and detached columns of Kilkenny marble, sustaining moulded-ribbed arches, forming a groined ceiling, with bosses at the intersections. The windows lighting this portion are all lancet-headed, and have deeply-splayed jambs, detached shafts, hood mouldings, &c., and are intended to be filled with stained glass.

Exteriorly, the recent additions and restorations are rendered doubly conspicuous by the crumbling state of the main building, which, we are informed, was—with the exception of the tower—built in the worst manner and of the most perishable materials, a very unusual circumstance in our ancient buildings. New buttresses, to sustain the tottering portions, have been introduced, and in some instances built on the foundations of others, and in such incongruous positions, as clearly to prove that the work of patching and propping is some centuries old. The ground at the east end has been considerably lowered, and the site cleared, thereby affording a better view of the building. The chapter-house and new buttresses, &c., introduced throughout are built of Skerries limestone, with Caen stone for dressings, &c. We hear it is in contemplation to form a new roadway from the Close at the eastern end to the space at the southern transept, so as to ensure a carriage-drive all round the cathedral, which will be a great improvement.

The various works of comparative recent date, including the erection of the new chapter-house, have been carried out by Mr. Kingsmill, builder; and we trust that the attention of the public may at once be awakened to the necessity of saving this, one of our few national monuments, from the ruin which threatens it.

THE BUILDERS' ASSOCIATION AND THE ARCHITECTS OF IRELAND.

Our readers are already aware that an association has been recently formed in our city, with the view of establishing a uniform and legitimate course of practice amongst the members of the Building business, to protect their general interests, reform existing grievances, &c., &c. At the first quarterly general meeting of this association it was unanimously resolved to prepare an address to the architects practising in Ireland, and solicit their cooperation towards the attainments of the objects in view. That document is now before us, and serves to illustrate the desire for a maintenance of good feeling between architect and builder, which even at this early stage distinguishes the principles which the association has laid down for its guidance. Without entering fully into every item, we specially call attention to those relating to the general ambiguity of architects' specifications as regards "the undefined depths of foundation," and the assumption by the architect of the office of umpire—from whose decision there shall be no appeal—in the event of a dispute between the client and his builder.

With reference to the former, we must remark that there are exceptional cases in which such a clause is omitted, and a defined datum given, any extra depth necessary being allowed for by measurement; but, as the association suggests, it would save much misunderstanding and litigation if this practice were *generally* adopted, and the onus of providing a secure foundation at *any* depth and under *any* circumstances not thrown on the builder, to his possible ruin in many instances. As to an architect constituting himself a court of justice, from whose decision there shall be no appeal, it is a palpable absurdity, and the law of the land—however stringently worded an agreement may be—would not recognise it; nevertheless, architects *do* insert such a clause, and the sooner it is omitted the better for the sake of common sense. Another important point to which the builders refer is, that "they should be paid for their estimates where no tender is adopted." Unless in special cases, we hardly agree with them as to the consistency of this, as a proprietor may—when instructing an architect to prepare plans and receive tenders—be fully determined to proceed with the work, and, unforeseen circumstances intervening, he may be prevented from doing so. If, therefore, 20 or 30 builders (as is often the case for work of importance) choose to send in tenders, and incur trouble on the chance of success, it would be the height of inconsistency to expect that each should be paid for his estimate. But where tenders are sought for merely with a view of obtaining information, or deciding the fairness of an estimate previously received *sub rosa* from a party to whom the work is to be given, then, and then only, should payment be demanded and insisted on from a proprietor.

We invite attention to the document in question, and wish the association every success in its laudable efforts to progress.

OPENING OF THE HARCOURT-STREET TERMINUS—DUBLIN AND WICKLOW RAILWAY.

The new pile of building, forming the terminus of the Dublin and Wicklow Railway at the upper end of Harcourt-street, is completed, and has been opened to the public. Although not of as costly, extensive or ornate a character as some of the other termini built of late years in our city, nevertheless this building is distinguished for its appropriateness, the convenience of its internal arrangement, and the solidity of its construction. The entrance-hall is a lofty apartment, 88 feet by 25 feet, approached under a double archway, situated in a central gable terminated by a pediment; and thence branch two distinct flights of steps, 11 feet in width, conducting first, second, and third class passengers respectively to the platform. A parcel-office, 41 feet 6 inches by 25 feet, a booking-office, 19 feet 6 inches in width, and a clerk's office 25 feet by 20 feet 4 inches, are provided likewise on this storey. The entire frontage is 128 feet 10 inches. On the first floor are porters', first and second class ladies' rooms, with ante, men's apartments, station master's office, &c. Exteriorly the building presents a central gabled projection carried up two storeys, with one storey wings at either side, having four windows in each, surmounted by a cornice, and with quoins at the angles; but at some distance behind rise two wings same height as central gable, having oval-shaped windows, and capped by a main cornice, and blocking of peculiar character; the height being 42 feet. The material used throughout for walling is hammer-dressed black stone, with chiselled granite for dressings, cornices, quoins, &c. The platform roof is 58 feet 6 inches span A shape, and similar to that at the Kingstown terminus, with trusses 8 feet apart, principal rafters, three rows of purlins, each side made with T iron, about 4½ inches deep, and ½ inch thick, to carry 1½ rebated red deal boarding, &c. The goods' stores in connection with this building, are of extensive character, and sundry works are still in progress. Mr. Wilkinson is the architect, Mr. Cunningham, the contractor. It is considerably less than twelve months since the first stone was laid. It must be highly gratifying to the directors that no unnecessary delay has occurred in the construction of this building, which fully and completely answers the requirements for which it has been designed, and also forms an important addition to the street architecture of the section of the city wherein it is placed.

CHURCH OF ST. CONLEITH, NEWBRIDGE.

In the year 1847 the foundation stone of this Gothic church was laid by the Right Rev. Dr. Haley. It is built in the style known as the early Norman gothic, and consists of a nave, choir and sanctuary; a fine bold tower which has nearly reached its intended elevation stands at the northern end facing the road. The walls are pierced by ten double lancellated windows by which the body of the church is lit, and above the altar at the southern end a beautiful window with richly carved stone mullions supplies a soft and subdued light through exquisite stained glass with which it is furnished. A highly ornamented stone cross stands on the apex of the gable above this window. The ceiling is of open wood-work, stained and varnished, and the cross beams are carved to suit the other decorations of the building. The sanctuary is divided from the choir by an arch which spans the entire width of the church and rests upon a cluster of semicircular pilasters at either side. The walls surrounding the sanctuary are covered with carved screen wood-work, and the window over the altar above referred to is highly decorated with designs of fruits and flowers in stucco. The stained glass in this window is the gift of J. O'Donohue, Esq., of Rosehard house, and represents full length figures of St. Bridget and St. Conleith. The upper section contains the figure of our Blessed Lord, and the smaller compartments are filled with Christian emblems. The altar, which is of varied-coloured marble, has been manufactured by Mr. Kirwan of Bolton-street. The front is divided into three compartments by pillars of white marble. The panels are of rich brown porphyry from Mitchelstown, County Cork, highly polished. The mouldings and cornices are of green Connemara porphyry, and the table of the altar is composed of one slab of Italian veined marble, over eleven feet long by three feet wide. The tabernacle is made to represent a temple, above which a number of highly polished pillars support a circular plane on which is placed a splendid bronze crucifix of the Mediæval pattern. The tabernacle is composed of white Carrara and yellow Sienna marbles. The door, which is made of the latter, is adorned with a monogram of the Holy Name, most cleverly executed in white marble.

Artistic Zinc Labels.—We have seen some labels in the "ogee" style, executed for commercial and other houses in Belfast by Mr. G. L. Hill, engraver, of that town, which, in point of design and finish, supersede anything of the kind before met with.

THE DUBLIN PHOTOGRAPHIC SOCIETY.

AT a recent meeting of this body—the first since its affiliation with the Royal Dublin Society, the chairman Gilbert Saunders, Esq. addressed the following remarks relative to this charming art:—Photography is a new branch of art, and, like all new things, had its difficulties to contend with. It has the defects arising from imperfect knowledge of some of its principles and the prejudice which antiquated notions always oppose to progress. We claim for photography no more than its merits. It is not creative, like high art—it is merely imitative, but then its imitations are truth itself. It was natural to expect that so marvellous a discovery as that a picture of exquisite minuteness of detail could be obtained by unskilful hands in an almost inappreciable period of time should startle the senses of the artist who had acquired his powers only by the closest application, and lead him to despise the royal road to picture painting which photography opened up. But such impressions are fast disappearing before the force of conviction. The unskilful hand can make nothing of photography—there must be skill and talent employed in photography as well as in every thing else. The artist himself has learned to appreciate an invention which will abridge his labour, and save his most valuable time, and many now find it their steady friend if properly understood and rightly applied. Photography, it is true, has interfered with some individuals and some branches of the artist's profession, but in most cases it has merely forced the professor to take it into partnership with him, and which has generally resulted in more profitable employment. Printing, when it was first introduced, must have had many opponents amongst the class of persons who gained their support by copying books. No doubt they regarded the printing-press as an enemy; in fact they denounced it as an infernal invention sent on earth to deprive them of bread. We know the result has been the very reverse, and that for one writer who found employment in those days there are thousands now. Ancient draughtsmen may have regarded engraving in the same light, and lithography in its turn affected engravers. But it has always been the case in every discovery in arts and sciences tending to lessen labour and abridge time, that whilst it at first appears to deprive labour and talent of their just reward, the facility of reproduction invariably increases the demand for the talent it in the first instance displaced. Photography is no longer a philosophical wonder; it is a well-established branch of art, though but in its infancy. Its influence is being felt in every direction, and what its ultimate destiny may be, no one can foretell.

BAS RELIEFS FOR THE WELLINGTON TESTIMONIAL.

THE sculptured panels for the pedestal of the testimonial—familiarly known by the appellation of "the over-grown milestone"—in our Phœnix Park, are advancing towards completion in the hands of the sculptors who are respectively engaged thereon, viz., Mr. Joseph R. Kirk, Mr. Farrell, and Signor Benzoni. We had very recently an opportunity of inspecting that at the studio of the former gentleman, which is illustrative of the siege of Seringapatam, and is 35 feet in length and 8 feet high; the Duke surrounded by his aides-de-camp directing the operations forming a prominent and central feature, and the likeness being admirably carried out. We shall again revert to these more fully when the models are in a more complete state, previous to casting, which we believe will be effected at Woolwich.

Correspondence.

MOORE TESTIMONIAL—PEDESTAL No. 2!

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR—Never, perhaps, was the old adage "*there seldom comes a better*," more truly exemplified than in the case of the recent miserable attempt to remedy the palpable unsuitability of the pedestal for the statue, and, I may add, the statue for the pedestal, of this national monument. If the original pedestal were disproportioned to the figure, it had at least the merit of being consistent in its parts and details, and, viewing it independently, left little room for criticism; but now, by way of improvement, we have a squat, blocky, ill-shaped mass of stonework, with a low plinth and moulding, out of all proportion; chamfered angles and a cornice (*save the mark!*), composed of two flat bands or facias, one projecting beyond the face of the other, and devoid of any moulding whatever. The figure now is gigantic in its proportions—preposterously so considering the diminutive stature of the original, whom it is intended to represent faithfully—and conveys an idea precisely the reverse of truthfulness I am told that the head has been raised three inches; if so, the alteration is imperceptible, and it would have been an advantage were it raised three inches more. With regret must every one of discrimination pronounce the entire proceeding a failure, involving both a useless expenditure of some £1,500 or more, and entailing a stigma on our national taste, for which there is but one remedy—viz., "the total removal of both statue and pedestal;" and which, if not now insisted on by the public, is sure to be done by the next generation.

LYNX.

Notes of New Works.

The works for the new club-house for the Kildare-street club have been commenced; Messrs. Cockburns' tender in a limited competition being accepted The building is to occupy a site at the corner of Kildare and Leinster streets, the frontage in the former being 134 feet, and in the latter 63 feet. The materials to be used are red brick, Portland stone, limestone, and granite. The accommodation will consist of, on the ground floor, coffee-room, and morning room, each 60 feet by 30 feet; waiting-rooms, private dining and dressing, two billiard-rooms, and small smoking-room, with racquet-court in the rere; on the first floor, library, card-room, writing-room, a third billiard-room, a committee, and a large smoking-room. On the second floor, and in a partial mezzanine, twenty-two bed-rooms, and bath-rooms, &c., the bed-rooms averaging 20 feet by 13 feet, are provided. The windows, externally, will have columns of Drogheda limestone, with carved capitals of Portland. The arches will be of granite and Portland, with carved hoodmoulds of limestone. On Leinster street front there will be an oriel window extending to the height of two storeys. The style of architecture adopted is Byzantine.

A competition has recently taken place here, which is noticeable as indicating a better feeling on the part of the public in such matters. The Commercial Hall Company invited four architects to compete for their proposed warehouse in Grafton-street, agreeing to give the author of the approved design the carrying out of the work at the usual five per cent., and also to present £10 to each of the other three competitors, as some compensation for their expense in competing. Though it must not be supposed that the sum of *Ten Pounds* was an equivalent for the time lost and expense incurred in making a design for such a building as this, still the profession generally is indebted to the Commercial Hall Company for a step in the right direction. The architects competing were Messrs. Geoghegan, Rawson Carroll, Carmichael and Jones, and Ferguson. Mr. Carroll's design was accepted by the Company; and though his estimate was not the lowest, still it was considered his plans could be carried out for a lower sum than any of the others. The site of the new mart is on the premises at present occupied by Messrs Switzer and Beatty, as also the two houses adjoining; and there will be a frontage likewise in Wicklow-street similar in style to that in Grafton-street, which will be of Italian character.

New draw-bridges are to be built over the Boyne at Drogheda. Sir John M'Neil, C.E.

It is proposed to erect a new Music Hall at Londonderry.

We have much pleasure in observing that, in addition to the numerous first-rate business establishments which already, by their ornamental exteriors, adorn the city of Derry, a new drapery and silk mercery warehouse is about being opened by the Messrs. Alexander and Rankin, at the head of Shipquay-street. Mr. William Stirling, painter and glazier, Pump-street, has recently fitted up the shop windows with two splendid panes of plate glass, one for each window, of the extraordinary dimensions of ten feet by six each, or sixty square feet of glass. These are the largest to be met with in the city. There is not a town of its size in the kingdom can boast of better or more ornamental shops than Derry.

The Coleraine new Town Hall has just been completed, and adds greatly to the appearance of the town. The outside walls are of cut stone, while the design of the entire structure is exceedingly chaste, reflecting the greatest credit on the architect, Mr. Turner, of Belfast, as well as on the contractors, Messrs. M'Laughlin and Harvey, Belfast. It appears that a sum of £4,146 19s. 10½d. has been expended on the building, the difference between which and the original contract of £3,021 has been expended on extras consented to by the board.

We understand that new arrangements are taking place relative to the proposed buildings at Mount Argos, near Kimmage, Co. Dublin, involving a change in the superintending architect, and a material deviation from the original plans sent from Rome, and for the execution of which Mr. Hugh Kelly had been declared the contractor, for a sum exceeding £10,000. When the matter is finally settled, and the amended plans decided on, full particulars shall be given.

The first stone of a new convent for the Loretto nuns has been laid at Omagh.

A new organ is to be placed in the Catholic church of Newcastle West, Co. Limerick.

A new organ, by Messrs. Telford, Dublin, has been placed in the Franciscan church, Carrick-on-Suir.

On the western bank of the river Roe, midway between Newtownlimavady and Dungiven, may be seen crowning the hill-top, a large edifice, recently erected in a very neat and ornate, though unique, style of architecture. It is a male and female school, and teachers' house combined, built during the last year by the ex-High Sheriff, S. Maxwell Alexander, Esq., at the cost of about £500; and, besides that, he guarantees to the teacher £20 per annum, in addition to what he may receive from the National Board.

Two separate buildings are to be erected at the South Dublin Union Workhouse. Mr. William G. Murray, architect.

A new bridge is to be erected on the site of the old wooden bridge across the river Leitrim, at Wicklow, according to one of three plans—viz, No. 1, a stone bridge, not to exceed £3,500; No. 2, a stone bridge, not to exceed £2,700; No. 3, an iron bridge, not to exceed £2,500. Clash bridge is to be removed, and the three wooden bridges at Luggelaw are to be rebuilt, with stone arches.

The Mullingar Gas Company have advertised for plans specifications, and estimates, for the necessary buildings, works, and mains.

New schools have been built at Tourneena, Co. Waterford.

The heating and ventilation of the Nisi Prius Court causes much annoyance to the members of the Bar, and the Chief Baron facetiously appointed Mr. Fitzgibbon, Q.C. (the senior practitioner) as "controller of the pipes," to direct proper attention of the court officers thereto.

Progress of Ecclesiastical Architecture.

The last report of the Ecclesiastical Commissioners for Ireland for the year ending August, 1858, states that the sum appropriated at the usual special meeting of the board in December last, for the several church works of this year, amounted to £43,764 10s. 3d. Of this sum £7,608 18s. 1d. has been applied towards the completion of thirteen new churches, and the enlargement of four churches for which grants had been made in former years; £8,690 towards the building, or rebuilding of eleven parish churches, and the enlargement of sixteen; and the residue, amounting to £27,465 12s. 2d., was set apart for the repairs of churches, and for fencing of churchyards, including the expenses connected with the carrying out of these several works. The commissioners have been enabled this year to appropriate a larger sum to the building, enlarging and repairing of churches, than was expected. The sum received this year from private sources was £8,787 10s. 8d., which is for the most part applicable to the building and enlargement of churches. The following churches have been erected altogether by means of private funds:—a district parochial church at Errislannin, parish of Omey, diocese of Tuam; a chapel of ease at Annarea, in the parish of Kilmore, diocese of Armagh; a like chapel at Grenane, in the parish of Moville, diocese of Derry. The two latter have been erected under the superintendence of the architect of the board, who has lately furnished plans for churches also proposed to be erected by means of private funds, in the parishes of Monkstown, in the diocese of Dublin; Kilshane, diocese of Cashel; Rathcooney, diocese of Cork; Croghan, diocese of Elphin.

A new Roman Catholic church has been built in the northern suburbs of the town of Tipperary. The dimensions are, 156 feet in length by 62 feet in breadth. The style is Gothic, of plain character. At southern angle is a tower resting on four massive arches—ascended by a spiral stairway, reaching the landing under the bell-chamber, which is lighted by four windows—and terminated by a spire, which attains an elevation of 160 feet. The principal doorway has splayed jambs, ornamented with pillars fluted horizontally, and over same is a great lancet arched window. Interiorly the arrangement comprises nave, aisles, and chancel—the two former being separated from each other by a double row of cylindrical columns of highly-polished granite, with moulded caps and bases, and supporting arcades, the spandrils over which are pierced with rows of rectangular windows. The chancel has one great arch next nave, also a fine window, intended, we believe, for stained glass: and a decorated rood-screen will extend upwards behind the tabernacle. The church is already roofed, and progresses towards completion.

The new church of St. Mary, Arklow, now erecting from the designs of Mr. Patrick Byrne, architect, is in the Italian style, and measures 120 feet by 80 feet at the transepts, and 40 feet in the nave, the plan being a Latin cross; has panelled ceiling internally, and pilastered front externally, with tower and cupola, rising 100 ft.

No decision has as yet been arrived at in reference to the competition plans for the new church and buildings for the Molyneux asylum. We understand sixteen sets of plans were sent in, four of which have been selected for further consideration, &c.; one of these will be adopted. Rumour names the probable successful competitor, but we abstain from giving it publicity.

A new Roman Catholic church is to be erected in the new town of Ardagh, and the Dowager Lady Fetherston has granted a free site. A police barrack and model cottages have been lately built. The ruins of one of the most ancient cathedrals in Ireland, St. Mel, are a conspicuous object in the town.

The Rosses church, near Sligo, has been built by subscription, and is now ready for divine worship.

It has been determined on to erect a new Roman Catholic church in Dundalk, between Bridge-street and Linenhall-street, at the rere of the old Market-house.

Sundry works are to be executed by the Ecclesiastical Commissioners at the churches of Errislannon and Lickmolash, Co. Galway, for which tenders are being sought.

The corner-stone of the new church of the Immaculate Conception, in the parish of Aglish, Cork, has been laid.

A new church for the Baptists congregation is about to be erected at Kenilworth-square, Rathmines. Mr. Carson, architect.

Railway Matters.

Mr. Lefanu, C.E. reports that "on the Tullamore and Athlone extension — length 24 miles — the contractor is actively engaged. The heavy cuttings and embankments near Tullamore, Clara, and Athlone, are nearly complete; and the other works are far advanced. Nearly 16 miles have been brought to formation level. The laying of the permanent way is commenced, rails and sleepers for that purpose having been delivered at Tullamore. 1,580 men and 183 horses are employed on the works. The station and goods-store at Athlone are in a forward state. Five bridges have been completed, and 14 others are in hands. 61 culverts have been built, and 10 in course of construction;" also "that on the Mallow and Fermoy Railway — length 17 miles — the works, with the exception of the Kilcummer viaduct over the river Awbeg, are in a still more forward state, three-fourths of the earthworks being finished, 13½ miles brought to formation level, and 5½ miles ballasted. The arching of the Carrig viaduct will be commenced immediately, the western abutment and one pier being complete, and all the other piers in a forward state. One abutment and three piers of the Kilcummer viaduct are in hands, and the contractor will make rapid progress with this work. 630 men and 40 horses are employed on the works. Ten bridges have been completed, and ten others are in hands; and thirty-three culverts have been built.

The Banbridge and Scarva line is completed, and a handsome station built from designs by Mr. Lanyon, C.E., architect, &c.

The rails have been laid on the bridge which is to convey the Belfast and Downpatrick line over the Annacloy river, and a steam engine has passed over it. The remainder of the rails, about a mile and a quarter in length, will be laid in a short time. The station at this end, according to the plan, will be a very handsome building. A temporary structure of wood will be erected, so that the public may have the benefit of railway communication to and from Belfast as soon as the line passes the government inspector. In all probability, it may be open to the public by the beginning or middle of this month.

THE LIFFEY BRANCH LINE.—The standing orders have been declared complied with. The following resolution relative to the objectionable features treated of in the February No. of THE DUBLIN BUILDER was unanimously passed by No. 1 Committee of the Municipal Council:—That the committee advise the corporation not to offer any objection to the proposal of the railway company, provided that, in addition to the arrangement agreed on between Messrs. Nevile, Halpin and Hemans, C.E.'s, the directors will insert in the proposed bill clauses to oblige them to construct contemporaneously with the addition to the railway, pontoon or swivel-bridges having a double carriage way at Sheriff-street, and Mayor-street, and not less than 30 feet in breadth; and provided they also erect a swivel-bridge of similar width over the canal at the North-wall, and that such alterations be made as will remedy the dangerous elevation of Newcomen-bridge, and secure a convenient passage across the canal and contemplated railway at Amiens-street, on the road to Clontarf.

TENDERS

For the erection of a new club-house for the Kildare streets Club at the junction of Kildare and Leinster-streets; Messrs Deane and Woodward, architects:—

William Moyers	£34,000	0	0
John Butler	27,041	0	0
George Farrell	25.636	0	0
Crowe and Sons	23,448	0	0
Thomas H. Carroll	23,390	0	0
Cockburn and Sons (accepted)	21,750	0	0

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Miscellaneous.

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J. MONCRIEFF WILSON,
Secretary of the Company.

REDUCTION IN THE PRICE OF GAS.—Notice is hereby Given that the DIRECTORS of the ALLIANCE and DUBLIN CONSUMERS' GAS COMPANY have this day REDUCED the Price of Gas to FOUR SHILLINGS and NINEPENCE per Thousand Cubic Feet.

By Order,
JOHN STEVENSON, *Secretary.*
114, Grafton-st., 1st Jan., 1859.

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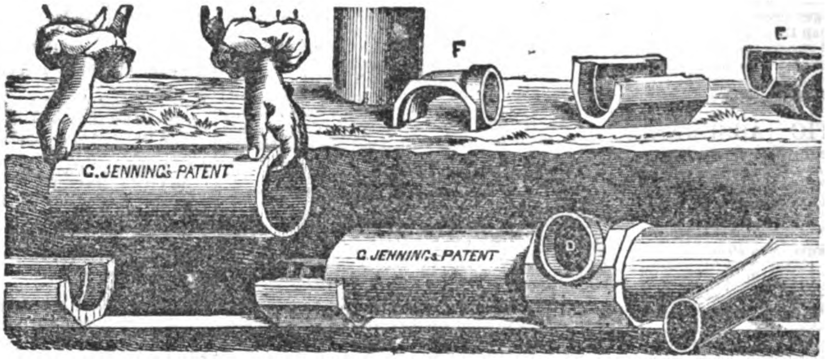

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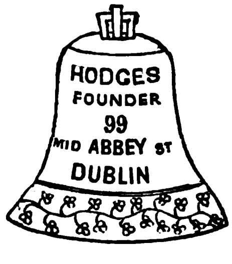

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The Dublin Builder.

VOL. I.—No. 4.

SANITARY CONSIDERATIONS.

SEWERAGE—NO. II.

IN order to arrive at just conclusions, we must *begin* at the *beginning;* and it would have been a happy circumstance, perhaps, that the origin of the existing evil of the sewers had been examined into long since.

The sewers of the present day are, in their general design, what they were ages since—constructed then, and long within our own time, simply to carry off the surface-water of the streets and the culinary and other such waters of residences. The laws strictly forbade that animal matter or filth of any kind should be cast into them, and at the present moment the penalty leviable *in Dublin,* as well as elsewhere, by common information before a magistrate, is £5 for every breach of as wise an enactment as ever did honour to our forefathers. It is forbidden, in the most stringent terms, that rivers, streams, or water-courses shall be polluted in any manner; and every resident upon a river side who can prove the pollution of the stream by an individual above him, can recover damages for the act in proportion to the injury done. It is, in fact, an established and recognized principle of law, that the pure waters given by Providence for the use of mankind shall not be made impure by man.

To uphold this principle, then, as it should be, it was most properly made penal if filth were discharged into *public sewers* communicating with streams or rivers; and as it was never intended that such sewers were to do more than carry off the waters already described, their design was well suited for the object, but totally unsuited for the use which, unhappily, has been recently made of them—namely, receptacles for human excrement.

No doubt the hope of him who first broke the law, and surreptitiously introduced into a public sewer the pipe from a water-closet, was, that the matter would be carried off by the water of the sewer; no doubt, too, he succeeded so far in his wishes as to accomplish the object of getting rid of his own filth; and where it went to he evidently cared but little. But, by degrees, when others followed the "original sin"—for less it certainly was not—the evil began to show itself, and the monstrously selfish and unjustifiable act of sending forth from our houses the elements of disease to disseminate noxiousness and poison, produced its own punishment: *disease came back upon its propagators.* London, the parent of the water-closet and present sewerage system, has become the greatest sufferer by this outrage upon both principle and science; and it is likely to pay the penalty more deeply still, for in its self-sufficiency and pride, it still goes step by step deeper into the wrong.

We have shown that *legally* there is no justification for the present sewerage system, now let us examine it professionally.

The matter which is so improperly introduced into the existing sewers—night-soil or human excrement—is composed of about 75 per cent. of watery substance, with some 25 of solids, containing ammoniacal and other phosphates, lime, urea, mucus, and other animal matters. It is peculiarly slimy and sticky, adheres pertinaciously to every place it touches, and requires, in fact, to be rubbed or scraped away even from glazed surfaces, such as closet-pans specially prepared to prevent its adhesion.

The effect of this peculiarity is, that throughout every part of the space which it passes in a sewer, and touches either bottom or sides, it leaves a portion of itself—coating by degrees the whole, and forming a mass of putrifying matter, daily fed by new supplies, until at length the sewer chokes, and the exit of the water is stopped. Hence the need for the disgusting operations which we witness daily, in sewers being broken into from the streets, and the accumulations of filth bucketed up at noon day, as well as night, whilst streams of noxiousness rush from beneath.

The most careful examination of the sewers of London has incontrovertibly established the fact, that by *scraping, brushing,* and *bucketing alone* can these accumulations be removed. It is no theoretical conclusion arising from the nature of the thing that causes the evil—it is the veritable reality, proved by every sewer into which night-soil is discharged, not alone in London, but in every town throughout the kingdom. Where the natural fall of the sewer is least, of course the evil is greatest; but even where it is *most,* adhesion of the matter takes place. The examination of a *vertical* pipe of a water-closet affords the proof. Even there the matter adheres, and after some time the interior will be found entirely coated over; constantly yielding impurity to the atmosphere. Let it not be supposed either, that the water in the pan prevents the escape into the closet. It is no such thing. The gases rush up as the valve is opened to permit the water down; and a careful examination of the phenomenon will prove that the gases are at times forced between the seats of the valve, and up through the water whilst in a quiescent state. They may be seen bubbling up, especially at night, when the closed doors and windows of the house raise the temperature within, and aid the pressure of the gas from without.

That the nature of the matter discharged into the sewers is such as described, cannot be denied; and that it cannot be removed by the mere action of water, is incontestibly established. "Flushing" has no more effect upon the deposit of night-soil in a sewer than water upon a duck's back; it slips over, and runs from one as it does the other. It was, in fact, about as fallacious a proposition as ever came from authority; and coming originally from the quarter it did, was well calculated to mislead, and did mislead till engineering "fashion"—for engineers have fashions, as well as milliners—pronounced it to be the cure for all existing sewerage evils. A greater mistake, unhappily, has rarely been made, and perhaps nothing could more clearly prove the utter want of knowledge of the nature of the article to be dealt with, nor the necessity for engineers, as well as all others, beginning *at* the beginning when they wish to arrive at a successful ending.

Had the nature of night-soil been fully understood, no one, of even moderate comprehension, would have attempted to *get rid of it* by passing it into a sewer, where, of necessity, it is mainly deposited. If it were known that water had no effect in removing it, once its slimy coat had formed, who would have proposed flushing? And surely it is contrary to all reason to imagine that if such facts were understood, so many millions would be thrown away in the construction of *new sewers,* to become nothing more than cesspools after they had fulfilled their mission of carrying through them a sufficient portion of filth to destroy the river or stream into which, by breach of the laws of the country, they are allowed to discharge their noxiousness.

But the evil has been done; the question for consideration is, how can it be undone, now that we know what we have to deal with. London may exhibit her pertinacity and wilfulness in the wrong; she can, perhaps, afford to gratify her vanity by expending millions for the benefit of engineers and contractors, and continue her sewerage system till it *chokes* itself; but Dublin and Ireland cannot afford to be so foolish, nor, as we hope, will Irish intelligence and talent still submit to be hoodwinked and led blindfold in the wake of incapacity.

Antiquities.

CHRIST CHURCH CATHEDRAL.

Christ Church Cathedral is said to have been founded by the Danes, in the year 1038. Sitricus, king of Dublin, bestowed the ground; and Donat, first bishop of Dublin, in conjunction with the abovenamed prince, is generally considered the founder. Probably like most of the clergy of that age, he might have been the architect also; for whatever knowledge of art or science our forefathers possessed, was generally found in the cloister; and pre-eminence in knowledge of any kind—particularly architectural knowledge—was sure to distinguish the possessor, and raise him to the highest elevation in the church. Donat, therefore, we may presume, was the designer of this pile. Be that as it may, Sitricus gave to the blessed Trinity, and to the bishop, the ground on which it was built, and also endowed it with the lands, manors, villains, cows, and corn of Beal Duleek, now Baldoyle; Reehan, now Raheny; and Portrahan. But his munificence did not stop here, for he also bestowed as much gold and silver as built the church and the court thereof.

The original structure appears to have been in the Saxon style (?), notwithstanding its Danish origin. The transepts still retain much of their original state, and exhibit some beautiful specimens of the zig-zag ornament. It is not however pure Saxon, for the pointed arch is intimately combined with it, not only in the windows of the transepts, but also in two or three opens, richly ornamented with chevron mouldings, which are still apparent in the lateral aisles that lead to the choir. This circumstance seems to confirm the supposition, that the pointed arch was in use much earlier than some antiquarians admit.

An arch in the north aisle of the choir, leading to St. Mary's chapel, appears to have given way—probably occasioned by the shock the whole building must have sustained when the roof and south wall of the nave fell, in the year 1562. The arched window over it has also suffered, for the central pillar is displaced, and has lost its perpendicularity. To prevent the arch at the entrance of this aisle from falling in, the space has been filled up with solid masonry, leaving a smaller arched entrance beneath it. Over this smaller arch a square tablet was introduced, with the armorial bearings, supporters, motto and cypher of Sir Henry Sidney, K.G., Lord Deputy of Ireland in the year inscribed on the tablet, 1577. This date ascertains the exact time when this arch was thus repaired.

The exterior of the north transept wall is enriched by a Saxon arched gateway or door, highly ornamented by a complex projecting zig-zag, and various other mouldings. The caps of the shafts which support the arch are formed, as far as their decayed state enables us to judge, of numerous figures of angels, fantastically entwined. At each side of the door was a niche for holding the stoup in which the holy water was contained. This doorway has long since been built up, but the mark of it is still very visible on the interior wall.

At intersection of nave and transepts, and nearly in the centre of the church, a large square tower steeple is erected on four immense stone piers; connected together by lofty pointed arches, which reached the original ceiling of the nave, when it was in existence. The present groined ceilings of the transepts appear to be modern. The north side of the nave consists of six lofty and extensive pointed arches of beautiful workmanship; and the piers which support them are richly decorated with eight clustering columns or pilasters. Some of these columns are banded in two divisions, and others are quite plain from the base to the capital. There is a sharpness and spirit in the foliage that terminates some of the columns, which is admirable. The canopies over these arches are supported by corbel heads of grotesque expression, and well sculptured. The triforium, or friars' walk, looks into the great aisle below, from a row of arched niches of three compartments each. Above these recesses is a range of clerestory windows, consisting of three distinct lancet-pointed arches, very narrow, the central arch being considerably higher than those at each side. There are six of these treble windows corresponding with the arches, over which they are ranged; and together with the blind windows or niches, connected with the friars' walks immediately under them, are enclosed in a large arch, nearly equal in size to the lower arch which springs out of the piers, and affords them support. The south wall is a plain, ornamented, heavy structure, remarkable only for the expedition used in rebuilding it, which is upon record; for we are informed by a laconic inscription on the wall, curious for the quaintness of its style and orthography, that "This wal fel down in an. 1562. The bilding of this wal was in an. 1562." The plainness of the wall is, however, in some measure counteracted and relieved by the monuments to which it gives support.

The upper part of this wall exhibits a few inscriptions; besides that already mentioned, another sets forth that the monument of Strongbow, Earl of Chepstow, being broken by the fall of the roof, it was repaired, and soforth. But doubts have been entertained as to the identity of this monument; for some assert that the present monument is the effigy of Thomas, Earl of Desmond, who was beheaded in Drogheda, anno 1464; and that it was removed thence to this abbey. A more positive objection to its identity is derived from the armorial bearings with which the shield of the recumbent knight is charged, which are Argent, on a chief, three cross crosleta fitched. This Earl of Desmond was a branch of the Geraldines, and it is asserted that no member of that extended line ever adopted the arms described on it. It would appear that the ancient monument being broken, the architect and masons in Queen Elizabeth's time, who repaired the building, not being very scrupulous antiquarians, dexterously substituted some unclaimed piece of rude antiquity, such as the sculpture now under consideration, to represent this memorable and enterprising hero. "Nosce te ipsum" is another pithy motto depicted on a label inserted in the wall, adjoining a tablet charged with the letters W. H. MASO, meaning probably the device of the mason who built the wall. This was an age in which learning did not disdain an association with the *masonic* art. Ben Johnson was a learned mason or bricklayer, and why not allow any other mason to display a little learning also? This, however, after all, is but conjecture.

The great western window, and the wall in which it is inserted, appear to have been built at the same time with the wall on the south side of the nave. It is probable that as they adjoined each other, they both suffered the same calamity which overtook the latter.

Large windows were at this period (1562) the prevailing fashion, and had entirely supplanted the elder fashion of narrow pointed or lancet arch windows, still to be seen in the original parts of the building. This window is a circular arch, much more lofty than the original groined roof appears to have been when it existed. There are several monuments in the south side of nave of more recent date than those described. The chief are—a mural monument to the late General Achmuty, G.C.B., in white marble, by T. Kirk, R.H.A., 1822; to Thomas Prior, Esq., the founder of the Royal Dublin Society, with an inscription by Bishop Berkley; sculptured by Van Nost, 1756; to Lord Chancellor Bowes, also by Van Nost, 1767; to Lord Chancellor Lifford, 1789; the ancient monument of Strongbow, already mentioned; and the monument of Dr. Ellis, Bishop of Meath, and his lady. There is also an excellent piece of sculpture, by H. Cheere, to the Earl of Kildare, ancestor to the present Duke of Leinster, situated in the chancel of the choir; and these comprise all the monuments of any interest in the cathedral.

The northern side of nave—whether by the shock it sustained when the opposite side and the roof fell, or through natural decay, or from the sinking of the earth on which its foundations are built—leans a considerable degree out of a perpendicular line. Some few years ago a very strong abutment was built, inclining against the wall of its lateral aisle; and perhaps by this means the church may be upheld for another century.

The soil on which it is founded is a turbaceous mould, black and soft; and appears to be common turf bog, in a state of progressive decomposition. When the builders of the houses on St. Michael's-hill, Winetavern-street, were digging foundations, this appearance was very palpable, and accounts for any deviation from the centre, in this extensive and ancient pile, which the unstable soil still sustains.

The choir was said to have been built, in 1170, by Laurence O'Toole, Archbishop of Dublin, Earl Strongbow, Robert Fitzstephen, and Raymond le Gros; together with a number of chapels, the situation of which are now no longer traceable. The present chapel dedicated to St. Mary, was not erected until 1512, by Gerald, Earl of Kildare.

The great eastern window is circularly arched, and seems to have been erected about the same period when that of the nave was rebuilt. The side windows of the choir are formed of pointed arches, of a dimension considerably larger than the clerestory windows in the nave. They are irregular in point of size compared with each other, and apparently were built two or three centuries later than the former, though, from their external appearance, they are evidently in a very inferior style of workmanship.

According to an inquisition (says Ware) held by Richard II., anno 1383, this church was stated to have been founded and endowed by Irishmen unknown, long before the Conquest. John Le St. Paul, Archbishop of Dublin, built, at his own charge, the chancel; and certainly the interior of the choir has undergone so many alterations in the last two centuries, that there are little traces of the original Gothic character left. It presents, like most buildings erected during this period, a confused jumble of styles, purporting to be imitations of regular classic architecture, but in reality an incongruous mixture of both, with little pretensions to the taste and correctness of either the Gothic or the Grecian style.

The external appearance of the building is heavy and uninteresting. The only beautiful parts about it are the Saxon door, and windows of the transepts before described, and the Gothic shafts which supported the external arches of the clerestory windows.

Christ Church, in its original monastic state, was styled the Priory of the blessed Trinity, and in the church itself, and the abbey, several parliaments have been held. The black book of Christ Church is still classed among our most ancient and authentic national records.

Among the founders and restorers of this church, beside John de St. Paul, Archbishop of Dublin, and Gerald, Earl of Kildare, we should not omit the Earl of Sussex, who rebuilt part of the nave, in 1562; Sir Henry Sydney and Archbishop Jones, who (according to Ware) repaired a great part of the church and steeple, which had fallen or otherwise gone to decay.

The following are the general dimensions of this ancient pile:—

	Ft.	In.
Length of nave from west wall to door of choir	126	0
Breadth of nave, including centre and one side aisle	43	6
Breadth of the back aisle	13	4
Length of transepts from north to south	88	6
Breadth of ditto	25	0
Length of choir, about	108	0
External length of St. Mary's chapel	66	0
Total external length of the church, including St. Mary's chapel and the buttresses	246	0

THE GENOESE PRISON COMPETITION.

THE Sardinian Government having purchased the design furnished, in the recent competition, by an Irish architect—Mr. John Philpot Jones—practising in London, we feel pleasure in noticing its principal features.

In the centre of the east front is the entrance, with strong double doors—the outer one flanked by circular turrets, and loopholed for defence. This entrance gate has a platform on the top, which may be made available for mounting small guns, if at any time required. Opposite the gate are the main buildings of the prison department. Passing through a large hall, there are on each side offices for porters, register and receiving rooms, bath rooms, and cloth store.

The female prisoners have separate and similar accommodation. In this portion of the establishment are rooms set apart for the commissioners of charity and committee of surveillance, and for the judges, advocates, sisters of charity, and *corps de garde*, &c. On the second floor are the living rooms and bed-rooms for the warders, should they be required to live in the establishment. These buildings form a cortile, in the centre of which is the director's house, connected by a corridor with the central octagon hall of the prison, from which run the main galleries, with cells for the male prisoners.

The women's gallery, and another for the males, are connected with the director's house by side corridors. Instead of grouping all the men together, one portion of them—equal to 100 cells—are at the left-hand side of the director's house. These cells are devoted to younger prisoners. The women occupy a similar ward on the right of the director's house.

The director or governor has complete supervision over all the galleries, yet each class of prisoners is quite separate from one another. A certain number of cells is appropriated for prisoners *in transitur* and prisoners "*ditenuti di passagio*," distinct from the rest of the prisoners, but under the control and supervision of the director. A separate gallery is set apart for punishment cells. "*Camere di societa*," "*camere di lavoro*," are given to prisoners of a better class, if it may be thought desirable to allow prisoners to associate together. This is strongly recommended by the author.

At the end of the women's gallery is placed the women's infirmary, with all appliances to make it complete. The male prisoners' infirmary is connected by a corridor from the right-hand wing of the male prisoners' gallery. It is arranged so that it may be either an associated ward, or, if desired, it may be divided by screens attached to the piers which support the vaulting. The whole of the cells throughout are arched with brick. The washing department is adjoining the women's gallery, and is fitted up with the most approved machinery for washing and drying clothes. In the exercising yards each prisoner can take exercise for one hour in the day, under the supervision of the warders. The wards are all connected by means of iron galleries, 1·25 metres wide, which afford perfect access and supervision to the director and his officials, as well as for the sentinels. Each cell is fitted up with a table and stool fixed to the floor, a book-shelf, and a bed hung as a hammock, which can be folded up and put away during the day. A water-closet and wash-stand, with a water-pipe attached to each, and gas, are also provided; likewise a bell, which is rung when the prisoner wishes to call the warder. The windows are at a high level, and secured by double gratings. The doors of the cells are of solid wood, with an iron-railed door also.

The ventilation has much engaged the author's attention, and the following is the mode which seems the best that can be adopted for a prison:—Flues are to be constructed in the walls of the cells leading into a main foul-air channel in the roof, which is connected with a rarifying flue, so that all the foul air is drawn out of the cells into the main shaft, to be rarified by gas-lights kept constantly lighted, over openings from the gallery into the cells, over the doors for regulating the temperature; these openings are grated. A flue also is constructed from the external wall, with strong gratings and a slide, to regulate the temperature in summer. As it is proposed to light the cells with gas, a shade is fixed over the lamp, with a pipe connected with one of the flues, to increase the ventilation by rarification. Great care has been taken in the construction and arrangement of the plan, so as to prevent the possibility of sound being conveyed by the human voice. This is accomplished by means of earthenware paraboloids, built in the flues, so that whatever sound may be attempted to be conveyed through the ventilating flues from cell to cell, it would rebound, &c. It is proposed to warm the several galleries by a principle of hot air carried in flues throughout the entire building.

The building is to be constructed of stone. All cells arched, and filled up in the spandril with concrete, on which will be tile flooring on the Italian principle. The whole of the prison to be supplied with water pumped by the prisoners. The author's designs for two prisons at Turin are on the same principle, though a different arrangement of plan.

SKETCH OF LIVERPOOL — HISTORICAL, COMMERCIAL, AND ARTISTIC.

LIVERPOOL, now one of the greatest commercial emporiums of the world, is a town of comparatively modern origin. The first authentic, official mention of it is found in a charter granted in 1173, during the reign of King Henry II. It has been supposed that the King in giving this charter, and allowing perfect freedom of navigation to the inhabitants of Liverpool, had in view the conquest of Ireland. A charter regularly incorporating the town of Liverpool was granted by King John in the year 1207. It was not however until the reign of Charles II. that Liverpool became a place of any importance whatever. The emigration to the new British colonies in America commenced at that time, and opened a new market for the manufactures of the north-western counties of England.

The Liverpool merchants entered very largely into the slave trade, and a century ago more than one hundred of them were openly engaged in it. Their ships, after conveying their cargoes from Africa to America, returned to Liverpool laden with tobacco and sugar. Great as was the interest of Liverpool in the slave-trade, that of London and Bristol was even greater.

The wars which took place in the eighteenth century against France and the United States interfered seriously with the commerce of Liverpool. Sir Richard Arkwright's inventions, however, built up a strong manufacturing interest in Lancashire, and on the restoration of peace a large cotton trade grew up between the United States and Liverpool. The growth of the city within the present century has been immense. In 1801 its population was about 77,000; at present it is more than 400,000. The commerce of Liverpool connects the city with every quarter of the globe. She has a large East and West Indian, and South American trade; and since the settlement of Australia, she has monopolized a large portion of the trade of that remote and flourishing colony. Her Australian packet-ships have a world-wide celebrity. A large number of fine screw-steamers maintain a constant communication between Liverpool and the ports of the Mediterranean and the Levant. and the communication between Liverpool and the United States by packets and steamships is more frequent than between any other places so distant in the world.

Some idea of the extent of the commerce of Liverpool may be obtained from the consideration of the fact, that in the year 1856 nearly 21,000 vessels, averaging more than 200 tons burthen, entered its port. The trade of Liverpool consists mainly of the great staple articles, such as grain, wool, cotton, sugar, tobacco, &c. In the year 1856 the imports of cotton into Liverpool considerably surpassed 2,000,000 of bales, a large part of which was from the United States. The grain trade between the United States and Liverpool is next in importance to that in cotton. The importations of sugar amounted in 1856 to some 76,000 tons—coming in pretty equal proportions from the West Indies, Brazil, and the East Indies.

Liverpool is finely situated for a great commercial mart. It reaches for some six miles along the banks of the Mersey, and has room to grow to almost any reasonable extent. Its harbour is somewhat exposed to the north-west winds, but it is in contemplation to build a magnificent breakwater which will entirely obviate this trouble, and greatly improve the maritime advantages of the city. The rise and fall of the tides at Liverpool is so considerable as to require the erection of docks. The docks of Liverpool are the most striking feature, and are built of smoothly dressed granite, and extend along the whole front of the city. The river wall of the docks is more than five miles in length. The docks enclose a water space of 200 acres, and, including the yards and warehouses, occupy an area of more than 700 acres. The quays which surround the docks measure more than fourteen miles in length. Two immense landing-stages, which rise and fall with the tide, are placed in front of the line of docks, to facilitate landing and embarkation. The docks of Liverpool are surpassed by nothing in the world as a triumph of mechanical skill. The city is well built. St. George's Hall and some of the banking-houses, are fine specimens of architecture. The Philharmonic Hall is one of the best music-halls in Great Britain.

IRISH SULPHUR MINES.

This important branch of our national industry is attracting much attention. Our manufacturers of sulphuric acid prefer the Wicklow ores to any other pyrites they can procure. No sulphur ore yet introduced into the market finds such favour as the Irish. Wicklow has been hitherto the grand source of supply; even this vast storehouse can scarcely equal the demand. Notwithstanding several new works are about to be undertaken, ample outlet for all that can be raised will be found; indeed, new sources of consumption will be developed in Ireland herself, as her agricultural prosperity advances. Already are large works established for these pursuits with considerable success; these are sure to be followed by others, for rivalry and competition are as rife in the Sister Island as in this—the evident prosperity of any one branch is sure to evoke this latent principle of mankind. We expect ere long to see many works for the formation of vitriol in the principal cities of Ireland, solely for the purpose of creating these important aids to her natural fertility. The principal one is to be obtained at such a cheap rate as to defy competition by the foreigner for common purposes, whilst the supply is perfectly inexhaustible, limited only by time for extraction and capital for establishing the works. The traffic thus engendered will be a source of immense employment for her mercantile marine; and the emoluments derivable from the labour in its procuration and manufacture must be very considerable. We sincerely hope that the knowledge of the sums realised by some English landlords will not excite a suicidal cupidity on behalf of their Irish brethren, such as, we regret to say, has been the case in some Welsh instances; for they may depend upon it the Hibernian capitalists, like the Cambrian, will discover the error, and regret, when too late, the want of patronage and withdrawal of capital that would otherwise have been expended in prosecuting mining adventures on their properties. Nor in the endeavour to raise sulphur ores is this, though the grand source of enterprise, the only one from which important results may follow. Sulphur is well known to be the associate of many other more valuable minerals; it is almost always found with copper, in the mines of which sulphur is looked upon as a favourable indication, as well as in the mines of lead, zinc, &c. We, therefore, hail the advent of a great period of Irish mining industry now beginning to display itself, as shown in our journal of last week. We commend these remarks and cautions to the proprietors of the Currawn estates, in Mayo, assuring them our advice is given with the utmost sincerity, and only with a strong desire to foster and cherish the industry of our neighbours, who are evidently bestirring themselves, and becoming daily more alive to the real value of the splendid resources Nature has so bountifully bestowed on Erin's green isle. —*Abridged from the Mining Journal.*

The English Catholics are about building a church of their own at Rome. The work is entrusted to an eminent London architect, and a collection has already been set on foot to carry out this undertaking.

MEMOIR OF THE LATE JOHN HOGAN.

John Hogan, the celebrated Irish sculptor, was born at Tallow, in the year 1800, and was the son of a builder. He was descended paternally from the old Dalcassian tribe of the O'Hogans, and maternally from Chief Justice Sir Richard Cox, afterwards Lord Chancellor in the reign of Queen Anne. He was placed with an attorney in Cork, named Michael Footte, in 1812, but. like Chantrey, his propensity for the fine arts, and not law, quickly manifested itself. At fourteen years of age he was placed with Mr. (now Sir Thomas) Deane, with a view of his becoming an architect; but the turn of his mind was evidently for sculpture. His first essay was the statue of Minerva, over the insurance office on the South Mall, Cork. He prosecuted his studies in Cork until 1823, when, through the aid and energy of Mr. William Paulett Carey, who foresaw in the young artist the future genius, a handsome subscription was formed, which enabled him to set out for Italy. The subject of his first work, undertaken professionally, was "Eve after her expulsion from Paradise picking up a dead bird," and is stated to be exquisite. His statue of "The Drunken Faun" (pronounced by Thorwalsden a miracle of art) was undertaken in defiance of a taunt by Gibson, that Hogan, nor any other sculptor, could not produce an attitude or expression in the human figure not already appropriated. Hogan was pressed for want of funds in 1825, but was relieved by his old friends Lord de Tabley and Mr. Carey. The "Dead Christ," in Clarendon-street chapel, was his next great work, and he received £450 for it. Since that period he has executed figures of "Religion," the "Pieta," several busts and basso-relievos; but the monuments to Dr. Doyle, Drummond, Crawford, O'Connell, Lord Cloncurry, &c., are among his chief works. Of the former, the subject is a Christian prelate offering up a last appeal to heaven for the regeneration of his country, which is personified by a beautiful female (Erin) in an attitude of dejection at his side. She rests on one knee, her body bent and humbled, yet retaining beauty and dignity of character; her turret-crowned head resting on one arm. while the other, with an expression of melancholy abandonment, reclines on and sustains her ancient harp. This monument stands in the parish R. C. Church of Carlow. Mr. Hogan was engaged on several important works at the time of his death, amongst which we may mention one of the bas-reliefs for the Wellington Testimonial, Phœnix Park. His design for the Moore Statue was universally admired by the public, though rejected by the committee, with what wisdom and justice subsequent events have shown, to our perpetual national disgrace; and such rejection not a little preyed on the mind of a sinking spirit, worn out by struggles against untoward fortune.

OPENING OF THE LURGAN MECHANICS' INSTITUTE.

This new building, erected from designs by Mr. Raffles Brown, architect, has been opened, and is situated in the Main-street, almost directly opposite the principal entrance to the Brownlow House demesne. The style is the early Grecian, and the effect of the exterior is greatly increased by a handsome clock tower. There are two entrances—the principal one from the High-street, and the other from Union-street, to each of which streets the building has a front. To the right of the entrance hall is the newsroom and library, which at present contains about 1,200 volumes, as the nucleus of one intended to be far more extensive. The books have been selected from their adaptation to the requirements of the working classes. The lecture-room, on the same floor, is a spacious semicircular apartment, lighted from the roof through stained glass, and capable of accommodating a large audience. Committee and retiring rooms occupy the remainder of the lower storey. On the second floor are situated the male and femals schools. A night school, largely attended by the adult working population, has been commenced, and promises well. There is also an apartment which it is intended to use as a museum for the exhibition of specimens of those wondrous fabrics of cambric and damask with which the name of Lurgan is associated over the whole world. The tower will contain instruments for keeping a complete meteorological register.

MORTALITY IN IRELAND—STATISTICAL DEFICIENCY.

Hitherto, owing to the want of a proper registry of deaths, the public have been kept completely in the dark regarding the comparative mortality of the different towns and districts in Ireland. The importance of this information cannot well be appreciated except by those who have made sanitary matters a subject of close investigation. It is, therefore, with much pleasure we learn that Lord Naas has introduced a bill for the registry of births, deaths, and marriages, which we hope to see passed into law. Boards of health in England are able to show the actual diminution of mortality arising from sanitary improvements introduced by them; and *we* will also be able to judge, as soon as the registrar-general has made his return, the places in this country where sanitary improvements are most needed.

INSTITUTION OF CIVIL ENGINEERS OF IRELAND.

An evening meeting of this institution was held on the 8th ult. at their rooms, 41, Upper Sackville-street. After the usual transaction of business, Mr. Bindon B. Stoney, assistant engineer to the Ballast Office, read a paper on the Newcastle Coal Experiments, made for the purpose of deciding to whom should be awarded the £500 prize which had been offered by the Steam Collieries Association of Newcastle-upon-Tyne, for the best method of preventing the emission of smoke from multitubular boilers. Mr. Stoney described his method of smoke prevention, which, with three others, was selected for trial out of 103 competing plans, and proceeded to institute a comparison between it and the plan published by the judges as their own. A discussion ensued, in which the president, Mr. M. B. Mullins; the secretary, Mr. Alexander Tate; and Messrs. Anderson and Hill took part. In the course of the remarks made by Mr. Anderson, testimony, from his own experience, was borne to the entire success attained by the use of the plan proposed by Mr. Stoney.

RESTORATION OF THE BLACK ABBEY, KILKENNY.

We learn that the ancient Church of the Priory of the Holy Trinity, at Kilkenny, commonly called the "Black Abbey," is to be restored, if not fully, at least so as to preserve the principal features, under the superintendence of Mr. J. J. M'Carthy, architect, A.R.H.A., a gentleman whose experience in Gothic architecture pre-eminently qualifies him for the task. The "Black Abbey" was founded in the 13th century, and must have ranked, perhaps, as the very first monastic church in the kingdom for size, while for beauty it was probably exceeded by none, and for uniqueness of plan stood alone and unrivalled. The ground plan comprehended a nave, of rather short dimensions, with an aisle on the south, opening into the nave, of three Gothic pointed arches, rising from rounded columns; a very long choir or chancel for the religious of the community; a south transept, also long and proportionately wide, opening by five pointed arches into the west aisle. At the junction of the nave, choir, and transepts rose, and still rises, a lofty, square bell tower; and at the west end of the nave stood a massive, fortress-like tower, now partly ruinous. On the north side of the church stood the cloisters and conventual buildings, traces of which may yet be seen. The ancient choir has altogether disappeared, so has the aisle of nave, but the foundations of the latter have recently been laid bare. The roof is gone from the nave, and the only parts now in anything like habitable preservation are—the south transept and its aisle, which are used as the present conventual church. They are, even in their present forlorn condition, extremely beautiful. Nearly the entire of the south gable is filled with a magnificent traceried window of five lights, of the period of the 14th century. The east side of the transept has a series of three-light traceried windows of about half a century later than the south window. The transept communicates with its aisle by pointed arches, supported on pillars with capitals, moulded in the style of the 13th century.

INSUFFICIENCY OF BRIDGE ACCOMMODATION IN BELFAST.

Belfast, like other thriving towns, seems to be outgrowing its bridge accommodation. Complaints are numerous that the Queen's bridge, not yet 20 years built, is already too narrow for the traffic, and a project is talked of for increasing its width, by adding laterally metal footpaths outside the present structure.[*] One seems at a loss to account for the want of foresight displayed by the parties concerned in its erection; for a glance at the records of the past would have shown them that the town had doubled its population in less than 20 years prior to the bridge being built, and was steadily and rapidly increasing, thereby making it incumbent on both the designers and projectors to anticipate proportionally the requirements *in futuro*.

One very obvious means of relief would be, for the two counties to purchase the Lagan bridge, and abolish the toll, thereby diverting the current of traffic into two smaller streams. We think that the landlords of Ballymacarrett have not consulted their own interests, or the toll on this bridge would have been done away with many years ago. The whole of the townland, which contains upwards of 500 acres, was mapped and laid out in streets at the instance of the principal proprietor some five or six years since, and there is no doubt but that the abolition of the toll on the Lagan bridge would greatly conduce to the letting of the building ground. It is questionable, however, should the borough of Belfast join the two counties in purchasing this bridge? Belfast pays a large share of the county assessments, and certainly ought not to be doubly taxed for this purpose, when it is the business of the counties, as a whole, to provide for the passage of their respective inhabitants to and fro, by giving them sufficient bridge accommodation.

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[*] It is rather a curious coincidence that a *similar* project, respecting a *similar* structure, and *similarly* situated, should be on the *tapis* simultaneously both in Dublin and Belfast.—Ed.

FRESH AIR, AND PLENTY OF IT!

An important discussion on the most effectual modes of ventilation took place at an evening meeting of the Royal Dublin Society, held on the 25th ult., and various interesting and valuable facts and opinions were brought forward.

Dr. Edward Haughton read an excellent paper on "The Theory and Practice of Ventilation;" and the principle of a new "patent ventilator," recently invented by Mr. M'Kinnell, of Glasgow, and now in full operation at Ship-street Barracks, House H, Nos. 3 and 8, were introduced by Dr. Barton, and dilated upon by him and several other gentlemen. Mr. Ferguson, architect, explained, by diagrams, a mode he had adopted of "*heating*" the atmosphere of apartments by means of a flue, of zig-zag form, passing over and under the boiler of the kitchen fireplace, and thence vertically in the chimney-shaft to the top, with outlets in the chimney breast, conveying heated air—supplied fresh from without—to the various storeys; but the principle is a mere adaptation of that ordinarily in vogue, and the explanation was involved in much abstruseness, until Dr. Gray, with his usual tact and ability, showed the "heating apparatus" had no connection with the ventilation, and that, for the latter purpose, a *second* agency had to be employed. and in a directly opposite direction—a complication which it would appear desirable to avoid.

Dr. Haughton's paper shall be published *in extenso* in the May number of "The Dublin Builder," as also shall an explanation of Mr. M'Kinnell's apparatus, with an illustrative woodcut.

NEW PATENT BALANCE ROLLING BRIDGE.

The inconvenience of the ordinary swivel-bridges at dock entrances has led Messrs. Turner and Gibson, of Hammersmith Iron Works, in this city, to devote their attention to the remedying of the objections complained of, and these gentlemen have recently patented an invention simpler in construction, less liable to get out of order, and presenting less impediment to the public traffic than those structures now in use. The principal features of the design are, that the motion is longitudinal, the bridge being lifted *in toto* out of its berth, balanced and travelling on two rollers, and raised, opened, and shut by two others. The massive and expensive stonework of swivel-bridges is dispensed with, as the ordinary roadway receives the bridge in its longitudinal course of motion; and the gearing is of a less complicated character. A working model may be seen at Hammersmith Iron Works and Oxmantown Foundry.

RESIDENCES FOR WESLEYAN PREACHERS.

The Wesleyan body, like the Presbyterian, are for organizing and carrying out the erection of residences for their preachers. It is proposed to have two classes, first and second, with two varieties for each. The first class to cost £500 and £450 each, and the second from £350 to £400. In furtherance of this object, Mr. John Boyd, architect, of Belfast, has furnished plans, specifications, and quantities, which are proposed to be printed. In the arrangement of these residences, commodiousness and comfort have been more considered than external display, and they are designed to suit towns or the vicinity of towns, one of the plans being for a three-storey street house.

St. James's Roman Catholic Church, James's-street.—The interior of this important Gothic edifice is nearly completed. It is finished in the decorated style. The aisles are divided from nave by 16 richly-moulded arches, 12 feet by 27 feet; the moulded bosses are of cast iron; and the columns are executed in Portland cement, with foliated capitals, richly carved. The middle shafts in front of great cluster columns are continued up to the springing of the rib mouldings of groined ceiling, the latter being 14 feet from springing of capital to the apex, with longitudinal, transverse, diagonal, crown, intermediate, and wall rib mouldings, with bosses worked on the intersections of different patterns. The nave is lighted by 16 clerestory windows, with moulded jambs, columns, bases, and foliated capitals, supporting cluster arch mouldings. The 16 opens of the triforia have moulded jambs, double-clustered columns, bases, and foliated capitals, and cluster arch mouldings. The abacus of the capital supporting groins is continued on a level with the seats of the clerestory windows. A moulded string course is continued on the level with the seats of triforia, opens and breaks over isolated columns supporting ribs of groins. The nave is finished, and looks light and graceful; the works of the aisles are progressing. It is expected that the interior will be finished before St. James's day. The cost of bracketing and clustering amounts to £1,660. Mr. Thomas Connolly is the contractor.[*] The chancel has been plastered, 14 months ago, at a cost of £95. This church was erected from designs by Mr. Patrick Byrne, architect.

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[*] By our advertising columns it will be noticed that portions of the plastering, including the chancel arch, of this church were executed by Mr. C. W. Giblan.

ON THE CONSTRUCTION OF EASTERN BATHS.

It is very remarkable that the revival of Roman baths should be due to Ireland, where we find no traces of their former existence; whilst those countries which formerly possessed them will now have to learn from us the manner of their construction. I have already made the public aware of some of the localities where their ruins exist, and of those countries in which they are still in operation; and I have now to inform them that the details of their construction are as varied as the different races and tribes which have employed them.

I have spoken of the baths of the east on a former occasion as "hot-air baths," in order to draw as wide a distinction as possible between "steam baths" (which are known in this country, and so much used in Russia) and those in which vapour exists but in small quantity, *and does not form the essential feature of the bath*. But it must be admitted that in some eastern baths the amount of moisture in the atmosphere is often very considerable, so as to make it difficult to select a name which is not calculated to mislead. For instance, in Egypt and Hindostan, hot water is one of the chief means employed for the diffusion of heat, and the vapour which it unavoidably gives off produces a dimness in the apartment; but it is, nevertheless, very different from the Russian bath, in which clouds of steam are raised, and one can scarcely see any part of his own person. The mode of heating baths in Hindostan displays a complete indifference to expense, which is not likely ever to be imitated in this country. Let the reader picture to himself a great octagonal building, having a large tank sunk in the centre, and supplied by eight boilers, all heated at the same time by eight distinct furnaces, and he will have some idea of the waste of fuel and water which must take place in them; more particularly when he is informed, that before leaving "the bath," every bather makes use of this basin, which must be separately filled for each. In the "Arabian Nights" mention is also made of a tank (or large warm bath sunk in the floor), in which ablution was performed, after the skin had been thoroughly operated on by heat, shampooing, and the use of "the glove;" while in modern Egypt, and some parts of the Turkish Empire, *fountains* of very hot air are made use of, for the purpose of warming the rooms, in addition to the flues which are placed beneath the floors. I need hardly remind the architect that this apparently trifling circumstance requires special attention when the plastering of the interior is to be considered. In the Russian bath, steam is raised by throwing water on stones, heated by a stove, in the centre of the vapour chamber; and benches are raised (as in a theatre) one above another, round the walls, so as to increase the accommodation and comfort of the bathers, who finish their bath by either taking a cold plunge bath, or having pailfuls of cold water thrown over them. Some travellers assert that they roll in the snow; but I should think that this is not often done. Although these baths are infinitely superior to the troughs of hot water which have come into use in modern days, yet they are themselves very likely to be superseded by the true hot-air bath, which always has been in use, and seems now to be looked on with some of the favour which it deserves.

I have been asked why I do not wish to see any plan or model of a Turkish bath set up for universal imitation in this country, and why I myself have not brought home such a plan? To which I reply, that although the style of Eastern architecture is as eminently picturesque as the buildings of the West are vulgar and pretentious, yet a thoroughly Oriental building would be out of place in any of our cities, neither could its details be carried out, without the actual importation of foreign workmen, who, after all, would not be worth the trouble or expense of bringing them over. The general aspect of Saracenic buildings is now becoming familiar to every one, from the prints in the *Illustrated London News* and other excellent periodicals; so that our builders are without excuse if they fail to make themselves master of the practical details of this beautiful, simple, and ancient order of architecture. In this country it should be recollected, that when it is desired to construct baths on the same principle as those used in the East, a most important modification must be made in the heating apparatus, to adapt it to the inevitable change of fuel which our national resources suggest. No one would think of employing anything but coal, coke, or some modification of this useful mineral, in a country where it is so cheap compared with all other kinds of fuel; while in the East, wood is *almost invariably* employed. I took the trouble of going into the stoking-room of a large public bath in Constantinople, and had the door of the furnace opened for me to look into, which was (I can safely say) no joking matter! The door of the furnace was about three feet square, and inside were huge billets of blazing wood, giving out a tremendous heat. From behind them, in every direction, ran flues, cut out of a kind of stone, which is employed for this purpose exclusively, and cannot be obtained in England. These flues permeated the walls also, so as to make them double, which is a very good plan, as thus a non-conducting layer of smoke is interposed between the heated chambers and external wall of the building. The cleaning of such flues, or the passage of smoke into them, need not, however, be considered matters of any importance; as the presence of heated air *which does not mingle with the air of the bath*, is all that is necessary. Indeed, from the manner of their construction, so little smoke actually does enter them, that a bath may become old with service without their ever requiring to be swept. I had an opportunity of seeing this in two baths which were in a state of partial demolition, leaving the side flues exposed.

The number of chambers in an eastern bath is altogether a matter of taste, and depends very much upon the locality. For example, at Tunis and in Algiers, five or six chambers, of increasing temperature, are used; at Smyrna and Constantinople, three or four; and at Cairo and Alexandria, four or five; while in private houses and hospitals, one, two, or three are generally considered sufficient. If we compare modern Turkish baths with Roman thermæ, under the emperors, we shall find a very great change for the better, in the comparative simplicity of the Mussulman customs. Indeed, I should be the last man in the country to advocate the abuse of the bath, which undoubtedly took place during the decline of the Roman Empire, and which has led many to stigmatize the institution itself, as the cause of evils which could only exist in a people whose energies had been dwarfed by tyranny, and enfeebled by luxury and effeminacy. The *numerous apartments* of these mighty palaces, whose ruins compel our admiration, can never, therefore, become objects of our imitation; but what is much better than external splendour, will be the practical utility and simple elegance of those "temples of cleanliness," which are destined ere long to spring up throughout the length and breadth of the Emerald Isle.

The number of apartments in a public bath ought *never to be less than three*, in order to insure comfort and safety to its frequenters; and I need hardly say that it is of the highest importance that proper provision should be made for ventilation, in rooms whose temperature is maintained continually at such an elevation. Fortunately *this very fact* renders the production of currents for the above purpose so easy, that he must be a bungling fellow indeed who would find any difficulty in maintaining a circulation of pure air within the heated chambers of a "Turkish bath." I can only conclude by expressing a hope that due attention may be paid to a matter which is essential to the salubrity of this refined enjoyment, and which is a *sine qua non* in the employment of "hot-air baths" for medical purposes.

Edward Haughton, M.D., M.R.C.S.E., M.R.D.S

PROJECTED OPENING OF THE CITY SQUARES FOR PUBLIC RECREATION.

We should be the last to throw cold water on any project either having a sanitary tendency or conducing to the moral elevation of the working classes, who form such an important section of the community, and in whom we are presumed to take more than *ordinary* interest; but we confess we are not quite so sanguine, either as to the success of this project if carried out, or so satisfied as to its desirability, as many of our respected fellow-citizens who took part in the recent important debate at the Town Council. True, it would be "a consummation devoutly to be wished" if a park—nearer than our world-famed Phœnix, and more accessible to the working man and his family than are the suburbs of this metropolis—could be obtained; but *private* interests should be respected, and to convert Stephen's-green, or *any* of the city squares, into a park, would be to destroy all the house property adjoining, and cause the speedy exit of the aristocratic inhabitants. Rather would we earnestly impress on the Lord Mayor and Town Council—who seem to have taken the matter up so warmly—to reclaim some of the districts now mere swamps at the north side, and convert *them* into a park, thereby achieving a double purpose; or if one at the south side, and in the vicinity of Stephen's-green, be at all desirable, we should say move on a little farther into *more salubrious atmosphere*, and make the Portobello Gardens—where another essential element is easily obtainable, viz., *water*—a people's park, and where they can pursue their recreative sports uninterfered with, and without detriment to the property of fellow-citizens. We shall probably enlarge on this subject at an early moment.

Mountmellick Town Commissioners.—The rising town of Mountmellick has been placed under the operations of the towns improvement act. A meeting of the commissioners was held recently for the establishment of a gas company under the limited liabilities act, and there appeared to be a general wish expressed for carrying it into effect. The total amount of money required is estimated at about £2,500, which it is proposed to appropriate in £5 shares, and the project seems to be favourably entertained by the inhabitants of Mountmellick.—*Leinster Reporter.*

MONUMENTS AND MEMORIALS NATIONAL.

THE GOLDSMITH TESTIMONIAL!

"Make haste slowly, they stumble that run fast," is a proverb of "Poor Richard's" that the committee of the testimonial projected to his memory would have wisely kept in view and acted upon, rather than arrive at a decision so conclusively and at so early a stage respecting the site. The all-important question of "suitability" seems to have entirely given place to that of "association," for which, though we entertain the highest respect, we are nevertheless slow to admit as entitled to take precedence of *all* others. Viewing artistically the proposed position of the testimonial, we cannot reconcile the principle which induced the committee to contemplate placing a statue—or statues, as in embryo—a few yards in advance of a high wall, and ranging with a railing intended to define a thoroughfare. The space in front of the University is quite too limited at present for the display of sculpture; but to reduce it still further by 10 feet, and introduce pedestaled figures, is perfectly preposterous. The reduction of the area would be a decided boon to the public; but let our artistic taste be saved from *another* stigma in the unsuitability of our national memorials. If *we* might submit a suggestion as to the arrangement of this area, we should say, "Take down the old railing, and do *not* erect a new one; but flag over the entire space—save a carriage-way to main entrance level with present pathway, and define the college boundary either by dwarf stone piers, connected by chains, or with small trees, protected by palings, as in some of the greatest thoroughfares in continental cities." Further—if the philanthropic spirit of the enlightened Board of Alma Mater permit—the introduction of two ornamental drinking fountains, with *jets d'eau* casting water to a great height at all times (as is practicable), would not only be much more consistent architecturally than the proposed arrangement, but confer a public benefit, and follow an example worthily set by English towns.

With a memorable example before their eyes, let the committee avoid past errors; for where the public purse is appealed to, public opinion should be respected, and public odium is sure to fall with double weight in this instance, should the result prove *a failure.*

By all means we advocate a statue for "poor Goldy;" and if the Board of Trinity College desire, out of their own well-filled coffers, to defray the expenses of the erection, the matter then assumes a *private* character, and we should be silenced; but if, on the other hand, the memorial is to be *national*, and the public to contribute, we say emphatically that the site selected is unsuitable, and the first step in the proceedings bespeaks a dissatisfactory termination.

Local Building News.

The competition for the new church for the Molyneux congregation has been decided in favour of Mr. Rawson Carroll, architect. Several of the plans sent in displayed great merit, especially those by Mr. W. J. Barre, of Newry, and Messrs Carmichael and Jones. Amongst the competitors were, Messrs. Isaac and William Farrell, J. M'Curdy, E. Carson, F. W. Courtenay, J. Burne, &c. The building will be a very handsome addition to the city; and we are glad to see towers and spires on the increase, of which there was a palpable scarcity here. The particulars of approved design are briefly these, cruciform plan, with nave, aisles, oblong chancel (33 feet by 21 feet), and transepts (94 feet by 25 feet); tower and spire at north-east side, next transept; organ-gallery and vestry at either side of chancel, and staircases at west end next entrance-porch, which—having sittings at either side—is 13 feet 9 inches deep. Internal dimensions, not including porch, 78 feet 9 inches by 55 feet 8 inches (of which width the nave is 30 feet); height to soffet of ceiling, 48 feet; to ridge, 60 feet. Roof, semi-polygonal; and gallery all round external walls. Cast iron columns, with caps and bosses, and wrought-iron arches and ribs, with ornamental spandrils, separate nave from aisles.* The style is a composition of early and decorated Gothic; granite is proposed for the rubble walling, and Scotch or other stone for the dressings. Estimate cost, £7,000

So far it is probable that Carlisle-bridge will *not* be widened; but the project of erecting a new bridge opposite the Custom-house, and thereby dividing the traffic, is talked of. We apprehend that *both* must ultimately be done.

Messrs. Pim, Brothers, of South Great George's-street, are newly fronting, in Italian style, their monster establishment—Messrs. Hogan and Son, of Great Brunswick-street, are executing the plastering; and Messrs Cannock and White are also improving their premises, under the direction of Mr. Anthony, architect; Mr. Harford, the builder.

We understand that nothing definite has been as yet decided respecting the South Dublin Union buildings, although estimates were received, and a contractor declared. The tenders displayed great discrepancy in the calculations.

The demolition of the existing houses on the site of new club-house at Kildare-street is being proceeded with by Messrs Cockburn, the builders.

Builders are busy in our city, and "shop architecture" is improving, especially in the leading streets. So far, we may look forward to a stirring season. Some new matters are in embryo, of which we shall speak fully hereafter.

Architecture in the Provinces.

New schoolhouses are to be built in the parishes of Ardpatrick and Meelick, in the County Limerick.

The foundation stone of a testimonial to the late Daniel O'Connell, M.P., has been laid at Ennis.

A new convent is to be built at Bantry, Co. Cork; also at Roscommon. Mr. John Neville is architect to the latter.

A tower, about 65 feet high and 17 feet square, has been added to Arklow Church, after designs by Mr. Welland; Messrs. Barker, builders, who have executed large contracts for the Ecclesiastical Commissioners, amongst which is St. John's Church, Limerick, recently noticed.

St. Patrick's Bridge at Cork is to be rebuilt, and tenders are being received.

New gas works are to be built at Mullingar and at Newbridge, for which estimates will be received respectively to the 8th and 11th inst.

Works are to be executed at St. Michael's Roman Catholic church, Tipperary; tenders receivable till 9th inst.

New Roman Catholic churches are to be built at Dundalk—Mr. John Murray, architect; and at Raheen, Queen's Co.—Mr. J. S Butler, architect.

The Ecclesiastical Commissioners have advertised for tenders for repairing works at churches in city of Dublin and Co. Tipperary, and alterations in Co. Carlow.

The Grand Jury of the Co. Fermanagh desire further accommodation for themselves, together with other works, in the Enniskillen Court-house, and are prepared to receive plans. No premium offered!

The Roman Catholic church of St. John's, at Sligo, has been considerably enlarged and beautified.

A new Wesleyan Methodist chapel, at Celbridge, was opened on the 9th ult. The plan is a parallelogram, with vestries at east end entrance and porch at north side of nave. In style it is Gothic, with three single lancet-headed windows between buttresses on each flank, and a treble light ditto in west gable. The ceiling is pedimental in section, and divided into four bays, with moulded ribs, &c. The pews have ornamental ends and are open. Mr. E. F. Tarleton was the architect; Mr. Bynell, of Trim, the builder.

The first stone of a new Roman Catholic church has been laid at Waterville.

The foundation stone of a new Independent Church was laid recently at Donegal-street, Belfast. A silver trowel was presented to Mrs. R Workman, and she performed the ceremony. The following is a description of the church:—It will be in the early decorated style of Gothic, and consist of a nave of five bays —68 feet by 35 feet—two of the bays having coupled transepts; width across transepts, 55 feet. Behind the pulpit will be vestries, with organ gallery over, opening to the church by a lofty arch with carved screen. The floor of the church will be 13 feet above the level of street; the space beneath being occupied by school-rooms and lecture-rooms on the ground line. The roof, which will be partially open-timbered, is to be ceiled to the collar-beam at a height of 36 feet from the floor line, and will be panelled with richly moulded ribs, the principal timbers having semicircular moulded arch trusses, and hammer beams with carved feet, and the spandrils filled in with cusped tracery. Seats are provided for about 560 adults, and have carved and moulded bench ends, but this number can be increased to upwards of 800 by the addition of galleries. The building will recede 15 feet from Donegal-street, the sides and rere being in plain brickwork, with massive buttresses, chiefly from the materials of the old building, each bay of the nave and transepts having a two-light traceried window, and three-light square-headed window to the school-rooms and lecture-room. The design embraces two houses, in the same style as the church, one on each side, filling up the whole frontage to Donegal-street, the fronts coming up to the street line, and leaving only the principal front visible, recessed between them. The erection of these is for the present deferred. The principal front will show a Galilee porch extending the whole width, and 20 feet in height, with an elaborately moulded shafted and pedimented double doorway, in the centre approached by a handsome flight of steps from the street, with wrought iron railings and gates. Above the porch will be the principal feature of the design, in a richly-moulded and traceried window of eight lights, grouped in four and two, with floriated caps to the jambs. The gable will be of equilateral pitch, and rising to the height of 64 feet from the street, level with a triplet-lanced window in the apex, and the whole crowned with a crocketed and canopied square spirelet, rising to a height of 90 feet to the top of the vane, and supported on four shafts with carved caps, the projection from the face of the wall being carried by carved corbels. The front will be entirely of Scrabo stone. The works are being carried out by Mr. John Ross, contractor. The church will be heated with hot water, and lighted with elegant brass standards, by Messrs. Hart, of London; the whole carried out from the designs, and under the superintendence, of Mr. Raffles Brown, architect, of Donegal-place. Although the laying of the corner-stone has been unavoidably delayed until the present time, the works are far progressed, the side walls being nearly ready for the roof.

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* A new feature in this country, but not without precedent on the Continent.—Ed.

Railway Matters.

The committee of the House of Lords appointed to determine the merits of the rival lines of railway between Cavan and Clones—the one promoted by the Midland Great Western of Ireland, and the other by the Dundalk and Enniskillen—have decided that the latter company should make the line, provided it be completed against January, 1862; and if not, then the former company shall be empowered to construct it. The Ulster Company propose to extend from Clones to Monaghan, which would complete railway communication between Galway and Belfast.

A bill is promoted by the Great Northern and Western Company for a line from Castlerea to Castlebar, at a probable cost of £220,000, or £6,000 per mile—Mr. John Fowler, C.E.; also a bill is projected by a new incorporation called the North Western Railway of Ireland, to construct a line from Elphin to Ballaghadereen and Swinford; and again, a bill is promoted by the Midland Great Western Company to enable them to abandon a portion of their authorized line between Longford and Boyle, and to substitute a line by the eastern bank of the Shannon, and passing through the county of Roscommon instead of that through Leitrim, as originally proposed. The original project of the Great Northern and Western Company was to make a line from Tullamore to Athlone, Roscommon, Castlebar, Sligo, Westport, and Ballina.

Railway communication between Dublin and Gorey is proposed to be made by means of the Wicklow line. The distance travelled now between Dublin and Enniscorthy, per the Great Southern and Western Railway, is 108 miles; whereas by the proposed route it will be but 78 miles.

The object of the Derry and Loughswilly Railway Bill is to authorise the Derry and Coleraine Railway Company to construct the following work:—A railway, commencing at a proposed embankment of the Derry Port and Harbour Commissioners, on the western shore of the river Foyle, and terminating at a proposed jetty in the Farland Channel of Lough Swilly, being a distance of 9½ miles. The bill takes no powers for the construction of the jetty alluded to. Their lordships assent to the bill on the following conditions:—1. That plans of all the works below high-water mark of Lough Swilly be submitted to and approved by their lordships before the commencement of the work, and that the work be only carried out in accordance with such approval. 2. That where the line skirts or interferes with the river Foyle or Lough Swilly, no deviation from the black continuous centre line of way be made without the previous sanction of the Admiralty.

New Patent Cooking Apparatus.—Sir—Mr. Radley, of Dublin, has recently patented a novel cooking apparatus. By his arrangement, any number of troops on the march, crews of vessels of war, emigrant ships, barracks, hospitals, poorhouses, and other large institutions, besides hotels and private establishments, can have any quantity of edibles prepared in an exceedingly economical, expeditious, and cleanly manner. It will roast, boil, bake, steam, fry, all at the same time, with considerably less fuel than is now required for the best constructed ranges, and in a much shorter space of time. The construction of this apparatus is simple and easily understood, and not at all liable to get out of order. It has an enclosed jack for toasting, which is made to rotate with the smoke of the fire, spring weight, or steam (or it can be worked by the hand), the principle being self-acting. The boiler is so contrived as to steam large quantities of vegetables, &c., and, at the same time, heat several gallons of water. I carefully examined the apparatus in full operation, and can strongly recommend it. If you think well of inserting this slight description of a very useful invention in your widely-circulated journal, it will oblige your obedient servant, F. W. Courtney, architect.

A gas-illumined car came through New York by a midnight train recently over the Worcester route. During the nine hours occupied in the trip only ten cents' worth of gas was consumed, and the car was lighted up as brilliantly as a parlour. The gas metre, holding the required quantity of the subtle fluid, is placed underneath the car, from which pipes supply a jet at either end of the interior.

Reviews.

Rural Architecture. By J. Sanderson. London: Wm. S. Orr and Co.

It rarely happens that one meets with two distinct works bearing the same name, but so it has in our case; for our readers may have perceived that in our January number we gave a notice, under the above title, of a book by Mr. White, architect, published by the eminent firm of Blackie and Son. That now before us must not in any way be confounded with *it*, as the one is a large volume, composed of twenty-one parts, each costing 2s., whereas the other —the subject of this notice—is but *a shilling* in the total. Not the less meritorious, however, may it be, because of its cheapness, but judging from its comprehensive, and varied compilation, and its many and well-executed lithographed views—attended with much outlay—it must have become a general favourite to prove renumerative.

In the introduction, which is particularly well and sensibly penned, we find the following passage:— "The scientific architect or builder will, perhaps, smile on perusing its contents; the student who aspires to that elevated position may, however, treat himself with injustice in passing them by with indifference." True, the designs *do* savour somewhat of the amateur, but nevertheless in that regard display both taste and ability. As a general principle, we advise books of this class not to be too much trusted in, either by intending builders or students, as their contents necessarily cannot provide against the contingencies of circumstances and requirements which each individual case presents, and they serve to cramp the designing capacity of those who adopt architecture as their profession; but, perhaps, the best feature in that before us is its absence from presumption, inasmuch as the author takes especial care, more than once, to advise those who decide to build, to "apply first to an architect of talent and experience."

The various artificers' works in a building, are entered into both by specification and instruction as to the mode of measurement likely to be useful in a degree to those who build in the absence of a professional man, and who despise the doctrine that a "little learning is a dangerous thing"

Headstones, Tombs, and Monuments. By D. A. Clarkson, Architect and Sculptor. London: Atchley and Co.

They who ramble in cemeteries cannot fail to have their optical faculty offended by the incongruous and distorted features, in the shape of monumental designs, which present themselves, promiscuously huddled together, in every available spot. To enable those on whom the melancholy duty devolves of erecting a structure, however simple, to the memory of a departed object of regard, to select from designs presenting a greater variety than the stereotyped forms usually met with in the ready-made stock of headstone manufacturers, was the object of the author in preparing this work. Judging from the numbers before us—viz., parts 1, 2, and 3—the book promises fairly; and perhaps its strongest recommendation is, that it is published under the patronage of the Earl of Carlisle, whose judgment in artistic matters is so well known and appreciated both in Ireland and elsewhere. In offering our opinion upon its merits in the respective departments, we should say that in the designing of headstones—perhaps the most difficult of the three—Mr. Clarkson decidedly excels; those in the Gothic style especially displaying much novelty, and in many instances either pleasing quaintness or gracefulness in the contour. As we doubt not that the succeeding numbers will enable us to speak more confidently and more fully, we reserve a more extended notice.

Skyring's Builders, Contractors, and Manufacturers' Diary and Daily Journal for 1859. Published by the Author, at 4, Copthall Buildings, London.

In addition to a systematically-arranged daily and weekly journal, time account, ledger forms for the year's receipts and expenses, &c., this work contains much information sought for in the course of every-day business—viz., complete postal regulations, almanac, stamp and tax lists, building memoranda, tables showing prime cost of deals, planks, and battens, the Building Act, &c. It should be on the office table of every architect, engineer, and builder who desires to keep his engagements and pursue a systematic course.

Facts and Fallacies of the Sewerage System of London and other large Towns. By Jasper W. Rogers. London: Atchley and Co.

However widely different and various may be the opinions of our engineers and sanitary improvement agitators respecting the most *effectual* and desirable mode of sewerage for large towns, certain it is that experience and public outcry establish *one fact*, that the present system adopted in the United Kingdom is not only defective, but most pernicious to the health of the community. The author's name of this little work is an acknowledged guarantee—even for the oppositionists to his principles and sewerage schemes—that it is not introduced to public attention as the mere experimental essay of a novice, but as the conviction derived from many years' practical experience in, and, we may add, devotion to, matters having a sanitary tendency. Mr. Rogers advocates the system peculiarly his own design—of dry tunnelling, with communication thereto from the houses at either side of streets, and in which both gas, water, and house-refuse mains may be placed in an accessible position; the establishment of public lavatories and closets; but repudiates both the shape of the sewers now in use as unsuitable for carrying off excrement, and, above all, the discharging of such sewers into rivers and streams as most pernicious. The pamphlet is a clever production, in many respects incontrovertible as to argument, and well deserving of perusal.

An exhibition of works of art, by living masters of all nations will be opened at the Hague on the 23rd of May, which is to last till the 4th of July.

Recently the Catholic municipality of Vienna contributed £5.000 towards the construction of a Protestant schoolhouse. His Majesty the Emperor has just given 8,000 florins towards a new church for the Jesuits, but he has also contributed the same sum towards a place of worship for his Protestant subjects.

A statue of St. Peter, modelled after one at Rome, has been raised to one of the niches in front of the Catholic church of St. Peter, at Philadelphia, in presence of a large number of persons. The figure is seven feet high, and made of Acadia freestone. A statue of St. Paul of similar size will soon be raised to a contiguous niche.—*New York Tablet.*

Sir John M'Neil, C.E. has recently returned from a professional tour in Copenhagen.

Miscellaneous.

Analysis of a Soil.—To ascertain the probable properties of a soil, the following simple test may be applied. Take about a pound of the soil, and same quantity of subsoil lying immediately beneath, and place them in canvas bags labelled. A difference of subsoil, will cause a difference in degree of fertility. The portion of each, which is to be used in qualitative and quantitative analysis, having been carefully dried in the air, and well mixed, place them in a stoppered bottle. To determine the specific gravity, dry some of the soil at 212 degs., and introduce it into the specific gravity bottle half filled with distilled water (hyd. 57). Agitate well about 500 grains with hot water in a large flask, and pour the whole mixture into a jar, allowing it to stand for a couple of minutes; after which pour off into another vessel the water, and the finer portion of the soil suspended in it. Repeat this until nothing but sand and gravel are left behind Thoroughly dry the latter, then pass it through gauze sieves, of different degrees of fineness. Then weigh the separated portions, moisten them with water, and examine them with a microscope, to learn the substances of which they consist. If moistening them with a few drops of hydrochloric acid causes effervescence, *limestone* is present; if a brown colour has been imparted to the acid, *peroxide of iron;* and if there is a smell of chlorine, *peroxide of manganese.* The other ingredients likely to be found are detected by the appropriate tests.

Newhall House, Milwaukee.—The *Wisconsin Chief* says "this is one of the most imposing and complete hotel structures on the continent; a model institution of the kind, and comprises within itself, complete and princely homes for a host of people, having under its roof all that is luxurious, convenient, and substantial. The dining-room is an institution peculiar to itself—a spacious hall, and dotted over, at neighbourly intervals, with oval tables, whereat families, parties, or groups of friends can sit down cozily together, none to disturb them. The most fastidious epicure will find at the Newhall all that he can desire. The waiter, whose trying duty it was to assist us in making out a breakfast, manifested no astonishment *at finding a mammoth cave under our moustache.*"

New and Cheap Light.—A patent has been taken out by the Hon. W. E. Fitzmaurice for a cheap and brilliant gas which will supply 500 street lamps, lasting 12 hours, at a cost of 3s. 7d.; and for domestic purposes, during a similar period, a jet, equalling in effect 18lbs. of candles, costing only 4d., and furnishing a light fully equal to three argand lamps, and double that of any ordinary gas-burner. The requisite apparatus is cheap, perfectly portable, and capable of being managed by a child; the light free from smell, extremely pure, and characterized by the property of burning steadily, continuously, and without diminution. [It remains yet to be proved how far applicable to general purposes this gas may be: its inodorousness being a decided disadvantage, as the great safety of the ordinary coal gas is the facility which it affords for detection of the slightest leakage.—Ed.]

Gutta-percha Packing and Wall Paper.—A French journal says that a new kind of paper for packing has just been invented, which differs from that in use by its being covered with a very thin coat of gutta-percha, which renders it proof against humidity. In order to obtain this result, the gutta-percha is made liquid, and by means of rollers the coating is equally spread to any thickness required. Such paper might be usefully made for covering the walls of rooms which are damp.

Napoleon's House at St. Helena.—In addition to the reconstruction of the house occupied here by Napoleon I., and of his tomb, the French Government has resolved on reconstructing likewise General Bertrand's house, and also on placing a statue of Napoleon on an eminence in view of the sea. An engineer officer has just been sent out to execute these works on plans approved of by the Emperor.

The Epidemic of 1858 in New Orleans.—The yellow fever has just ceased its ravages, after prevailing since July. From June 20 to November 21, the official reports show that the deaths in the city amounted to 8,296, of which 4,850 were of yellow fever, and 3,446 of other diseases. The average deaths were 473 per week, or 67 per day, the population being about 160,000, or one-fourth that of Philadelphia. The epidemic is considered by the inhabitants as a *mild* one.

The late James Gandon, Architect.—We have chanced on a number of a local Journal, dated 1823, with the following scrap relative to the decease of this eminent architect, which is sure to prove interesting to our readers:—At Lucan, on Wednesday morning, aged 83, James Gandon, Esq. While the noble buildings with which this metropolis is embellished remain, the genius of this artist must be known and acknowledged. His friends and all those who had the satisfaction of an intercourse with him in private life, must have deeply impressed on their memories his companionable and very gentlemanly manners. As an architect, Mr. Gandon has left us many splendid proofs of his abilities. He built the Custom-house, the Four Courts, the noble Corinthian portico opposite College-street, the Inns of Court, &c., &c. On Saturday morning he was interred at Drumcondra, in the same grave with his distinguished friend, the celebrated Grose, who wrote, amongst other works, the "Antiquities of Ireland."

Regulation of Burial-grounds.—By a recent order from the Lord Lieutenant and Privy Council, it is, amongst other matters, provided that "every burial-ground shall be kept properly fenced, and, if necessary, under-drained, so as to prevent water from entering any grave or vault; grave spaces for burial of persons above 12 years of age to be at least 9 feet by 4 feet; and under that age, 6 feet by 3 feet; each grave when first opened to be eight feet deep; no unwalled grave to be re-opened within 14 years after the burial of a person above 12 years of age, or within eight years after the burial of a child, and in no case human remains to be removed; no coffin shall be buried in any unwalled grave unless the upper surface thereof be at least four feet below the ordinary level of ground."

Progress of Victoria.—This town now contains 7,000 people, a large amount of shipping is in the harbour, there are extensive marts of trade, busy and populous thoroughfares, and large buildings in course of erection. The British ship *Ganges* recently brought out 200 troops, who are now engaged erecting barracks. The Royal Engineers corps has also arrived, and is about to commence a survey of a proposed railroad to Halifax.

Interlaced Ornamentation on Ancient Sculptured Stones.—Mr. French, of Bolton, near Manchester, has published a very elaborate treatise on this subject, as regards sculptured stones in Scotland, Ireland, and the Isle of Man; and attributes the interlacery on ancient Irish monuments to the imitation of basket-work, formed from interwoven osiers by the ancient Celtic people, Irish and Welsh—a theory which appears to our mind very questionable.

Sunday-opening of the Crystal Palace, Sydenham.—At a recent meeting it was finally carried, by a majority of 17,021 votes, "that the opening of the palace grounds to shareholders on Sunday afternoons, should be continued as heretofore." We trust this advantage will be extended to the working classes.

Alterations at the Drogheda Gaol.—This building, which presented by its construction many impediments to the carrying out of an effectual and reformatory prison discipline, is about being remodelled, so as to provide forty cells, with all the other arrangements on the separate system, which of recent years has come greatly into favour in Ireland. Mr. Hammond is the contractor, and he has undertaken to complete the works in fifteen months.

The Irish Peat Company has been dissolved with an enormous loss, it appearing from an official statement that of the paid-up capital of £62,000 only about £4,000 will remain after paying debts. The sale of the stock and works for the sum of £4,750 has been authorized. The result is much to be deplored, as the company gave a great deal of employment where it was much needed.

ATMOSPHERIC[*] AIR.—It is doubtful whether or not this is a compound, or merely a mixture; the latter is more probable. It is tasteless, it is inodorous, and, when in common quantities, without colour. It is a bad conductor of electricity. Being the standard of comparison for the gases, its specific gravity is represented by unity. Compared with distilled water, it is 0·00122; and is, therefore, 820 times lighter than that fluid. If the barometer is at 30 inches, and the thermometer at 60°,100 cubic inches of atmospheric air, free from moisture and carbonic acid, weigh 31·0117 grains. The height of the atmosphere has been estimated at 45 miles, and its temperature decreases one degree for every 325 feet of ascent. This decrease is due to its greater distance from the earth, which heats it by contact; also its specific heat being increased by its rarity, it requires a larger quantity of caloric to raise it to a given temperature. Poisson supposes the air in the upper regions to be so cold as to be actually frozen, in which case our earth and atmosphere would be contained in a frozen shell of frozen air; but others dissent from that opinion, and prove that at the lowest temperature we can produce, atmospheric air does not show any tendency to become even a fluid much less a solid.

NEW YORK.—Notwithstanding its admirable position for drainage, and its great Croton Aqueduct, which supplies the city with 60,000,000 of gallons of water daily, New York is one of the dirtiest cities in the world. For several years it was generally supposed impossible to sweep its main thoroughfare, Broadway—but an enterprising hatter having demonstrated the practicability of the task, it has since been kept tolerably clean; but the rest of the city seems to be past all hope of broom or shovel. The streets are wide, and are laid out generally at right angles. Its hotels are built on a palatial scale, and there are many other fine buildings but the irregularity which prevails is a great hindrance to a general architectural effect. The Archbishop of New York, last August, laid the corner-stone of a new cathedral, which promises to be the great architectural feature of the city, and to compare favorably with some of the finest ecclesiastical edifices of Europe.

A MAGNIFICENT BRIDGE.—The Royal Albert Bridge, at Saltash, surpasses the utmost triumph yet attained by the skill of the engineer It is to serve as a viaduct for the Cornish Railway from Plymouth to Falmouth, and crosses the Tamar. On the Cornish side the land rises to a height of some hundred feet in steep and rugged abruptness from the waves at the point of intersection; while the opposite shore is crowned by a more sloping ascent of almost equal height. From point to point of opposing eminence is rather more than half-a-mile, and across this wide chasm the viaduct stretches. The arches from end to end, are 19 in number, 15 of them being wider than the widest of Westminster Bridge. In the centre of the stream is a mighty cast-iron pier of four columns, and from this spring two giant arches, which span the whole width of the actual stream, upwards of 900 feet! The bridge in its entire length, exceeds the Britannia tube by 300 feet, being nearly 750 yards from the first pillar to the last, while it measures from foundation to summit not less than 87 yards. To obtain a foundation for the central pillar, a depth of 85 feet below high-water mark had to be sounded; a space of 36 feet in diameter, through clay and mud, had to be excavated, and the rock to be so levelled into steps as to be fit to receive a structure weighing upwards of 3,000 tons. This difficulty alone would have daunted an ordinary mind; but it served only to stimulate the genius of Mr. Brunel. The Menai tube is a pure suspension bridge, and the main tower had a ready-made foundation in the Britannia rock, from which the whole structure derives its name; but Brunel had no such extraneous assistance, and the triumph which he has achieved is all the greater. Of the enormous dimensions of the whole structure some idea may be formed from the fact that in the construction of the bridge there have been used of wrought-iron 2,700 tons, of cast-iron nearly 1,200 tons, of masonry and brickwork more than 1,500 cubic yards, and upwards of 15,000 cubic feet of timber. The stone piers at the water's ed e are 190 feet high, 29 feet wide, and 17 thick; and the length of each arched tube is upwards of 450 feet. The bridge will be finished in May next.

AN EGYPTIAN TOMB.—A writer remarks, that "when examining a tomb discovered by Belzoni, it is impossible adequately to describe the sensations of delight and astonishment which by turns took possession of our minds, as we moved along the corridor, and examined the different groups and hieroglyphics that occur in every successive chamber. We had been told that what we saw was a tomb; but it required a constant effort of the mind to convince us that it was such. Only one sarcophagus in one chamber, and twelve chambers, exclusive of the long corridor, all highly ornamented, for nothing! It may have been a subterranean temple, exhibiting the religious creed of the worshippers, or the rites of initiation. It may have been a subterranean palace like those of the king of the Troglodytes. But never was there such a superfluous waste, if we are to suppose that all this was done merely for the reception of one sarcophagus."

ANTIQUARIAN DISCOVERY.—Recently an ancient kist or grave of the primæval ancient Irish was found at Clough, Co. Antrim, near the old Castle; it was built of rough stones, and enclosed nothing but fragments of human bones. Shortly after discovery, the kist was broken up, and filled in with clay, so that it is no longer visible.

A new town, to be called Sophiisk, at Djai, is to be built in Siberia, on the right bank of the Amoor.

OMNIBUS TUNNEL THROUGH LONDON.—The proposal to carry an omnibus subway from Westminster to the Royal Exchange is being matured, and the details of the plan proposed have been submitted to a considerable number of competent judges, who fully admit the practicability of the scheme. The space required for the passage of trains running to and fro is 14 feet in width, and 8 feet in height. To construct a tunnel through these streets for ordinary railway carriages would be almost impracticable; but a subway of the dimensions above can be made without any practical difficulty. The guage proposed is 4 feet 8½ inches the same as all narrow-guage lines; so that, should the system be extended, the subway trains might be run on to all the metropolitan lines, except the Great Western, which is the wide guage; thus giving access from the suburban districts to the heart of the city without change of vehicle.

The town of Bagnalstown has been lighted with gas—Messrs. Edmundson and Co., of Capel-street, being the contractors for the necessary apparatus and supply.

TENDERS

For alterations, additions, new shop front, &c., to 29, Westmoreland street: Messrs. Sheils and Scott, proprietors. Mr. J. J. Lyons, architect. Limited competition.

John Henderson		£423 0 0
William Geraghty		406 0 0
William Hughes (accepted) ..	£388 0 0	400 0 0
(Extras subsequently ordered) ..	12 0 0	

To Correspondents.

G. F. M. (Unavoidably postponed); J M'K, Glasgow (Fully in next No); J. B., Belfast (Previous notice accidentally omitted; that recently sent us now appears—thanks for favour); W. F. C. (Refer to present No.); W. T. M, Belfast (Thanks); J. B., Newry (Subscription to hand); R. P., Wexford (The party has a right to measure the curved portions as if square; a right admitted even in the matter of glazing, and, as a matter of course, the full dimensions, whether exposed or not); Received, R. H., Newbridge, with enclosure; J N., Dundalk (Thanks); F. M., Ballinasloe (Shall be glad to hear, as promised).

NOTICE.

Orders for Subscriptions to, and Advertisements for, THE DUBLIN BUILDER, *will be received at the Proprietors' Office,* 17, LOWER GARDINER-STREET. *Wholesale Agents*—GEORGE MASON, 24, *D'Olier-street; and* JOHN PLASTO, 144, *Upper Abbey-street;*

At CORK, *by the Agent, Mr. S. M. Peck,* 40, *South Mall; and all Booksellers.*

At BELFAST, *by the Agent, Mr. Francis Dowd,* 47, *Townsend-st.; and all Booksellers;*

At GALWAY, *by Mr. T. J. Connolly, and Mr. Wade, Booksellers.*
Yearly Subscription (payable in advance), 8s.; *per post,* 4s.

To Advertisers.

Special attention is respectfully directed to the advantages offered by "THE DUBLIN BUILDER" *as a medium for advertisements of a* certain *class. It is* simultaneously *circulated in* BELFAST, CORK, *and* GALWAY, *as well as* DUBLIN, *on the* 1st *of each month, and its list of patrons comprehends nearly all the principal* ARCHITECTS, CIVIL ENGINEERS, COUNTY SURVEYORS *and* BUILDERS *in Ireland; independent of a host of other parties, whose occupations or tastes are more or less identified with the purposes for which the Journal is being established.*

The heads of some eminent manufacturing firms, both in England and Scotland, have already recognised and adopted it, as a desirable medium, and doubtless their example will be followed by others. Without presuming to state that the extent *of its circulation can compare with some* old *established journals, we must, nevertheless, impress on you, that being a class periodical, it* at once *goes* directly *into the hands of those for whom certain advertisements are intended, and remains with them as a permanent record; unlike the evanescent character of some other journals, having a more promiscuous circulation.*

"THE DUBLIN BUILDER" *is also to be found at Public Reading-rooms, Libraries, Mechanics' Institutes, Clubs, Hotels, &c, &c. Approved blocks or stereotypes will be inserted in the advertisement pages.*

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[*] *Atmos*, vapour; and *sphaira*, a sphere (Greek).

Miscellaneous.

THE ART-UNION OF IRELAND,

established under the auspices of the Irish Institution, according to Act of Parliament, on the system of MONEY PRIZES, with the right of selection in every case by the Prize-holder.

ANNUAL SUBSCRIPTION—ONE GUINEA.

One chance for every Guinea subscribed.

The Committee of Management for the first year consists of 81 Members of the Irish Institution.

President—The Earl of Charlemont. Trustees—Right Hon. Maziere Brady. Sergeant Berwick, Q C., and John Barton, Esq. Treasurers—The Bank of Ireland and its branches. Secretary—George F Mulvany, Esq., to whom all communications may be addressed, at the office of the Art Union of Ireland,

73, GRAFTON-STREET, Dublin.

Prospectuses sent free by post.

EARLY PAYMENTS FOR LIFE ASSURANCE VERY CONSIDERABLY REDUCED.

It frequently happens that Heads of Families would wish to make a larger provision for those dependent on them than they find they can afford to do when required at once on Assuring to pay the full Annual Premiums. To meet such cases, and to enable provident persons to procure Policies at the Low Premiums charged for Young Lives, the Directors of

THE PATRIOTIC ASSURANCE

COMPANY have resolved to charge, when required, *only One-half of the First Seven Years' Premiums* on Participating Policies, the other half being allowed to remain Unpaid at Interest as long as the Policy-holder pleases.

FIRST YEAR'S PAYMENTS FOR £500 POLICIES,
Allowing Participation in Profits.

Age 20.	Age 30.	Age 40.	Age 50.
£4 18 0	£6 1 0	£8 10 0	£11 13 6

Life Policies involve payments of large sums of money at distant periods, and it follows that by far the most important point to be ascertained by an intending assurer is, that real security will be afforded him. The element of security is all-important in assurance transactions, and yet 37 English Companies are winding up in the Court of Chancery, and 22 English Companies last year transferred their business.

The CAPITAL of the PATRIOTIC ASSURANCE COMPANY OF IRELAND is *ONE MILLION FIVE HUNDRED THOUSAND POUNDS*: complete security is thus afforded.

The Regulations of the Company are very liberal.

No charge is made for Entrance Money, Medical Fees, or Policy Stamps.

Thirty Days are allowed for Renewal of Life Policies, and the Assured are held protected during these Days of Grace.

LOANS are ADVANCED on Approved Personal Security, in connection with Life Policies, without Money Bond or Warrant being required.

PATRIOTIC ASSURANCE COMPANY,
FOUNDED 1824,
CAPITAL £1,500,000,
HEAD OFFICES, 9, COLLEGE GREEN, DUBLIN,
With Agencies in the Principal Towns in Ireland.
J. MONCRIEFF WILSON,
Secretary of the Company.

REDUCTION IN THE PRICE OF GAS.

—Notice is hereby Given that the Directors of the Alliance and Dublin Consumers' Gas Company have this day REDUCED the Price of Gas to FOUR SHILLINGS and NINEPENCE per Thousand Cubic Feet. By Order.

JOHN STEVENSON, *Secretary*.
114, Grafton-st., 1st Jan., 1859.

GAS FITTINGS. — The Alliance

and Consumers' Gas Company, expecting that the reduced price of Gas, added to its many other advantages, will produce a largely-increased consumption, and consequently involve the necessity of putting up additional Fittings, have made arrangements for meeting the requirement of the Public in both respects.

Their SHOW-ROOMS are amply stocked with the Newest Designs in CHANDELIERS, BRACKETS, HALL and LOBBY LIGHTS, &c.; and they specially invite an inspection of their GLASS LUSTRES, to the selection of which they have given particular attention.

114, GRAFTON-STREET.

To Architects, Engineers, Artists, and Amateurs.

WM. M'CLEARY WIGHTMAN,

PRINTSELLER & ARTISTS' COLORMAN,
22, *NASSAU-STREET.*

Has always on hand a large and varied Stock of Drawing Materials, Paper of different sizes, Colors, Brushes, Pencils, &c., which professional gentlemen and others will find adapted to their requirements, & moderate in price.

Artists' Warehouse and Photographic Gallery,
22, NASSAU-STREET.

Statuary, Marbles, Cements.

DUBLIN BRANCH OF THE

KILKENNY MARBLE WORKS.

The Proprietor of the long-established Marble Works at Kilkenny (A.D. 1693), has been induced to open a Branch of his Establishment at No 43, Grafton Street, Dublin; and begs to acquaint the Public that he has now on view a large assortment of Chimney-Pieces, Tables, Fonts, &c., &c., to which he invites special attention.

These articles are all manufactured by the aid of extensive Water-power and Patent Machinery, by which the polish and finish are superior to any other description of manufacture.

Also, for the convenience of purchasers, Grates of superior quality, to suit the Chimney-Pieces, will be supplied.

All kinds of Statuary Work executed. Designs for Altars, Monuments, Tombs, Figures, &c., &c. forwarded on the shortest notice. Orders will be received at No. 43, Grafton-street, or at the Works, Millmount, Kilkenny, addressed to the Proprietor,

A. COLLES.

ALEXANDER BALLANTINE,

Stone and Marble Works, Chimney-piece Warerooms, &c., 126, Upper Dorset-street (nearly opposite Granby-row), Importer of Caen Stone, Portland, and Freestone, Monuments, Tombs, Headstones, &c.; Geometrical Staircases and Flaggings executed on the shortest notice, and in a workmanlike manner.

Roman Cement.
Portland Cement,

Medina Cement,
Parian Cement,

Mastic Cement and Plaster of Paris,
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NINE ELMS, LONDON,
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NINE ELMS CEMENT STORES,
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and Ornamental Stucco Plasterers 40 Camden Street, Dublin. A large quantity of Figures, Vases, Centre-pieces, &c., always on hands. Country commands strictly attended to Architectural Designs accurately executed on the shortest notice.

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T. C. having executed the Plastering of a great many Catholic Churches, also Noblemen's and Gentlemen's Mansions, in different parts of Ireland, is prepared to undertake and execute any orders he may be favoured with in the most artistic style of workmanship, with punctuality and despatch, on the most reasonable terms. Country orders particularly attended to. Estimates furnished free of expense. A large quantity of Scaffolding for hire.

P.S.—I am at present finishing the interior of St. James's Catholic Church, James's-street, in the richest style of Gothic architecture, to which I beg to refer as a specimen of my workmanship.

THOMAS CONNOLLY,
2, Bessborough-parade, Rathmines.

C. WILLIAM GIBLAN begs to call

the attention of Architects, Builders, &c., to work executed by him in the Roman Catholic Church, St. James's-street, wherein he executed, from miniature tracings, Groups of various Arch Mouldings, Cluster Columns, Bosses, Foliated Capitals, Cherubim Heads, &c., &c. He respectfully calls their attention to the Chancel Arch, originally a Four-centred or Elliptic Gothic, now a Two-centred or Pointed, corresponding with the large window (having to bracket it with timber to form it so), the Group of Mouldings round it, girth, 11 feet (all run together); such a size never before attempted in this kingdom with one mould; and that the remaining works done in the Nave are models taken from the above works, as *per extract from Specification*:—

"The 16 Opes of the Triforia Arcades, all of which are to be of the same form and dimensions as those of the Triforia, lately executed in the Chancel, the Moulded Jambs, the columns with the Bases and Foliage Capitals, and the Clustered Arch Mouldings of the 16 Clerestory Windows, and which, as well as the Works of the Triforia, are to be of the same form and dimensions respectively as those of the Chancel."

Extract from 4th page of Specification.

"The foliage Capitals on the Cluster Columns and the Single Shafts, sustaining the Rib Mouldings of the Groins both in the Nave and Side Aisles, to be executed in the *best description of well-prepared Stucco, such as that recently used* in the Stucco Work of the Church."

Plaster of Paris.
Roman Cement.
Portland Cement.
Patent Mastic Cement.

John's Patent Stucco Cement.
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Of the best quality, to be had of

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Also Crown, Sheet, and Plate Glass; Fire Bricks, Tiles, &c.; Painters' and Plasterers' Brushes.

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Steam Mills and Manufactory—CROWN-ALLEY.
Established, A.D. 1780.

MARTIN'S PATENT FIREPROOF CEMENT

which obtained the PRIZE MEDAL at the Great Exhibition, 1851, admitted to be the Best Internal Cement in the Market, and which may be painted on with perfect safety within 20 hours after it is worked, may be obtained of all respectable dealers, or of the Manufacturer,

J. CUMBERLAND PART,
Nephew and Successor to Stevens & Son, 186, Drury-lane, London, and Derwent Mills, Derby.
Established upwards of 40 years

Sample Casks, containing One Hundredweight, will be forwarded on receipt of Post-office Order for 7s. 6d., payable at the Charing-cross Office, London.

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HAVING recently completed the requisite Buildings for the reception of powerful Machinery for Sawing, Planing and Moulding Timber for Building purposes, will be glad to receive orders in this department, and shall execute all favours in the *best*, *cheapest*, and most *expeditious* manner.

M. M. has erected this machinery with a view of keeping the trade in Ireland, large quantities of ready prepared Carpenters' Work being imported from England, and he is prepared to compete with English and Scotch establishments in the execution of all kinds of Carpenters' Work.

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THE IRISH ENGINEERING CO.

supply—

Wrought and Cast Iron Beams; Ornamental Iron Work for Balconies; Cast-iron Sashes.
Eaves, Gutters of all kinds.
Ridge and Crest Tiles, &c., &c.
Also, Plumbers' Castings and Range Work.

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CARLOW FLAGS, FLOORING TILES, &c., of the best description, and at lowest possible prices, at THOMAS BRETT'S Brick and Flag Offices, Broadstone, Portobello, and Baggot-street Bridge.

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Ironmongery, Window Glass, Oils, Paints, and Paper Hangings, of the best qualities, at MAURICE BROOKS', SACKVILLE-PLACE, DUBLIN.

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SWIFT'S-ROW, Lower Ormond-quay
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W. WARNE AND CO.

CALL the attention of Engineers and others to their PATENT MINERALIZED and VULCANIZED INDIA-RUBBER, in Sheets, and for Valves, Washers, Railway Buffers, Bearing Springs; Hose Pipes (delivery and suction), Flexible Tubings, Driving Belts, and to their improved Anglo-American FLEXIBLE CANVAS and INDIA-RUBBER PACKING, for Steam Joints and Piston Rods.

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NEW PATENT MINERALIZED KAMPTULICON,
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Combining Extreme Flexibility, and consequent non-liability to cracking; Durability and Impermeability to Wet; is warmth to the feet and softness to the tread.

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These Mats consist of Tubes of India-Rubber, of various configurations, placed vertically in contact with each other, and are far more efficient than any other description of Mat. No amount of ordinary wear can sensibly affect them; they thoroughly clean the feet like a brush, and the dirt removed falling through the cells formed by the tubes, is not carried by the feet on to the floors and passages, which are consequently kept perfectly clean; and by removing the Mat, the accumulated dirt is easily swept away.

The Mats never clog, require no beating, and are readily cleansed by water. Unlike all other Mats, water in no way injures them, and it neither lodges on or is absorbed by them. Indestructible by damp or wet, these Mats, made to any shape, size, or thickness, are especially suitable for uncovered passages and out-of-door purposes.

The invention is peculiarly applicable for Mats for Baths, Closets, Conservatories, Green Houses, Laundries, Sculleries, Ships, Boats, Omnibusses, Cabs, Carriages, Steps, Counters, Churches, &c.; and for Scrubbing Brushes for Decks, and Wooden and Stone Floors.

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THE Cheapest House in Dublin for Room Papers, Window Glass, and Laminated Lead for Damp Walls, is J. O'LEARY'S, 1, TEMPLE-LANE, Dame-street.

ROOM PAPER, in great variety, at MAURICE BROOKS', Sackville-place, Dublin.

GLASS SHADES—Round, Oval, & Square—for Protecting Vases, Clocks, Statuettes, Artificial Flowers, Models, &c. The largest Stock in Ireland for intending purchasers to select from, and sold at manufacturers' tariff. Also a constant supply of Stands for same, polished, French inlaid, or gilt. Wholesale orders executed with despatch.

A liberal allowance to the Trade.

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5, MARY'S-ABBEY.

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Surveyor & Valuer to the Landed Estates Court in Ireland,
And Agent to Her Majesty's Government for the Sale of the Ordnance Maps and Books of the United Kingdom, the Islands, and the Colonies,
CIVIL AND MINING ENGINEER, LAND AGENT, SURVEYOR, AND VALUER,
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1,100	Pieces of	Crown Memel.
800	Do.	Second quality Ditto.
600	Do.	Red Pine.
1,000	Do.	White Pine.
60	Do.	Oak.
30	Do.	Ash.

Sale to commence at One o'Clock.

Dublin, 12th March, 1859.

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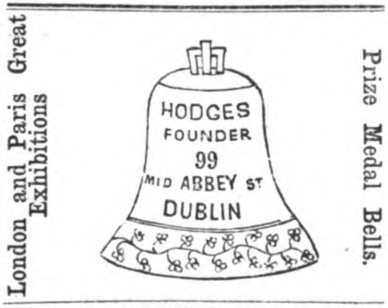

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WANTED, immediately, a quiet, experienced CLERK OF WORKS, to superintend the erection of a large Building. Apply, stating qualifications and terms, to John Neville, C.E., Dundalk.
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The Dublin Builder.

Vol. I.—No. 5.

UNDEFINED FOUNDATIONS—ARCHITECT UMPIRES—PARTY WALLS, & UNIFORM MEASUREMENT.

TWO patent facts — suggestive of the anomalies which exist in architectural practice—had been earnestly and impressively submitted to the consideration of the profession, in the recently-circulated report of the Builders' Association, and in their special address to the architects of Ireland. At the time *we* commented on them,* though not so much *in extenso* as to preclude a recurrence, and we feel fully convinced that on *these*, as well as many other points, builders have much cause to be dissatisfied with their present position, and, may, with every justice, seek from architects a redress of their grievances. Let us again investigate what those are. A contractor is called on, either by public advertisement or otherwise, to tender for the erection of a certain work according to plans and specifications, &c., prepared by an architect, such plans and specifications being of course presumed to be sufficiently clear and comprehensive for any intelligent builder to frame his calculations upon, as to the probable profit derivable from the undertaking. The dimensions of the proposed structure, viz., lengths, breadths, and heights, are legibly marked on the drawings, as also are the qualities of material, scantling, of timbers, &c., &c., fully defined in the specification. So far so good! The estimate is made and adopted, and the fortunate (?) contractor commences his work; flattering himself that he is about to add another link to his chain of money-making enterprises. But—there is a *but* in everything—in excavating for his foundations he finds that the deeper he goes the softer becomes the stratum, his labourers are knee-deep in mud, and water pours in rapidly; he refers to his specification for instructions to guide him in this contingency, and there are *none!* but he learns *too late* the happy intelligence "*that the builder is bound to sink sufficiently deep to secure a good foundation, in the opinion of the architect.*" Visionary dreams of future bliss to be experienced while counting his little yellow gods, are now transformed into an unhappy reality of ruin staring him in the face. There is no retreat! our contractor and his "two solvent securities" are bound hand and foot, and the proprietor, like Shylock, *will* have his pound of flesh. An appeal to the architect is ineffectual, that worthy (*as most architects are*) professional significantly shakes his head, very much regrets the circumstance, but carefully insinuates a caution against *any bill of extras*. The contractor feels himself in a predicament, and refers to his quantities to ascertain the cubical contents of *proposed* excavation, and is awakened to the fact of their deficiency in a startling proportion to provide for the *requisite* work. Next come instructions to remedy the difficulty, and obtain a permanent *artificial* foundation; beds of concrete, timber platforms, piles, &c., &c., are talked of, and one or other ultimately adopted, to *the great edification and at the expense of the contractor*, who, if he succeed "in the opinion of the architect," experiences, by a peep into his emptied coffers, that "he has paid rather too dearly for his whistle."

Builders who make blind bargains possibly deserve to lose by their contracts; but as we believe that the architects of Ireland would not voluntarily do them an injustice, we are led to hope that since their attention has been thus directed to so important a point, they will not hesitate unanimously and promptly to yield to conviction, and expunge from their specifications a clause involving both themselves, their clients, and the builder in probable litigation, and inflicting a palpable injustice on the latter especially.

As regards architects proclaiming in their specifications that "in the event of any dispute arising between proprietor and builder, the decision of the architect must be final," it must only occur in a few isolated cases with junior practitioners, and is so irreconcileable with common sense, as scarcely to deserve *our* notice, much less that of the Builders' Association, every member of which is, doubtless, or ought to be, aware that such an assumption of position is illegal, unsustainable, and preposterous; and that an arbitration is not binding unless made a *rule of Court*, although acceded to in stamped documents, duly signed, sealed, and delivered, by all parties concerned. Such is the respect which the law of Great Britain demands for its administrators! For the credit of *all* members of that profession, therefore, to which, from association, our inclination naturally leans, we hope to find wanting the opportunity for further criticism on this point.

Subsequent to the publication of the report drawing attention to the above facts, another document, of a similar character and scarcely less interest, has appeared, and which may be seen in the advertising pages of this number. The builders seem to be in earnest in their mission, for we find that "several topics of importance have deeply engaged their attention;" amongst the rest, the undefined state of the law as regards "Party Walls," and the desirability of adopting a "uniform mode of measuring building works." In London, the Metropolitan Building Act, 18th and 19th Vic., is an elaborate and generally comprehensive document, though ambiguous—as nearly all acts of parliament are—admitting of variable construction, and giving rise to much misunderstanding and litigation; but in Ireland we have the alternative of choosing between "no act at all" or the probability of one equally ambiguous being granted to us. But "of the two evils *we* should choose the least," and unite with the Builders' Association in desiring *some* code of rules to be laid down, which would, even in a degree, set at rest the various difficulties presenting themselves in the erection of city dwellings and commercial houses.

Gentlemen of the long robe profit by this state of things no doubt, but it is materially detrimental to all connected with the building profession, as also to the community at large; for the more misunderstanding exists, the more litigation is sure to follow, the more expense and trouble heaped on all concerned, and the more dissatisfactory in every respect are the results.

"Uniformity of measurement" is, to our mind, "a consummation devoutly to be wished," and most probably would meet with the cordial approbation of architects and building surveyors, inasmuch as it would surely facilitate the preparation of estimates, settlement of builders' bills, &c., and to some extent obviate the enormous discrepancies which every day occur in the amounts of tenders for works, which can only be accounted for by the variety of systems adopted in taking out quantities, and which frustrates the intention of every honest contractor to undertake work at its *fair* value. Finding, however, that all these subjects are referred to committees of the Association, to frame a complete report thereon, we await that document prior to further observations, and conclude by awarding the energetic members of that body their full meed of praise for their laudable exertions in a progressive direction.

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* See page 32.

THE ANCIENT CROSS OF BANAGHER, KING'S COUNTY.*

The old church of Banagher, King's County, was heretofore known by the appellation Kill-Regnaighe, and the parish in which its ruins exist is still called Reynagh. This parish was situate in the diocese of Clonmacnoise. The names just mentioned were given to both the church and the parish in consequence of St. Regnach, *alias* Regnacia, sister of St. Finian who resided at Clonard, having founded a religious house here, over which she was abbess. St. Regnacia in all probability died about the same time as her brother Finian, who went to rest A.D. 563. The ruins of the church of Kill-Regnaighe stand nearly in the centre of the town of Banagher (celebrated for its fairs). and the walled-in space which encompasses them is used as the parish cemetery

On a fine summer day, many years ago, loitering about the straggling, long, and unpicturesque street of Banagher, I happened to ramble into this church-yard, as well with a view to beguile time as for the purpose of examining any relics of antiquity which might there present themselves. The trouble of the visit was amply compensated; for I there found, prostrate on the earth, a stone, of which I send a sketch with this paper, showing it as *it then was*. In using the words "*it then was*" I do so emphatically, in order to contrast its *then* with its *present* condition; for the stone has since that time been sadly and wantonly damaged.

On first inspection it was evident to me that this remain of antiquity had served as the shaft of a once stately cross, of which the other component portions were no longer to be found. I made inqnriry as to what had become of the remainder of this highly sculptured remain; but my inquiries proved unsuccessful. The only information I could glean was that the stone then and there lying humbly prostrate had, in former and more propitious days, stood erect beside a crystal spring, which once sent forth its limpid waters in the old market-square adjoining the church-yard, but whose abundant source was very many years stopped up. No person could be found to tell me the meaning of the carving on the stone, or why or on what occasion it had been carved at all.

I will now describe what remains of this very interesting antique. It is formed out of that description of greyish-brown sand-stone, which, when recently taken from the quarry, is so very soft as almost to cut beneath the pressure of an ordinary knife; but which becomes of adamantine hardness after being some time exposed to the atmosphere. The sketch, which accompanies this paper, presents a representation of the front or principal face of what is extant of this cross-shaft, from the lower part of which a piece has been broken off. This stone is five feet long, by one foot two inches in breadth at top, and one foot four inches at bottom. The sculpture on it consists of three compartments. On the uppermost of these we find a lion passant, three-tailed or *guived*, as a herald would express it. A small hollow about the place of the lion's shoulder was abraded into the stone when I first saw it. This has since been greatly enlarged.

Beneath the lion I have mentioned, and on the same compartment with it, is the figure of a bishop on *horseback*, and bearing his pastoral staff as emblematical of his sacred office. The crosier is of that plain form which indicates antiquity.

In the second compartment is a beast of the deer kind, and which is proved by the character of its horns to be the red deer (*cervus elephas*); an animal now, I believe, nearly extinct in Ireland. The poor creature is portrayed as in great pain, its head being thrown up in an attitude of anguish and distress, whilst its off or right fore-leg is found to be entangled in something resembling a trap. When I first beheld this stone the deer was quite perfect; but it has been mutilated by reckless and savage hands since that day.

The lowest compartment consists of four naked and ill-proportioned male human figures arranged around the central point of the compartment after the manner of spokes in a wheel. Their legs are hooked together, and the left hand of each figure grasps the hair of the figure immediately preceding it. Their respective right hands hold the beard of the figure immediately in rere.

The sides of the stone are ornamented with an interlaced tracery, some of which resembles serpents. This tracery it would be difficult, if not wholly impossible, to describe in words. The character of it is that of similar ornaments found in various carvings on stone of the tenth, eleventh, twelfth, and thirteenth centuries.

The most remarkable object on the back of the stone is some sort of mythic combination shaped like an animal, with a nondescript head, but rudely resembling that of a hawk. The ears seem to be represented by the heads of two serpents, whose bodies are twined into trinodal and circular forms of curve. The serpent, I need scarcely observe, was at all times acknowledged an emblem in religious rites. I do not remember to have met with anything like to this, excepting the figure on the little brazen talisman from Hindostan which I forwarded for inspection of the members of our useful Society. A sketch of this compartment of the stone is at B on the plate

The stone, the subject of this communication, appears to have been part of a sepulchral or commemorative cross, set up at the Banagher well to record the death of bishop William O'Duffy, who was killed by a fall from his horse A.D. 1297. I read in the original English edition of Ware's "Bishops," published at Dublin, 1704 (p. 29, Bishops of Meath and Clonmacnoise)—"William O'Duffy, a Minorite, after two years vacancy, succeeded and was restored to the temporalities. October 6th, 1290. He was killed by a fall from his horse in 1297." Harris, in his edition of Ware's "Bishops," quotes the Patent Rolls of Edward I. to show that he was bishop of Clonmacnoise. Perpetuated on the stone now being written of, is the record of that fatal event, for on it is to be seen a *bishop on horseback*. He is without (it is worthy of remark) either stirrups or saddle. Above his lordship is the lion, the hieroglyphic of strength and power, and being emblematic of the bishop's authority and character before the unfortunate accident befel him. Next to this we find the red deer taken in a trap and writhing in mortal agony and distress. This is plainly symbolical of O'Duffy's name and melancholy fate. The Irish word pronounced nearly as if written Daveleei, or Duffy, signifies a red deer.

It is manifest that the trap in which the foot of the deer appears to be entrangled is merely intended to record the accident which deprived O'Duffy of life. The words of the Four Masters do not lead us to believe that his death was instantaneous, for they only say that he died *in consequence* of the fall from his horse.

As to the carving on the lowest compartment, I own that I can form no certain conjecture respecting its meaning I have met with the same sort of symbolic representation only once elsewhere, namely, on an exceedingly curious stone cover of a coffin in the ancient burial-ground at Kil-Corban, county of Galway. The four human figures are certainly typical, and may have been intended to remind the beholder of never-resting time, or of the succession of the four seasons of the year, ever going their mystic round in close communication, the one with the other,

> Thus to remain
> Amid the flux of many thousand years,
> That oft have swept the toiling race of men
> And all their laboured monuments away.

On this change of seasons the poet from whom I have just borrowed has also sublimely written—

> These, as they change, Almighty Father, these
> Are but the varied God.

It is very remarkable that Ware and the "Annals of the Four Masters" disagree as to the diocese of which this William O'Duffy was bishop, while both state that he died by a fall from a horse. The church of Kill-Regnaighe, near to which the cross now being written of stood, was in the ancient diocese of Clonmacnoise. The evidence of this interesting remain may prove of some value in deciding between these highly respectable antiquarian authorities.

After the lapse of some years from the time I first had the gratification to see the shaft of the Banagher cross, I discovered that it was going to destruction, owing to ill usage. I therefore obtained permission to have it removed from the reach of its brutal and Gothic foes. It is now once more standing erect and free from danger, in the enclosed gardens at the rere of my residence in Parsonstown. The true archæologist would of course prefer to have it preserved *in situ*. He, nevertheless, will probably join me in opinion that it is better it should be preserved anywhere rather than not be preserved at all.

The statue of Webster does not please the Boston people. The following squib from the *Transcript* expresses a very general feeling:—

Set High.—"It should be set higher, I suppose," remarked a gentleman to his friend, as they stood in front of the statue of Webster, by Powers. "Yes," was the reply of one of the contributors, "about five hundred miles."

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* Communicated by Thomas L. Cooke, Esq. to the Kilkenny Archæological Society, and published in vol. ii. of the Transactions.

SANITARY CONSIDERATIONS.

SEWERAGE—NO. III.

IN our former papers on this subject we have, we believe, given sufficient evidence to demonstrate that the sewerage system of the present day cannot be justified.

Morally, it is indefensible; because nothing can justify the *rich* in sending forth filth from their habitations to contaminate the streams of which the poor must drink—in filling the air with the seeds of death, that the poor, with constitutions predisposed by want and suffering to receive and germinate the evil, may breathe of it and die; whilst they, the opulent, surrounded by comforts, guarded against the destroyer by luxuries and stimulants, may live, and yet, by their acts, inflict death upon those beneath them.

Legally, it is indefensible; because law is based on even-handed justice, and forbids all that is morally wrong.

And *in engineering principle* it is indefensible; because it does not and cannot accomplish what it professes.

These are simple realities that cannot be *disproved;* they may be denied, but no one can disprove them, and the day will come when the world will look back with the same wonder at the obstinate prejudices which uphold the system, as it does now on those which in former days killed its thousands in small-pox and fever, by denying to the sufferers the pure air of heaven, and impregnating the atmosphere of which they breathed with the poisoned exhalations from themselves. Then and now the system is the same—our foulest impurities are retained festering beneath and around us, till the atmosphere is filled with death-dealing emanations.

The question is, therefore, what is to be done *to save us from ourselves?*

Out of the hundreds of propositions submitted to the Metropolitan Commissioners of Sewers, it may be said that *three* have survived, and still have backers. Let us examine them—

The first is that of the original Board of Health, headed by the then Lord Morpeth, but led by Mr. Edwin Chadwick.

Its stated object was to carry off the house matter generally by means of earthenware pipes, termed "impermeable," formed and jointed on the common earthenware pipe principle, one partially fitting into another. These were to be laid through the streets, beneath the surface, like water pipes—all concentrating to some particular point, where the matter was to be lifted and carried away, or discharged into rivers or the sea, as the case might be; and every house was to be supplied so abundantly with water, that constant streams were to flow through the pipes, and thus, by "flushing," so called, they were to be kept at all times free and pure. Such was the *theory.*

The second is what has been termed *the "Leicester system,"* because it has been carried into effect there. It was advocated simultaneously by Mr. Dover and Mr. Wicksted, and put into practice at Leicester by the latter. It was simply to lift and collect into tanks the matter discharged from sewers *at their mouths*, either by means of buckets or Archimedian screws, and to intermix with it what has been termed "milk of lime," an admixture of lime and water, about the consistency of *whitewash.* By this means the solid matter became immediately precipitated, to be collected for manure, and the water was pumped out of the vats into the rivers in a comparatively pure state.

The third is what has been termed "the peat charcoal system," which was proposed by Mr. Jasper Rogers, C.E. The object was to intercept all the solids discharged from closets, either by means of filtering tanks placed in convenient situations immediately outside each house, or to receive the matter of one or more houses or streets by means of *close metal pipes* running from the closets—the solids being retained in the tanks by layers of peat charcoal, through which the water rises, and discharges itself into the general sewer in a *perfectly purified state,* that effect being produced by the anti-putrescent properties of the peat charcoal. By this arrangement, *all* the fertilizing value of the animal refuse would be obtained for manure, whilst the water reaching the sewers would be perfectly innoxious, and of no injury to rivers, the animal matter or excrement never being permitted to enter the sewers—thus preventing them being contaminated, as they now are.

It is necessary to analyze each of these propositions, but we cannot spare space in our present number for more than the plans of the Board of Health, carried into effect under the especial care and direction of Mr. Edwin Chadwick, then its leading member.

The principle endeavoured to be established was, that excretary matter discharged into a *highly-glazed* earthenware pipe would "slide" along by the aid of a plentiful supply of water, and that there would be no possibility of stoppage. This *theory* was so well established *in the minds of the Commissioners,* that a noble lord, one of the number, declared at the Sanitary Congress at Brussels, that the action was perfect, and so little change took place by decomposition or otherwise, that he actually read the words of "*a billet-doux,*" (which had been subjected to a rather unusual use for such productions) after it had traversed some miles of pipe.

It is not to be wondered that "the impermeable pipe and flushing system" should have become fashionable after this, particularly when the fact is also known that above sixty reports, made by engineers employed by the Board of Health, upon that number of towns requiring sanitary arrangements, all declared that the system was perfect. A most singular coincidence of opinion, and proving the power of a leading mind, acting on paid subordinate ones.

The consequence was, that glazed pipes and flushing were assumed to be the panacea in the sewerage system. The pipes were laid through many streets in London—one in particular, the entire of Longacre; also in many country towns, especially, to a great extent, in Manchester, only to be removed again.

But the Board determined to win the whole of England by storm, the base of their operations being at Croydon. They *took* the town, and commenced war immediately; for the first thing done was to knock down every privy—but three, that happily escaped—and on pain of heavy fines each housekeeper was obliged to erect a water-closet, and connect it with the "*impermeable pipes*" laid through the centre of the streets.

All, for a time, "went happily as a marriage bell," except as to certain inconveniences experienced by the inhabitants between the *knocking down* of the privies and the *laying down* of the pipes. But these were only temporary annoyances that should be submitted to for public good, and the Commissioners issued a report stating, that from thenceforth the health of the town would be so much improved, that the rate for the support of widows would be abolished —in fact, Croydon was to be the most salubrious place in the kingdom, and house property rose in value considerably. Based on the elaborate and scientific reports issued from the Board, nothing could be more clear than that Croydon would be the pattern for the whole of England.

But, alas! "a change came over the spirit of the dream." First, the pipes began to choke in sundry places; but Mr. Chadwick declared it was solely because the nurserymaids crammed "empty bottles" and "hearth-brushes" into them, and they were denounced as recusants to sanitary reform. Next, detestable smells came back into the houses even from the pipes that carried off the *billet doux* in all its purity; but it was insisted, that upon *Board of Health principle*, there could not be any smell from "a glazed earthenware pipe," and that, therefore, there was no smell. Next, the children took sick, and scarletina came; but that was nothing—children were sick everywhere, and the scarletina was to be found everywhere.

Next came cholera, and at last a slow, wasting fever, that spread itself from end to end of the town, and visited every house, more or less, *where the privies were knocked down* and the pipes introduced; leaving the *three* houses where the privies remained *without any of the inmates being attacked*. In fact, the town was undermined with decomposing filth, the noxious emanations from which were held within the pipes, and from them drawn back into the houses by the action of the higher temperature within them. The pipes could not carry off the matter because of their imperfect arrangement and want of ventilation; after a short time they *rotted* in the ground, and collapsed, and the boasted *glazing* was proved to be a thorough fallacy—for the action of the acids of the matter destroyed it, and, eating into the material, destroyed that also.

Then raged one of the most fearful fevers that has been recorded for many years—"*the Croydon fever*," a low type of malignant infection, produced by the poison drawn back into every house by "the impermeable pipe system," introduced to do away with the evil of privies. It had not been seen by *the Board of Health* that the privy gave its noxiousness to the open atmosphere, whilst the "impermeable pipe" gave it back into the house, mayhap into the nursery, to discharge its poison upon the scarcely-formed lungs of childhood or of infancy, and snap the half-made thread of life—or manhood breathed it during sleep, to generate the seeds of fever and of death. Those who were to be the protectors of life, destroyed it; and, perhaps, a more discreditable description of facts could scarcely be read than the report to Government of Dr. Arnott and Mr. Page (the well-known engineer to the Woods and Forests), two men whose eminence rests as much on their virtues as their science—and which gives in detail the results of as fallacious a system as ever was introduced, ending in as deplorable a list of sickness and death as could well be described.

Up to the outbreak of the Croydon fever, report upon report was issued by the Board of Health, laudatory of every step taken; speeches were made by Mr. Chadwick to no end, in glowing description of results that never came; but death came, and some one has said—"The Board of Health slew its hundreds at Croydon *by Sampson's weapon*." We have only to hope that the same infliction may not reach us here; but we must close for the present.

COST OF CEILING-PAINTING.

Sir Peter Paul Rubens received for his painting of the grand *Plafond*, at the Banqueting House, Whitehall, the sum of £40,00. The space covered by this painting is about 400 yards, so that he was paid nearly £10 per yard. Sir James Thornhill, the first Englishman who received knighthood for his ability in art, was paid only £3 a yard for the laborious work on the ceiling of Greenwich Hospital, and only £1 a yard for painting the ornaments on the walls. This employment he was appointed to in the reign of Queen Anne; but the work was not completed until the reign of King George I. He commenced in 1708, and finished in 1727, and was paid altogether £6,685.

The valuation of the work, after many attempts to screw down the painter, was made by the directors of the hospital, after consulting the following artists then residing in London:—Vandervelt, Cooper, Richardson, Sykes, and Degard, who decided in favour of Sir James, and reported that the performance was equal to anything of the kind in England, and superior in the number of figures and ornaments.

"The Duke of Montague," says Sir James Thornhill, in his memorial to the commissioners for building the hospital, "paid Monsieur Rosso for his saloon, £2,000, and kept an extraordinary table for him, his friends, and servants, for two years, while the work was doing, at an expense estimated at £500 per annum."

Signor Verrio was paid for the whole palaces of Windsor and Hampton Court ceilings, sides, and back stairs at 8s. a foot, which is £3 12s. a yard, exclusive of gilding, had wine daily allowed to him, lodgings in the palaces, and when his eyesight failed him, a pension of £200 per annum, and an allowance of wine for life.

Signor Rizi had of the Duke of Bedford £1,000 for painting three rooms; for the little chapel at Bulstrode, £600; from Lord Burlington, for his staircase, £700; Signor Pellegrini, of the Duke of Portland, for work in his house, £800, and for a small picture over a chimney-piece, £50; of the Earl of Burlington, for the sides of his hall, £200.

Other instances might be given to show the large amount of employment this now comparatively unused description of house-decoration afforded to artists of ability.—*The Builder*.

INTERESTING SCULPTURAL RELIC.

STATUE OF THE BLESSED VIRGIN, IN DUBLIN.

There is preserved in the Carmelite Church, Whitefriar-street, Dublin, a very interesting sample of ancient sculpture—a statue of the Virgin, with the infant Jesus in her arms, the size of life, carved in Irish oak. The style of this most curious monument is dry and Gothic; yet it has considerable merit. There are some circumstances relative to the preservation of this statue, preserved by tradition, which may probably interest the reader. It was originally the distinguished ornament of St. Mary's Abbey, at the north side of Dublin, where it was an object of admiration (See "Archdall's Monasticon"). Its glory, however, was but of short duration. The noble abbey to which it appertained was given to the Earl of Ormond, for stables for his train, and the beautiful statue was condemned and, as it was supposed, consigned to the flames. One-halt of it was actually burnt by the common hangman, but it was that moiety which, when placed in a niche, is not much missed: the other part was carried by a devout person to a neighbouring inn-yard, where, with its face buried in the ground, and the hollow trunk appearing uppermost, it was appropriated, for concealment and safety, to the ignoble purpose of a hog-trough! In this situation it remained until the furious rage of the iconoclasts had passed away, when it was restored to its original use in the humble chapel of St. Michan's parish (Mary's-lane), which had grown up from the ruins of the great monastery to which the statue had originally belonged. But during the long night of its slumber in obscurity, a great change had taken place in the spirit of the times, more dangerous to its safety than the abhorrence of its iconoclastic enemies. No longer an object of admiration to any, except the curious antiquary, it was considered of little value by its owners. Within the last few years, the ancient silver crown which adorned the virgin's head was sold for its intrinsic value, as old plate, and melted down;[*] and the statue itself would most probably have followed the fate of its coronet, had it not been rescued for a trifling sum by the prior of the convent (Very Rev. John Spratt) in which it is at present deposited. The statue now stands at the epistle side of the high altar.

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[*] This crown is very generally supposed to have been the indentical one used at the coronation of Lambert Simnel, in Christ Church, Dublin.

INSTITUTION OF CIVIL ENGINEERS.

AN ordinary general meeting of this institution was held at Sackville-street, on Tuesday the 12th ult. Mr. M. B. Mullins, President, in the chair. After the reading of the previous minutes, the Secretary announced the receipt, from Professor Hennesy, F.R.S., of his pamphlet on a uniform system of weights, measures, and coins of all nations; and from the proprietor of the *Civil Engineers and Architects' Journal*, the numbers of that periodical for the current year. Thanks were voted therefor. The paper for the evening—On a new method of shoreing adopted in removing the two lower stories of the Royal Bank, Foster-place, Dublin — was read by Mr. William Anderson, associate. The paper commenced by a statement that about a year ago the directors of the Royal Bank, finding it necessary to construct a more extensive cash office to meet the requirements of their increasing business, invited several architects to lay suggestions before them as to the best means of accomplishing their object, and finally adopted the plan of Mr. Charles Geoghegan, of Great Brunswick-street, whose design was to make one large and lofty room stretching from Foster-place, to Anglesea-street, by throwing a circular-framed roof, with lunette panels for light over the courtyard between the houses and the streets abovenamed, and removing the first and second floor-walls of the building in Foster-place, supporting the upper portion on beams and columns. By these means a room 81 feet long and 56 feet wide has been obtained, affording 120 feet of counter frontage. Mr. Anderson proceeded to point out the great risk and difficulty of shoreing up, in the ordinary manner, walls weighing together upwards of 200 tons at an elevation of 40 feet from the basement, and to explain Mr. Geoghegan's invention, by means of which the operation was performed with perfect ease and safety. The plan consisted in breaking holes at intervals through the walls to be removed, at a level the beams were intended to occupy; and inserting iron frames on which the weight of the walls was wedged and carried, while the portion of masonry between the frames was removed, and the beams put into their places through the supporting frames. By this method the wall which was to be removed, formed a temporary pillar to support the other part which was to be retained. As soon as the beams were adjusted and fixed to each other and to the four supporting columns, the weight of the walls was made to rest on them, and the frames, which could be taken to pieces, were removed. One of the frames, calculated to carry twenty tons, and which had actually been used in the Royal Bank, was exhibited in the lecture-room, showing how simple in construction and portable it was. The cost of shoreing eight walls upon this system was 62*l*, while builders' estimates amounted to from 168*l* to 180*l*, without including any charge for the great risk of attempting it at all. The shoreing in the manner described could have been done for 42*l*, had not the urgent necessity for completing the work as quickly as possible induced the contractor to procure more frames than were absolutely necessary.—The beams, which were all wrought iron, were constructed by Messrs. Courtney and Stephens, of Dublin, and were tested before leaving the works to the full load they were intended to carry, the deflections in no case exceeding three eighths of an inch. The four columns supporting the walls, which were of the unusual length of twenty-six feet, were minutely described, particularly as to the precaution adopted to insure perfection of manufacture, the author pointing out that though the strength of the perfect column might be ample, there existed so many causes of imperfection that it behoved the engineer to use his utmost skill and caution to insure soundness, especially when the diameter was small for the height. In conclusion, the directors were applauded for their discernment and liberality in placing full confidence in the architect, and encouraging him in the application of a new principle which has turned out so much to the public advantage. The zeal and intelligence of Messrs. Crowe and Sons, the contractors, were also commended as having contributed very materially to the success of the undertaking.—The paper was illustrated by numerous coloured diagrams and models. The discussion which ensued showed the concurrence of the members in the excellence of Mr. Geoghegan's new system of shoreing, and the great variety of cases to which it could be applied.

A gentleman of Philadelphia has effected what appears to be a valuable improvement in the signal light for steamboats. The improvement consists in a simple mechanical arrangement by means of a post, moveable arm or bracket, connecting with the main shaft of the engine, by which, at every revolution of the paddle-wheel, the lights placed upon the extremity of the arm will revolve and show distinct colours. The lights are placed directly over the wheel-house, and are entirely within the control of the pilot, either by congearing or by belts. Several modifications of the machinery may be made, so as to apply conveniently to paddle-wheel steamboats or to propellers. The machinery is not costly, and seems well adapted by its simplicity and efficiency, to prevent collisions upon the water.—*Scientific American.*

AN AMERICAN SKETCH OF LONDON.

LONDON, the metropolis of Great Britain, is situated on the river Thames, 45 miles above its mouth. Its origin is lost in the mists of antiquity. The first mention of it is found in the annals of Tacitus, who speaks of it as a colony not particularly extensive, but celebrated for the great number of merchants and traders who congregated in it. At the time of the Roman invasion, it became a prefecture, and was subject entirely to the Roman laws. The Britons revolted A.D. 61, and captured and sacked the city. It was soon rebuilt, and early in the fourth century was enclosed by walls. After the Saxon conquest, London became the capital of the kingdom, and the venerable Bede speaks of it as a "princely commercial city." In the middle of the twelfth century, the population of London was about 40,000.

The city seems to have increased steadily in population and wealth, from the middle ages up to the beginning of the present century. The severest reverses which it has ever experienced, were the plague which prevailed in 1665, and carried off more than a quarter part of the whole population (and whose ravages have been so graphically described by Defoe), and the great fire which occurred in the following year, and destroyed nearly nine-tenths of the city within the walls. The loss by this fire amounted to upwards of 50,000,000 of dollars. The calamity (like many other similar events) proved to be a great public benefit; for the city was rebuilt on a grander scale, and the genius of Sir Christopher Wren, and the other great architects of that age, made it a rival of the old capitals of the continent of Europe.

The city soon outgrew its walls, and has steadily gone on increasing to the present time. It now comprises Westminster, and several adjoining boroughs and suburbs; and some idea of its extent may be formed from the fact, that while the city proper only contains 725 acres, the metropolis embraces an area of more than 78,000 acres. It is computed to be about ten miles in length, and six in breadth. Its increase has been remarkably rapid within the present century, at the commencement of which, its population amounted to considerably less than a million. At the present time the number of inhabitants cannot be much below three millions, and this affords but a poor idea of the numbers that actually belong to London, though they reside at a distance of some miles from it, the communication between it and the neighbouring towns is so rapid.

One of the most remarkable features of London is its bridges. They are nine in number, and have been built within little more than a century, at a cost of upwards of 12,000,000 of dollars. The shops of London are generally extensive, and some of them are quite handsome, but they are not to be compared with those of Paris, and some of the other continental cities. The bank of England was founded in 1694. Its operations are carried on by a corps of about 800 clerks.

Although London owes its chief importance to its foreign trade, it still has manufacturing interests, which give employment to thousands of people. Its breweries are on a very extensive scale, and immense quantities of porter and ale are exported to every quarter of the globe. In the manufacture of carriages, clocks, watches, all kinds of instruments, jewellery, gold and silver plate, &c., London has a very high reputation. The manufacture of silk employs nearly twenty thousand persons.

The docks of London occupy many acres. With their warehouses they afford the best criterion on which to form a judgment concerning the commerce of the metropolis. The West India docks are some fifty acres in extent, and cost more than 7,000,000 of dollars. The London docks are more than 25 acres in extent, and their warehouses are among the wonders of the capital. The tobacco warehouse is the largest building of the kind in the world. It occupies five acres, and affords storage for 25,000 hogsheads of tobacco, while the vaults underneath are large enough to contain more than 20,000 pipes of wine. The West India docks, with their yards and warehouses, cover nearly 300 acres. The Victoria docks which were completed in 1855, cover more than 70 acres, and occupy 200, including their warehouses, &c. These docks have a sufficient depth of water to accommodate the largest ships.

Some idea of the commerce of London may be obtained from the consideration of the fact, that more than 2,500 sailing vessels (695,000 tons) and about 570 steamers (168,000 tons) are registered as belonging to that port. The average of the arrivals from foreign ports for several years past has been between ten and eleven thousand of 2,500,000 tons, and about 20,000 coasters, amounting to nearly 3,000,000 of tons. An immense business is done in coal. In addition to the great quantities of coal brought from the northern part of the island by railway, the vessels laden with coal entered at the port of London have amounted to nearly 12,000 in number yearly, for some time past. In the year 1856, the British and Irish manufactures, and produce exported from London amounted to nearly 130,000,000 of dollars. In the same year, the duties collected on foreign imports in the London custom-house amounted to considerably more than 60,000,000 of dollars.—*Boston Pilot.*

MONKSTOWN HOUSE, COUNTY DUBLIN.

PERHAPS one of the most important domestic edifices recently erected in the suburbs of this city, is the mansion now nearly completed for William Harvey Pim, Esq. (one of the well-known fraternity of merchant princes bearing that surname) in the beautiful and rising locality of Monkstown. It is a large block of building about 90 feet by 64 feet externally, and in style of architecture is a composition of Italian and Byzantine, the latter being more predominant in the massive square tower rising about 90 feet high at the south-east angle, than in the main structure. The approach to the demesne is through a handsome gateway with a new and spacious lodge at one side, which, both in point of design and execution, presents many noteworthy features. The house stands on a slightly-raised ground, and displays on the entrance elevation two projecting wings with large bows, in which are three handsome windows, each sash glazed with plate glass, and weighing 112 lbs., surmounted by pediments, and connected by a recessed centre in which is placed an Ionic *distyle in Antis* portico. A spacious flight of granite steps—some of the stones being 16 feet in length—from Ballynockin quarry, and a landing of similar material, 20 feet by 11 feet, in large cubical blocks, leads to this portico. Thence is the approach to the entrance-hall, which with the other internal arrangements we shall hereafter describe. The northern flank presents an unbroken line, and a corresponding bow at rere to that on front preserves uniformity on profile. This elevation is peculiarly effective, and the vermiculated ashlering and other decorations round the windows display a pleasing boldness of treatment, and contribute materially to the *toute ensemble.* On the opposite or southern flank a handsome conservatory of apsidal form, and 28 feet by 24 feet, is introduced, and in connection with same is a vestibule with semicircular glass roof and end, forming entrance to the grounds, as well as therefrom, through an ante-room, to the tower above alluded to. Internally, the tower is 12 feet square, and divided into four compartments in height, with moulded window-jambs and heads, a bold projecting corbel course. open stonework parapet, and a lead flat from which is obtainable a magnificent view of the bay and surrounding country for many miles. The tower is built of punched irregular-jointed Dalkey granite ashler, familiarly termed "hough and ham," and the quoins, dressings, &c., of chiselled Ballynockin granite, whereby a pleasing contrast of color is produced. On north-east, and portion of west elevations, wide areas with strong retaining walls and bold granite breastwork, are continued. Portland cement has been used for the external decorative portions. and compo for the surface of walling on all the storeys.

The entrance-hall and staircase occupy the entire depth of the building from front to rere, and one-third the breadth of the entire. The hall is divided into three bays, by two pair of beautifully executed Corinthian columns in Caen cement, with elaborately decorated coffered ceilings; the staircase forming the third, and consisting of a central flight and two side do. of Portland stone with scroll castings, Riga oak handrail, and a circular lantern rising above from a highly enriched ceiling. To the left of entrance-hall are the drawing-room, ante, and dining rooms, all communicating by sliding doors, and forming a suite of apartments nearly 90 feet in length by 19 feet in width, with bowed terminations. The plaster enrichments, and imitation basketwork pendents in these apartments, as well as throughout the building, are faultlessly executed, and reflect the highest credit on the contractors for the cement and plastering, viz., Messrs. Hogan and Son, of Great Brunswick-street. The same observation is specially applicable to the painting and graining. To the right of hall is the library, communicating by moveable windows with the conservatory; also, a back stairs and some minor apartments, and we should not omit to mention a cleverly-arranged butler's stairs, concealed under and running parallel with first flight of principal staircase, communicating between the dining-room and culinary offices. On the upper floor are 5 bed-rooms, with several dressing and ante-rooms, bath, w. c., &c., and in the basement are all the requisite apartments for the complete carrying out of domestic arrangements on a large scale, comprising a splendid kitchen, scullery, larder, drying-room, male and female servants' bed-rooms, housekeeper's store, servants' hall, &c., &c.

The architects are Messrs. Carmichael and Jones; the builders, Messrs. Roberts and Sons; Mr. William Dockrell, clerk of works; Messrs. Hogan and Sons, contractors for plastering and cement work; Mr. Thornton, the painting; Messrs. Ross and Murray, the plumbing; and Messrs. Hodges and Sons, the iron-work; of all of whom, in their respective departments, we feel pleasure in making honorable mention.

THE LAKELANDS OF TERENURE.

FOR some years past a project has been in embryo for the laying out in building sites, esplanades, &c., that portion of Terenure familiarly known as "Bourne's demesne," but circumstances prevented its being matured up to the present time. On the occasion, however, of a recent visit to the establishment of Messrs. Day and Son, of London, the eminent lithographers, we noticed that a beautifully-executed view of a design for this project had been prepared by that firm according to plans furnished by a London architect (we believe), Mr. Beck.

Perhaps in the immediate vicinity of Dublin there is not any locality offering more favorable opportunities than this for such a purpose and for the display of artistic taste, combining, as it does, facility of approach from the metropolis, convenient proximity thereto, and a variety of beautiful scenery, to which an expansive lake, undulating slopes, and shady groves lend their charms. The architect, unlike many designers now-a-days, seems to understand the ground with which he has to deal, and to appreciate the beauties of the *locale*; for by a judicious combination of taste and artificial arrangement with natural advantages, he has succeeded in producing a design which, if carried out (and we sincerely hope it may), will result in an important adjunct to our suburban beauties.

The houses are chiefly arranged in terraces, but we doubt not that various classes will be provided; and we may mention, as a striking feature in the design, that conservatories occupy the positions of the roofs so as to answer a double purpose, though *we* find some difficulty in reconciling this arrangement as desirable either on account of health or convenience.

ENGINEERING AND BUILDING APPLIANCES AT THE AGRICULTURAL SHOW, ROYAL DUBLIN SOCIETY.

AMONGST the variety of mechanical inventions and designs exhibited at the recent Agricultural Show on the premises of the Royal Dublin Society, those hereafter particularized, and which come within our province more peculiarly to treat of, were specially noteworthy.

Steam-engines, portable and otherwise, and from two-horse power upwards, were exhibited by Mr. James Haywood, jun., of Derby; Messrs. Barrett, Exall and Andrews, of Reading, Berks, who are also patentees of a circular band saw to which a silver medal was awarded by the Royal Agricultural Society of England in 1856; Messrs. Brown and May, of Devizes, also inventors of an improved patent sluice cock; and Messrs. Smith and Ashby of Stamford, &c. &c. Several beautifully-executed designs for entrance-gates, and other iron work, including stable fittings, wrought-iron fencing, &c., were contributed by Messrs. Hennlewiez and Co., Glasgow and London; Messrs. Thomas Perry and Son, of Bilston, Staffordshire; A. Mac Donald, Belfast; and Mr. James Banks, of Derby-square, Liverpool. The patent machines for morticing, tenoning and boring hard or soft woods, as exhibited by Messrs. Gallon and Bean and Green and Jackson, of Leeds, attracted much attention; and as they effect a considerable economy of labour in the preparation of carpentry work for doors, sashes, &c., are worthy of general adoption, and must ultimately repay one hundred-fold the first outlay, which is but £15 or £16.

Local engineers and manufacturers made a very respectable appearance at the show, and amongst them we may notice Messrs. Turner and Gibson, of Hammersmith and Oxmantown foundries, who, with other inventions, exhibited a model of a "new patent balance rolling bridge," already commented on in the DUBLIN BUILDER, p. 41; Messrs. Edmundson and Co., the eminent hardware merchants; Mr. Wm. Daniel, gas engineer and ironmonger, who has erected several of his improved portable gas-works in the provinces; Mr. John Maguire, of Dawson-street, ironmonger, &c., to the Royal Dublin Society, and agent for Gurney's patent stoves, noticed fully in another portion of this journal, now used at the houses of parliament, St. Paul's cathedral, and several other public and private edifices in the united kingdom. It is highly gratifying to find English and Scotch engineers and manufacturers of eminence combating national prejudice, and exhibiting a desire to be on more intimate business terms with this country than hitherto.

M'KINNELL'S PATENT VENTILATING APPARATUS.

ANY innovation upon the old-established and recognized principle of supplying fresh air and withdrawing foul from apartments by means of orifices placed diametrically opposite, must at once excite a certain amount of surprise amongst the curious, and doubt amongst the sceptical; but those who have not seen or heard of the new Patent Ventilating Apparatus by Mr. M'Kinnell, of Glasgow, will accuse us of promulgating as *un fait accompli*, an absurdity and an impossibility, when we tell them, that by his invention, fresh air *is* supplied, and foul *is* withdrawn, from a dwelling by the *same* apparatus, occupying a space averaging some 12 inches square, and placed vertically in the ceiling of an apartment on any floor of a building. Ventilation theorists, startle not, reserve your scepticism, and hear the principle!

"To ventilate an apartment in the upper story of a house, a tube of zinc or other suitable material, is fixed in the ceiling, with a centre ornament attached. Inside this tube, and concentric with it, is placed a smaller tube. These communicate with the external atmosphere at different levels, the vitiated air rising up the central tube and passing off at the higher level; while the fresh air enters the annular passage, between the inner and outer tubes, at the lower level, and descends into the apartment below. Both passages are defended from rain, soot, &c., by perforated zinc or wire gauze, and provided with suitable valvular mechanism for regulating the currents—that of the outer passage, in the form of a projecting flange—serving to deflect the downward current of fresh air, and spread it out horizontally, so as to render its action imperceptible, while the ascending current may be regulated by a simple throttle valve. These valves are acted upon by cords passed over pulleys, and taken to any convenient point."

"Lower apartments are ventilated by similar arrangement, except that the fresh air enters the annular space horizontally and the vitiated air is discharged by an opening which is connected with the centre tube of the Ventilator. The horizontal part of tubes may embrace any portion or the whole of the space between two joists and the floor and ceiling, except so much as may be necessary for deafening. The vertical portions may consist of flues in the walls. Various modifications are made to adapt this invention to different buildings; as well as to ships, railway and private carriages, &c."

"Experience is better than theory," so to satisfy ourselves of the practical efficiency of the apparatus, we visited Ship-street Barracks in this city—an establishment displaying much need for sanitary appliances—and in one portion of which, House H, Nos. 3 and 8, this Ventilating Apparatus has been adopted. We happened to step in as the men were at mess in the barrack-room, where some twenty of them sleep likewise—a custom that, for the sake of health, not to speak of civilization, ought to be discountenanced—and found the atmosphere of the room quite free from the density that might be expected at such a time. In conversing with some of the veterans as to the action of the apparatus, and its ventilating value, they unanimously testified to its efficiency, and one Scotchman, perhaps "hardier" than the rest, exclaimed, in genuine Caledonian dialect, that "in the mornings their *moothes* (mouths) were now clean at any rate,"—a fact sufficiently significant that the invention is efficacious in withdrawing the vitiated air from a sleeping apartment, and preserving an equal temperature therein. Not so had it been previously, when the room was close, and a confined, heavy smell experienced after the night necessitating the immediate opening of the windows. We wish the invention success and general adoption, because *we think it entitled to it.*

SHOP ARCHITECTURE IN DUBLIN.

SHOP architecture, as it is familiarly termed, is much improving in Dublin, and some important works are being, or about to be, executed. Messrs. Pim, Brothers, are newly fronting their "monster house," in South Great George's-street, and in an elaborate style.* Other improvements are being made close by. In Grafton-street, the old dilapidated dwellings, of some centuries old, are gradually giving way to modern structures, and we doubt not but the gap caused by the recent fall of the house as noticed in the *Builder* will soon be filled by a more worthy occupant. A rumour was circulated some time since, of the probable pulling down of the block of houses uniting College-green with Grafton-street, with a view of widening the thoroughfare; but, as the work of "building up" is progressing there, we presume the project is abandoned. The new establishment for the Commercial-hall Company will be an important structure, having two fronts of Italian character, one (the principal) in Grafton-street, and another in Wicklow-street. Mr. Rawson Carroll is the successful architect, in a limited competition.—*Correspondent of "the Builder."*

A WORD TO YOUNG ARCHITECTS—COMPETITIONS!

WAS there ever a more perverted word?—competition there is none. Truly in nine cases out of ten, it is palpably exemplified that "the race is not always to the swift," nor "the victory to the strong," and modest merit is permitted to remain in the shade, while influence, backed by ability *or not*, potently carries the sway. Young architects, enthusiastic in the pursuit of their profession, and desirous to distinguish, perhaps immortalize themselves, by obtaining an important work offering a favorable opportunity, speedily snatch at competitions as the means, but soon find that such *generally* are mere will-o'-the-wisp phantoms, fading with the effort, and leaving the pursuer to meditate on his fruitless exertion. Avoid competitions on principle; too often good is transformed into evil, and though the system decidedly possesses the element—if *honestly developed and matured*—for the advancement of young aspirants to fame, yet it opens a tempting path to unprincipled persons to avail themselves of talented assistance and a variety of ideas, at the mental, manual, and not unfrequently pecuniary expense of the duped authors. LYNX.

BUILDING PROGRESS IN BELFAST.

ON the old Lodge Road a whole street of houses has lately been erected for the humbler classes, many of whom are now obliged to live in unsanitary lanes and courts, but who have the good sense to remove to clean and airy situations, as soon as houses adapted to their means are built in such places. A new street, from Durham-street to Murray's-terrace, has now been filled up with houses of a more respectable class; and as the rere of those on the north side, the property of Mr. Brannigan, abut on the Institution wall, they will have the advantage of the free air from the grounds in all time coming. On the Crumlin-road, Eglinton-street, and Lonsdale-street about 50 new houses of a still more superior class have lately been erected. Mr. Gaffikin is building seven new houses nearly opposite the Queen's College, superior, perhaps, to any hitherto erected as street dwellings, in a style of architecture seldom adopted in streets, but in harmony with the Queen's College in front, and the Institution for the Deaf and Dumb in rere. The houses are also constructed of similar materials—brick with stone dressings; and Mr. Connor, the builder, appears to be carrying out the views of the architect, Mr. Jackson, with his usual ability. It is to be regretted that the site did not admit of their being built parallel to the street. The plan adopted is, however, far preferable to that of erecting a house with acute or oblique angles, which must have been the case had the line of streets been followed in the building. Mr. Hughes is erecting 14 houses at Mount Charles, in the same quarter. The houses are not large, and the ground on which they stand is a little too confined for our notion of how towns should be built, but the proprietor appears to be sparing no expense to render them durable and elegant dwellings for those whose aspirations do not go beyond paying £45 or £50 per annum rent, with the large percentage of taxes incident to a residence inside the district lighted and watched by the Town Council. There is a fashion in everything. Bay windows seem as much the rage now as hoops and crinoline! All Mr. Hughes' houses have their parlors enlarged and their exteriors decorated with this appendage, and fitted up with arrangements for hot and cold baths, sunk and covered ashpits in the yards, and everything necessary for comfort and convenience. The workmanship alone is contracted for, the proprietor supplying all materials and the whole superintended by Mr. M'Alister. The nine houses on the south side have the peculiarity of a double frontage, the returns extending to University-street, with the yard wall in the same street built up to an equal height with windows and cornice above. This has the advantage of making the return bedroom one of the most cheerful and desirable in the house, which is far from usual.

We understand that the shares for the Ulster Hall have been all taken up, and that there is a good prospect of soon seeing the building in progress, which we hope will be such that it will meet the requirements of what Belfast will be 30 years hence. The increase of everything musical, shows that musical taste is progressing more rapidly than what is due to the mere increase of the population, so that the new building should exceed the present wants of the town in a duplicate ratio.

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* Mr. Symes is the architect; and Messrs. Roberts, of the Appian-way, are the builders; and Messrs. Hogan & Son, of Great Brunswick-street, the contractors for the cement and plastering work.

ON THE THEORY AND PRACTICE OF VENTILATION.

The following is an abstract of a paper read by Dr. Haughton at a recent meeting of the Royal Dublin Society:—The author maintains that highly heated rooms are more easily ventilated than cold ones, when the most trifling attention is paid to this important point in their construction. The general impression that cold rooms contain a purer atmosphere than those which are maintained at a comfortable temperature, is seldom verified except when actual draughts are produced in the former, which are fully as hurtful in the production of inflammatory affections, as the opposite evil is in the induction of chronic constitutional disease. The difficulty of avoiding Scylla, in escaping from Charybdis, is not, in this instance, so great as has been imagined, because nature has kindly provided the means of removing all noxious gases, if we only assist her efforts in a very small degree. It is obvious that gas and watery vapour, when passing off from the lungs or skin of an animal are always in a heated condition, the result of which is the presence of an upward current in the atmosphere, which constantly draws an equivalent quantity of pure air from the surrounding strata. In this manner all dwelling-rooms tend to ventilate themselves, if apertures in the ceiling, and corresponding ones below are provided, so that a complete circulation may be established; but from the frequent neglect of these simple means, warm rooms have been stigmatised as "close" and unwholesome, the degree of insalubrity being supposed proportionate to the heat experienced. But so far is this from being the case, that the converse is much nearer to the truth; the fact being, that there is no reason why the air of a cold room should ever alter its position when impure, inasmuch as the air outside is of corresponding density, and therefore has no power to expel it. But in a highly heated apartment there is a marked and constant difference in the specific gravity of the air inside and that without, thus giving rise to an extremely rapid circulation, and consequent thorough purification of its gaseous contents. This is quite a sufficient guarantee against the possibility of the communication of any infectious disease by the atmosphere of such apartments; and in the case of hot chambers, used for bathing purposes, it is not necessary to suppose that noxious virus is actually destroyed by heat, when we see that, even were it present, it must be immediately carried off. Those who have witnessed a prairie fire, or the conflagration of a forest, are aware that stormy weather is a usual sequence of such occurrences, in consequence of the upward current occasioned by the heat; and every tyro in physical geography knows the effect of the sun's rays in the production of currents in the atmosphere. In other words, heat is the very means employed by nature for the purification of the air of this globe, and there is no reason why it should not suffice to purify the edifices we erect upon it. The common usage of the inhabitants of cold climates, is a presumption that warmth within doors is beneficial, for the colder the climate, the higher do we invariably find the temperature of their dwellings; the snow-house of the Esquimaux being a beautiful instance of architectural perfection in the preservation of warmth under difficulties. The production of artificial currents by heat outside the room to be purified is, no doubt, a very powerful, but does not seem to be a very satisfactory means of ventilating, as its application to the Houses of Parliament has occasioned complaint against it from the members on account of the sudden changes of temperature, and the dust which was raised by it. The ventilation of Roman baths (as described by Vitruvius) was effected in a manner both simple, cheap, and efficacious; the ceiling been domed with a central aperture, closed by a shield (suspended by chains) which was raised or lowered according to circumstances. For the ventilation of new dwelling-houses, Count Rumford's air-shaft offers peculiar advantages, especially to those who study economy of fuel, as by means of it an entire dwelling can be maintained at a comfortable heat in cold weather, without unusual expense. In order to understand its principle, we must recollect that when rooms are heated by open fires, air has a tendency to flow *towards the fireplace* from all openings whatsoever that may be made in the room. The ascent of the smoke creates this tendency; and advantage has been taken of the smoke-flue itself as a means of ventilation, in the common Arnott's valve, but when the wind is variable, smoke is apt to regurgitate into the room from all valves which are so situated. To obviate this, an air-canal ought to be constructed *in the building of every house*, in or near the centre of each stack of chimneys. It may be about twelve or fifteen inches square in the clear; and two branches from this air-canal (both furnished with registers) should open into each of the adjoining rooms; one of these branches opening into the fire-place just under the grate, and the other over the fire-place, and near the top of the room, or just under the ceiling. Each of these branches should be about four inches square in the clear; and to prevent the uncouth appearance of the open mouth of that which opens into the room over the fire-place, it may be masked by a medallion, a picture, or some such ornament, placed before it at the distance of one or two inches from the side or wall of the room. This air-tube should not rise quite so high as the chimneys, but should end (by lateral openings communicating with the external air) immediately above the roof of the house. It is desirable that the lower end of the air-canal should open somewhere near the ground; but when there is any suspicion of noxious emanations from the soil, it is advisable to place its open mouth in such a position that it may be well supplied with the best air which the locality affords. There may be difficulties in applying this principle to old houses, but the expense of building a new house is very little increased by this most complete and beautiful contrivance. Where it is adopted, *the chimney never smokes*, because the fire is supplied with an abundant stream of air from without, by means of the tube opening under the grate. *There need never be a draught*, because the air does not traverse the room in any considerable quantity. *Less coal is consumed*, because heat is not wasted in first warming the air of a room and then carrying it up the chimney. Need more be said to any intelligent person, to convice him of the expediency of adopting a plan which combines comfort with economy, and both with salubrity? It is easy to perceive that by closing the lower register, and opening the upper one and one of the windows of the room, a complete renewal of the air immediately takes place. Nor does this cool the room at all to the extent that might be supposed, as we must never forget that it is the room which heats the air, and not the air which heats the room. Heat being only generated, or made available, when the rays come in contact with the walls of the room or other solid objects which absorb them, and subsequently give them out again to the atmosphere. In the rude buildings of uncivilized peoples, numerous crevices supply the place of ventilators, and the latter therefore are not so much needed; but the more perfect is the joiner's work of a house, the more indispensable is it to provide *special* inlets or outlets for ventilation. The abolition of old-fashioned chimneys, which formed such admirable ventilators, does not seem to have been followed by the introduction of a substitute, so that we have not gained by the change, unless we adopt some artificial remedy, such as that recommended by Count Rumford, and to which the paper of Dr. Haughton has again directed public attention. The main idea which pervades the above paper is simply this: That heat is the means by which currents are produced in the atmosphere most readily and efficiently, and that rooms which are maintained at a proper temperature only need inlets and outlets in *suitable situations* in order to be self-ventilating. That by means of register-slides to these apertures, the ventilation of a room and its temperature may be regulated with the greatest nicety. The occurrence of bush-fires in Australia has recently afforded a melancholy illustration of the effect of heat in producing atmospheric movements. Hot winds having blown with great violence almost immediately after the fire had commenced.

GLASS AS A MATERIAL FOR WINDOW-SASHES.

As yet this patent invention has been practically applied but to a very limited extent in Ireland, there being but *one* establishment in Belfast, *one* in Waterford, and *one* in Cork, in which it has been adopted; and the Dublin architects and builders seem to regard the invention with special disfavor, and reject it *in toto*.

The crystal sash-bars, such as we have recently seen in the English metropolis—where every invention worthy of appreciation is eagerly sought after—have a brightness, cleanliness, and lightness, which at once catch the eye of a passer-by, and contribute (where judiciously applied) a pleasing and novel effect. But in the application the difficulty consists, for with them the entire design should harmonize, and a corresponding lightness be given, both in construction and painting, to surrounding features, such as showboard, storyposts, &c. They require little manual labour to keep them clean, are not liable to rust, and, though composed of a brittle material, are in reality not so, as may generally be supposed, but maintain their position permanently, being unaffected by atmospheric influence, externally, and strengthened internally by stout metal tubing, which may either be highly polished, silvered, or gilt, as desired. We should at least recommend them to the consideration of our local architects, and as they are obtainable at prices varying from *seven* shillings to *twenty* shillings per foot, they are worth a trial, and, when once introduced, we doubt not will be extensively adopted.

NEW BANK LOCK, WITHOUT ANY KEY OR KEYHOLE.

This is a bank lock, which absolutely defies the skill of Hobbs. It works in this wise. Around the door knob of the Bank is a small brass index; on which are numbers from 1 to 100. You lock the door and then set the index to any number you please (say 27), by turning to the right. You then set it to a second number (say 95), by turning it to the left, and then a third number by turning it to the right again. You then give it a twirl, and go off and leave it. In the middle of the night, up comes a burglar with his dark lantern and skeleton keys. He examines the lock—no use for skeleton keys, for there is no key-hole to put them in. No use for gunpowder, for there is no place to pour it. There is a round brass knob with figures round it, that is all.—Clearly, his only way to get in, is to turn the knob to the right number. He begins to try, he turns it to every number on the index, from 100 to 1—still no go. When he reaches the right number, there is no click or other intimation that he *has* reached it, and he is likely to go past it as to stop—granting even that he accidentally hits on the first number, he must lose it in trying to find the second and third; he has to find the right three numbers, and find them in the same order that you set them and keep each when found—in other words, he must find the right one, out of over a million combinations of figures! If the night was as long as Mathuselah's life, the morning would find him at his unavailing work. At 9 o'clock you come along, turn the handle to the right numbers in succession, open the bank with perfect ease, and attend to business. It is no use to knock down the cashier on his way home at night, in order to rob him of the key—he has no key; the key, such as it is, is left in the door; all the cashier has, is the memory of certain figures in his head, where they cant be got at. Neither does its excellence depend on complex and secret mechanism, it is very simple, any body can understand it, and the more thoroughly he understands it, the more completely he comprehends the impossibility of unlocking it. One of the chief troubles of most bank locks is, that they get out of order; a cog is worn, or a spring falters and the lock won't turn, and then the bank officers are kept out as well as the burglars—but this one has no springs; it cannot falter, it must turn when the right numbers are known, and no amount of strength can turn them when they are not. It is called "Covert's Permutation Bank Lock," patented Oct. 5, 1858, which is in use by Banks in the State of New York and elswhere, where they have given *entire* satisfaction.

ROMAN BATHS.

IT is well known, that amongst the Romans, bathing formed a part of every day's occupation. It was a luxury universally indulged in by both sexes; and the buildings erected for the accommodation of the public were generally remarkable for their costliness and splendour. In the year 1824 the baths of Pompeii were excavated. They are admirably arranged, spacious, highly decorated, and superior to any thing of the kind in modern cities. They are fortunately, in good preservation, and throw considerable light on what the ancients have written upon the subject.

It was customary with the Romans to solemnize the completion of a public work by dedicating it, which consisted simply in opening the building to the people in a solemn manner, and gratifying them with largesses and the exhibition of spectacles, to which that extraordinary people were exceedingly partial. Various circumstances prove that the completion of the baths only a short while preceded the destruction of the city. They occupy a considerable space, and are divided into three separate compartments. One of these was set apart for the fireplaces and the accommodation of the servants; and the other two were each occupied by a set of baths, one of which was appropriated to the men, and the other to the women. The apartments and passages are paved with white marble in mosaic, or alternate white and black squares. The chambers are ornamented with various devices, and highly finished. Above one thousand lamps were discovered during the excavations.

There were three kinds of baths; the frigidarium, or cold baths. The frigidarium is a round chamber, encrusted with yellow stucco, with indications here and there of green. The walls are ornamented with figures modelled in stucco. The bason is twelve feet ten inches in diameter. and two feet nine inches deep, and is entirely lined with white marble. The plan for emptying and filling it was smiliar to that adopted among ourselves. This frigidarium is remarkable for its preservation and beauty.

The tepidarium was so called, because its temperature was of a mild warmth, and which prepared the bodies of the bathers for the more intense heat which they were to undergo in the vapour and hot baths, and also softened the transition from the hot bath to the external air. It is divided into a number of compartments by Telamones,[*] two feet high, carved in high relief, placed against the walls, and supporting a rich cornice. They are composed of baked clay, encrusted with the finest marble stucco. They have been originally painted of a flesh colour. with black hair and beards. The basket on their heads, and the moulding of the pedestal, were in imitation of gold. The pedestal itself, the wall behind, and the niches for the reception of the bathers' clothes, were an imitation of red porphyry. The ceiling is worked in stucco, and ornamented with figures and carvings. The window of this room is two feet six inches high by three feet wide, in the bronze frame of which were four beautiful panes of glass, fastened by small nuts and screws, so that they could be removed at pleasure. From this, it is evident that windows of glass were in use among the ancients. Glass-blowing seems to have been better understood by them than the learned seem inclined to admit of. This is proved from the quantities of bottles, vases, glasses, and other utensils which have been discovered at Pompeii. Amongst other articles found in this bath was a large and handsome bronze brasier.

The caldarium had on one side the laconicum, where was placed a vase, called labrum, for washing the hands and face. On the opposite side was the hot bath, called lavacrum. The labrum was a great round basin of white marble, into which the hot water bubbled up through a pipe in its centre, and served for the partial ablutions of those who took the vapour bath This apartment like the others is well stuccoed, and painted yellow. These details, although necessarily circumscribed, affords us some idea of the value which the Romans attached to bathing.

ASSOCIATIONS FOR THE PROMOTION OF ART.

By MR. GEORGE F. MULVANY, R.H.A.

[Read at a recent meeting of the Fine Arts and Photographic Section of the Royal Dublin Society.]

HAVING been honored by an invitation on the part of the Committee of Fine Arts to assist at the meetings of this section, I have felt much pleasure, however diffident of my power, in endeavouring to contribute something to the subject matters for reflection and discussion; for I hold that such reunions as these are eminently calculated to advance the interests of art. They bring together the artist and the amateur, the practical and theoretical lovers of pure art, in conjunction with the scientific developers of what I would call a wonderful method of fact-painting; a new and great discovery of our time, which must be inseparably linked with the future of all art. The interchange of thought between men earnest in these refined and somewhat abstract pursuits, must tend to advance the several objects of their interests, and under the new arrangements of these sectional meetings, some hard-headed logician or dry utilitarian may drop in from his own more practical division and find that there is more common sense and use in the Fine Arts "than was dreamt of in his philosophy."

I do not intend to discuss this evening any of the various phases or principles of art which would, doubtless, be legitimate subjects for consideration. I would rather seek to draw your attention to the condition of art in the country, and the important question how its interests can be promoted, and the latent genius of the country be developed.

It must be admitted that the state of art in Ireland is far from creditable to the country. It cannot be asserted that this is attributable to any deficiency of natural genius or to any want of industry and zeal on the part of artists themselves. It results mainly, if not solely, from the want of public encouragement—of that demand which has, in all ages and in all countries led to the fullest development of human ingenuity and skill. The most frequent argument raised in defence of such a state of art abeyance is, that we have not wealth enough for its adequate encouragement. The argument is unfortunately not without weight as regards individual patronage; but given its fullest weight, it is an argument, *a fortiori*, in favour of the associative principle which does so much for art in more wealthy communities. Perhaps it would be more candid to admit that taste, as a diffused social element, rather than wealth is wanting. To generate and cultivate this public taste must be the first aim of all who desire to promote art in Ireland, and it is the chief aim of all art associations. Education of artists and of the public by schools and exhibitions are the functions of some; while others seek by the purchase and dissemination of the works of living artists to reward merit and stimulate taste by facilitating the possession of good works of art.

I propose to draw your attention principally to these latter institutions; but I cannot in the interest of the associative principle, especially within these walls, omit to pay my tribute of grateful admiration to the parent association for the promotion of the fine and useful arts in these countries. The Royal Dublin Society, established for the advancement of husbandry and the useful arts, promptly recognized the value of the fine arts in connection with industry. The principle so asserted by the establishment of its schools, more than a century past, is now the recognized principle of Government Schools of Design. The Society's schools rapidly acquired an importance, not, perhaps, at first designed. Under the auspices of this Society, those wonderful achievements of ancient art—those marvellous embodiments of perfect form in almost breathing marble—the sculptured gods of classic Greece—became known in this remote island, awoke the artist's spirit to a new sense of beauty, and led rapidly to a new development of power.

Artists as they multiplied naturally sought strength in association; but beyond their influence in education and their efforts to maintain public exhibitions, I do not regard societies of artists as, strictly speaking, associations for the encouragement of art. They are producers, not patrons; they seek to cultivate art; they are valuable, rallying centres of professional union and distinction. It is their duty and their aim to raise the standard of public taste; but they are themselves dependant for existence and success upon an appreciative public. When incorporated by charter or royal sanction on the Continent, they are subsidized by the state; in these countries they are mainly dependent on the revenue from annual exhibitions. When these are prosperous, as in London and Edinburgh, the royal academies prosper and acquire influence and power of effecting public good. The Royal Academy of London is, perhaps, the wealthiest association of artists in the world. It enjoys a revenue of £6,000 or £7,000 per annum from its exhibitions; after maintaining its schools and establishment, and devoting much of its funds to charitable support of distressed artists and their families, it has amassed a large fund. The Scottish Academy has from similar sources of success derived a large income, and has made a noble use of it, by accumulating a fund for charitable relief, and the acquisition of a valuable collection of pictures, at a cost of upwards of £15,000, which is now deposited in the National Gallery of Scotland. The Royal Hibernian Academy is unhappily, as regards worldly prosperity, but too true a reflex of the want of encouragement of art in the country.

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[*] Figures of men, usually in a slightly stooping position and supporting cornices in buildings.

Other associations may be referred to, such as the British and the Royal Irish Institutions, designed to afford objects of study to the young artist, and to cultivate public taste by the exhibition from year to year of works by the ancient masters—the property of private individuals. The latter named institution had but a brief existence; but it has found, after the lapse of years, a successor in the Irish Institution, established in November, 1853, with the ultimate aim of the formation of a National Gallery. The building now in course of erection in Leinster Lawn, to which the Dargan Testimonial fund has been devoted, combined with parliamentary grants, is the best evidence of the work done by the Institution, and assures to Ireland its long-desired National Gallery.

From the period, however, when the Dublin Society established its schools, when Barry and Barrett first won distinction, and carried off their fifty-pound prizes, to the present, the history of art in Ireland, with some fluctuations, has been the same—upspringing genius—well-directed philanthropic efforts to facilitate education—honour and reward to the student—struggles, difficulties, and non-appreciation for the artist. Hence it arose that so many distinguished Irish artists have followed Barry and Barrett to swell the fame of the British school, while many, whose natural gifts and educated powers were at least equal to those of the emigrants, have remained at home—forced too often to devote talents calculated for higher development, to the mere drudgery of art.

I am far from undervaluing what has been done for the promotion of art in Ireland by the education of artists, or the cultivation of public taste; on the contrary, I honour those who have persevered through all difficulties in the good cause, and I rejoice that we may regard our educational facilities as being nearly placed on an efficient basis. But, what I wish particularly to enforce is, that in point of national economy, all those energies are without their proper return, if we do not find means to secure prosperity to the artist as well as education to the student. The developed intellect, skill, and productive power of a country, are even in an economic point of view amongst its acknowledged elements of wealth. I need not, therefore, dwell on the importance of developing a national school of art—of keeping our gifted men at home, instead of forcing them to bring their talents and wealth-producing powers elsewhere. It will be better to show how this public good can be achieved. Example is better than precept or argument, an , fortunately, an example is found in the progress of art in Scotland.

Twenty-five years ago, the state of art in Scotland was not dissimilar to its present state in Ireland. There was, perhaps, more private patronage of art, but the public interest in its progress or demand for its productions, was small indeed. The Royal Association for the promotion of Fine Arts in Scotland was established, I believe, in 1834. It was the first effort to introduce into these countries the German system of *kunst vereine*, or art-unions. It has been signally successful in its operations. In its first year the funds subscribed did not exceed £700 or £800; its average income now is about £5,000 per annum. Not only has this association evoked a Scottish school of art, to do which was its first aim by the purchase of resident Scottish artists' works, but it has expanded its operations to the purchase of works of art without reference to the country of their production.

Strong objections were raised to the system of Art Unions at the period of their introduction. It was said that they were calculated to interfere with private purchase of works of art, which, as the result of discriminating taste, and the legitimate expression of demand, was morally and economically the true encouragement to art. This objection was strongly urged by artists themselves; but experience has shown that it was not valid, and Art Unions, so far from diminishing, have considerably stimulated, and increased both private and state patronage. I cannot better illustrate the force of these early objections and the power of successful experience in dispelling illusions, than by a short quotation from a speech made by Mr. Harvey, a distinguished member of the Royal Scottish Academy, at a dinner given by the committee and members of the Edinburgh Association in 1846. Mr. Harvey said:—"When the Royal Association for the promotion of Art in Scotland was formed, rather more than twenty years ago, I at that time felt it my duty to be one of its resolute opposers, thinking it likely that the purposes of art would be better served by such works as might be produced being purchased by private parties in the usual way, rather than by funds acquired by public subscription, and the subsequent disposal of the paintings by lot. My friend, Mr. Glassford Bell, who was the great promoter of the scheme at the time, kindly said that he would meet my opposition by the purchase of my paintings, should I produce anything which the association might consider worthy of buying: and accordingly I had an offer made to me in the ordinary way for one of my works shortly after. This offer, to be consistent, I declined, and I have the painting in my possession still. Since that time, however, I have seen fit to alter my opinion on this subject. In fact, when I call to mind that in, I think either the second or third years of the Academy's existence, the entire sum received for works of art sold during the period of the annual exhibition was, if my recollection serves me rightly, only thirty-five guineas—one painting having been bought by the present Lord Justice Clerk, then Dean of Faculty, for thirty guineas, and one by some person else for five—it was evident that in this state of things something required to be done one way or another."

This candid admission on the part of Mr. Harvey, speaks volumes for the cause of such associations as we are now considering. In fact, such was the success of the Edinburgh Association, and so much was the demand and love for art increased in Scotland, that in 1842 the Glasgow Art Union was established. The success of this latter Institution, at least as to amount of funds, is unparalleled in the brief history of Art Unions. Of course the annual amount varies; but in 1856 it exceeded £20,000; and in the last report of the Council of the Scottish Academy it is stated—such was the competition between art union committees and private purchasers—that, on the opening day of the Exhibition of 1858, nearly £5,000 were expended in purchases in the gallery. A happy contrast, certainly, to the season referred to by Mr. Harvey, when the total amount of purchases was thirty-five guineas.

When the Art Union of London was established in 1837, there was no lack of purchasers, as the numerous and prosperous art exhibitions of that metropolis testified. However, beyond the enjoyment which those exhibitions afforded, the luxury, the home enjoyment of art was confined to the wealthier classes. So little were the purposes of Art Unions understood, or so coldly was their interference with private purchasers regarded, that in the first year of the London Art Union, the subscriptions only amounted to £489 6s. The great middle classes, however, soon recognised the importance of the Institution, and the total subscription for 22 years amounted to £238,932. The beneficial results of so large an expenditure, in addition to the undiminished amount of private purchase, must be obvious to every one. Some object to it as an artificial stimulus calculated to produce a superabundant mediocrity. I cannot regard it in any such light; for mediocrity in art will only be tolerated by mediocre taste, and the constant diffusion of good works of art through means of Art Unions—the increased stimulus to good local exhibitions throughout the country—the very excitement about art so caused must lead to improved taste. The works of the first-rate artists are never in the market for Art Union purchase; not because those societies do not occasionally give high prices, but because those artists are pre-engaged often for years by private individuals. Through all these means a public opinion has been created, recognizing the social value of art, and the importance of its highest development, which has stimulated the State—ever slow to move until it feels the pressure from without—to expenditure in the patronage of the higher branches of painting and sculpture, as well as to a gradually expanding system of education in art by schools and public galleries. Nor must we overlook another important fact in connection with such associations: it is not the wealth of particular localities that is represented in the large annual incomes of the London, the Edinburgh, or the Glasgow Associations. They draw their resources from all countries, and especially from our vast and increasing colonies, while it must be observed that the benefits of the expenditure is mainly confined to England and Scotland. From Ireland alone these three Art Unions in 1858 drew upwards of 1,150 guineas. The committee of the Glasgow Art Union, remark in their last report, as a reason for not being more exclusively purchasers of Scottish artists' works, "that a comparatively small amount of their subscriptions are obtained in Scotland." Surely for us these are suggestive facts.

I have drawn your attention in the first instance to these institutions in Scotland, on account of the priority of their establishment, and because there exists a greater analogy between the circumstances of this country and that, than between those of Irelan and England. I would also say that the analogy was illustrated forcibly by the brief experience we had in Ireland of a prosperous art union, A gleam of promise—our national sunburst—shed its influence on art and art institutions. The exhibitions of the Royal Hibernian Academy expanded in size, interest, and merit, and a consequent rapid improvement took place in the exhibition receipts. The energies of resident artists were awakened, and their ambition aroused. It was, unfortunately, a brief success, but it was enough to convince every thinking man, that in the associative system of encouragement lay the best hope of developing the latent talent of this country. I think too much stress is laid upon the failure of our first Art Union. It would be far better to regard the very large amount of success it achieved, as shewing what can be done by well directed energy. There may have been errors in the system, or improvidence in the management, which left the institution unprepared for the fearful ordeal through which this country had suddenly to pass; but, taught by experience, a system more calculated for permanence can be devised, and there is nothing in the present position of Ireland or its prospects to forbid the hope of rseuscitating art, and establishing a school worthy of the country and "racy of the soil."

THE DUBLIN CORPORATION—PAVING-STONES.

FROM a letter addressed to the editor of an American journal *(The Boston Pilot)* we quote the following, relative to the pavement of our city—a subject already treated of in the "DUBLIN BUILDER":—

"In Dublin we have a reformed corporation that stands eminently in need of reformation. Our streets are incumbered with gutter, and our newspapers are filled with a puddle of words.

"It is the virtue of a paving-stone (for paving stones, like politicians, have their virtues) to unite roughness with durability. This is the paramount virtue of an excellent paving-stone. This felicitous combination is conspicuous in granite, whose very name implies an aggregation of grains. Hence, among the great swarms of boulders which the mellifluous lyre of Orpheus huddled in haste together by its melodious chords, a granite boulder was (or ought to have been) proclaimed, by unanimous consent, prince of the paving-stones. It was the learned decision of Mr. Jukes, that Irish limestone paving-stones are only 'indurated mud.' Since that fatal judgment, the Irish paving-stones have been motionless, black, dejected, and cast down. But, by way of restoring their hilarity, it should be impressed upon them that Parian marble is likewise indurated rubbish, as indeed all aqueous strata must be, and Mr. Jukes was only laughing at the geologic ignorance of our excellent civic councillors, when he pronounced that fatal judgment on our Dublin *ashlers*.

"It is quite certain that Ireland is a sheet of secondary limestone, broken up by the upheaval of primitive masses, which smashed up through the limestone, and tower in mountain form here and there through our island. This is Irish geology. The mountain granite, where it is not superficial, where it is quarried from any depth, or drawn from the breast of the mountain, is an excellent stone, and our corporators should take measures to have this lasting and beautiful stone (equally adapted to paving and building) exported to foreign lands, as it used to be some time since carried to Liverpool. The best judges state that granite 'sets' or blocks, six inches in breadth, and placed on a solid basis, let us say a quarter of an inch or half an inch asunder (so as to give the hoof of the horse a grip of the stone), constitute the most durable pavement. Hugh Kelly, the builder, went to Fox Rock in last June, and got thirty tons of close-grained granite cut into paving "sets." They were delivered in Hanover-street at a cost of 15s. 6d. per ton. Kelly's paving stones are laid down in one small space on Essexquay, opposite houses 5 and 6. The remainder of that quay is paved with Welsh whinstone. The superiority of this patch of granite is apparent to every pedestrian, as well as every one who passes over it on a car. When you drive over the Welsh stone you feel as if iron were under you, but when rolling over the granite you seem to be rolling on a deal board. This is the sensation which the pavement communicates to a person on a car. Here a question presents itself, Why did they not use more of these blocks? The answer is an illustration of the condition of Ireland, and merits attention.

"Owing to English institutions, we use the harbours of England, which are bad, and the paving-stones of Wales, which are worse, while Irish harbours and Irish paving-stones remain altogether unused. The paving-stones from Pennanmauer, in Wales, of which eight thousand pounds worth were imported into Dublin during 1857 and 1858, are rough-hewn out of a kind of green whinstone. These stones smoothen and grow slippery in time, to prevent which it has been found necessary to have wide joints between the stones, and check the joints with gravel or grout, which affords foothold to the horses.

"As even in America streets must be paved, I should strongly advise American paviors to read these Irish experiences in paving. The Welsh stones, when cast on Dublin Quay, cost 11s. 6d. per ton. The cartage to the street which requires paving adds 8d. to the price; making in all 17s. 2d. per ton. The Welsh labourers get 2s. a ton for rough-hewing sets; the royalty is said to be about 6d. per ton, and the cost of supervision and cartage to the ship may be about another shilling per ton. These elements raise the price to 8s. 6d. per ton, which gives a profit of 6s. per ton to the Liverpool contractor.

"Now, the query is—Whether some American Irish contractors cannot pave American cities with Irish granite, as we patriotically pave our Irish streets with Welsh whinstone? Irish stone has been imported into Newfoundland to build a church. I do not see why it should not be imported into Boston to pave the streets. Labour is so cheap in Ireland that *calpe* or limestone blocks are delivered by the County Dublin quarrymen for 3s. per ton. These are termed *ashlers* or rough lumps of limestone which must be rough-hewed. For this rough-hewing the stone-dressers get 2s. 6d per ton. They cut two tons of such out of every five tons of ashlers. In a word, the black limestone paving-blocks of Dublin when *dressed* for use do not cost more than 7s per ton—8s. 2d. less than the Welsh whinstone. Compare this with the price of your Boston paving-stones (if you do pave), and see what you can do for us."

Correspondence.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—Having seen an article in the "DUBLIN BUILDER" for April last, giving a description of the plastering and stucco-work of the interior of the Roman Catholic Chapel, St. James's-street, I trust it may not be amiss in setting you right as to some omissions therein, especially as the work done by me is but slightly noticed. Any casual observer (leaving gentlemen in the building trade out of the question) will see the work executed in the chancel is omitted, altho' the ceiling is so peculiar in its section, being that of a flat triangle, from springing to apex 17 feet 6 inches high, that the most inexperienced person will perceive the difficulty of its execution. The great arch of chancel, with its group of mouldings, is a triumph in the art of plastering (see advertisement). When the nave was advertised, my estimate was £1,251 16s. 1d. When the side aisles were advertised, I would not tender for them. C. W. GIBLAN,

26, Gt. Brunswick-street.

COMPETITION FOR CHURCH—SS. PETER AND PAUL, CORK.

TO THE EDITOR OF THE DUBLIN BUILDER.

DEAR SIR—The following few particulars relative to this memorable competition may prove interesting to your readers:—It had been in contemplation for some time back, to rebuild this church, and Messrs. Pugin and Murray furnished designs for it, which I have seen, and very good ones they were; but for some reason a competition was determined upon, though it was intended, *from the first, that Mr. Pugin should have it.* A committee was appointed, composed of retailers of soap, candles, tea, sugar, whiskey, shoes, carvers and gilders, &c., and who admit, themselves, that they know nothing of architecture. Seven architects, *Pugin*, *Hadfield*, *Murray*, *Atkins*, *Nicholls*, *Wigley*, *Hurley*, and *J. P. Jones*, two builders, and some students of the School of Design, Cork, competed.

My design was acknowledged on all hands to be the best, but the committee made an excuse, because I coloured that I broke the rules; this my instruction did not prohibit; and I even asked the question, and was allowed to do so; I also engaged to get my design erected for the sum at their disposal; but their objection I care not now to notice, for the Rev. Canon Murphy, for whom the church is to be erected, and, indeed, who is going to do it almost at his own expense, wrote to me, stating "that there could be no doubt or question as to the superior merit of my design."

The committee, as I was a Protestant, prejudiced against me, would not consider my design; but the Rev. Canon Murphy said the drawings ought not to leave Cork, and he bought them himself at my own price. So far for my part in the matter; but, sir, other competitors have been most shamefully used. For instance, Mr. Murray's design was rejected, because, it is said, he had some difference with Mr. Pugin; and the design to which the first prize was given would be a disgrace to an ironfounder. The parapet of the tower, for instance, was similar to the cresting of the fender in my office. The whole thing was such as children make with cardboard, or what you see on china plates, or the bottom of wash-basins. Putting my own design out of the question, I will give you my impartial opinion of the rest. Murray's was the best exterior; Atkins's the best interior; Nicholls's second best; Hadfield and Goldie's third. Pugin's was a very poor design, and carelessly got up, as I suppose he was sure of it, under any circumstances. Murray's, Atkins's, and Nicholls's, were really beautiful drawings, as were also Hadfield and Goldie's. Hurley's was what you may call the engraving style, cast-iron design. The canvassing of the committee was beyond comprehension: as one of them said he was "badgered" from morning till night by one of the competitors and his friends.

I think the following would be a fair decision:—Atkins, Murray, Nicholls, Hadfield and Goldie, Pugin.

I take no notice of myself, as my design has been purchased, and I have letters by me to corroborate the above —J. P. JONES, London.

Allow me to state that I have been met in the most straightforward and honorable manner throughout by the Rev. Canon Murphy, who is not answerable for the "fancies" of an unintelligent committee.

Monuments and Memorials.

It is intended to erect a monument to the late Marquis ef Waterford, and the subject has been referred to the Earl of Howth, Lord St Laurence, and Lord Ingestre. One idea is, that of a bronze equestrian statue, which would cost about £1,500, in the demesne at Curraghmore; another, a monument in the centre of the people's park in Waterford; and a third, to imitate the example lately set in the Wellington memorial, and to build and endow an institution for the relief of jockeys or huntsmen, who are disabled by accident or overtaken by old age.

Some of the admirers of the late Sir Philip Crampton desire to perpetuate his memory by the erection of a testimonial.

The sum of £1,205 has been raised in aid of the proposed memorial to the late Augustus O'Brien Stafford, M.P. The committee have contracted for the stone and timber work at Limerick Cathedral for £800. and for the stained glass for £400, which works are now in progress. About £400 more is required to complete the designs of the architect.

Notes of New Works.

A congregational church is to be built in the town of Galway.

A new cathedral church is to be built at Loughrea, on the site of the present parish church.

Two new schools for the Christian Brothers are being erected at Enniscorthy.

The South Dublin Union workhouse additions are still for disposal to a contractor, the estimates furnished having exceeded the expected cost; and only one wing is now to be built, instead of two as intended.

Messrs. Brown, Thomas and Co., Grafton-street, have commenced another large extension of their premises, and the expenditure will be upwards of £2,000. Mr. Caldbeck, architect; Mr. Rooney, builder.

Messrs. Sheils and Scott, of Castle-street, have taken the house, No. 29, Westmoreland-street, and are making additions and alterations thereto, according to designs, &c., by Mr. Lyons, architect. Mr. William Hughes is the builder.

Mr. Madden, of College-green, is newly fronting, in bow form, his premises there, but, considering the position, a design of greater merit might have been introduced.

An important building, designed for "practising schools," is being erected by the Commissioners of National Education, at the rere of the Central Model Schools. One elevation will face Lower Gardiner-street, and another the existing buildings in Marlborough-street; thorough access from front to rere being maintained through an open and lofty groined passage, 14 feet wide, with splayd, moulded, and semicircular headed entrances placed in a two-storey central projection, which forms a chief feature. The total length of the building is 212 feet, the wings and connecting portions being only one storey in height, and the general plan of oblong form. On the ground floor at one side of archway are apartments comprising mixed school for 100 pupils, boys' schools for 80, 50, and 40 pupils respectively, cap-rooms, porches, &c.; and on the other is a principal stone staircase and girls' schoolroom similarly classified to opposite wing, cloak room, &c. The elevations will be somewhat of Byzantine character, and present noteworthy features. English red brick and Glasgow sandstone rubbed smooth, are the materials provided for the dressings of doors and windows, groins, cornices, chimney shafts, &c., &c., and hammered limestone for the general external walling. One large lecture-room occupies the second storey. The paving under archway is specified to be of "*whinstone set and laid similarly as the Corporation are now using in the streets.*" The plans for this building (as well as all others recently designed for the Commissioners of Education) were furnished by the Board of Works. Mr. John Nolan, of Meredyth-place, is the builder. Total expenditure, when completed, will be about £6,000. The Scotch stone used in this building is from the quarry of Messrs. Gray and Co., Kenmuir, Crowhill and Milltown, near Glasgow.

It is in contemplation to construct a line of railway from Downpatrick to Newry.

Messrs. Cannock, White and Co., have entered into further building contracts at their monster establishment in Henry-street. Mr. Anthony, architect; Mr. Wm. Hughes, builder.

A church and schools are to be built at Rathgar, on a road proposed to be formed, and which will be carried across the Dodder over a bridge to be constructed nearly opposite the demesne gate of the Lord Justice of Appeal.

A new Catholic Church, in the early Gothic style, from designs by J. J. M'Carthy, Esq., R.H.A., has just been roofed in at Portlaw, Co. Waterford It consists of chancel. nave and aisles, with bell-turret; the porches, sacristy and spire are yet to be built. The church is 110 feet long by 60 feet wide in the clear. The aisle walls are 14 feet, and the nave walls 34 feet high; height from floor to nave-ridge, 60 feet. The chancel is separated from the nave by a lofty arch, 42 feet high. The aisles are lit by single and double light windows, and the clerestory by 10 spherico-triangular lights. A lanceolated triplet gives light to the sanctuary; and in the western end is a window of two-light, with masonry mullion and traceried top. The roof is open, to be stained and varnished hereafter. The leaden sashes, with the necessary ventilators, are set in frames of granite, of which material all the dressings are composed. The walling is faced with dressed limestone. in horizontal and perpendicular joints, which has a very pretty effect. The work was commenced in April, 1858, and the whole shell was completely covered in in the short space of 10 months! The expenditure was about £2,500. The builder was Mr. Richard Pierce, of Wexford.

The Ecclesiastical Commissioners are about enlarging the churches of Cove, County Cork; Ballymacarrett, County Down; and Abanagh, County Sligo.

A new school-room and other works are to be built at Beggar's-bush Barracks, by the Board of Ordnance.

Another timber-wharf is to be constructed at Northwall-quay, between Commons-street and the western timber-wharf. This is the third structure of the kind recently undertaken by the Ballast Corporation, and betokens increasing commerce.

New station buildings are to be erected at Brook Lodge, and a terminus at Tuam, by the Athenry and Tuam Railway Company. Mr. Hemans is the engineer, who has furnished the drawings, &c., but, properly speaking, this is the legitimate business of an *architect*.

A new and splendid room has been added to the County Club-house, Carlow. Mr. Lynch, of Carlow, being the builder; and Messrs. Hogan and Son, of Dublin, the contractors for plastering and decorations.

The Turkish baths at Lincoln-place are being proceeded with, after plans by Mr. Barter. Mr. Meade the builder.

Reviews.

Headstones, Tombs, and Monuments. By D. A. Clarkson, Architect and Sculptor. London: Atchley and Co.

Nos. 4, 5 and 6 of this work have reached us, and our previous opinions expressed at p 44 are confirmed by further examination. In the designs for "monumental slabs," especially at plate xx., several pleasing and novel features are introduced. Again we must remark that Mr. Clarkson, in his designs for headstones and slabs, is happier than in those for the tombs, though in the latter department also much variety is to be met. *All*, however, are boldly treated, and evidence a desire on the part of the author to step out of the beaten path usually preserved by our modern monumental sculptors.

The Book of Ornamental Alphabets, Ancient and Modern. By F. De la Motte. London: E. & F. N. Spon

THE author's name of this little work has been so long and so favorably known to the artistic world, that any production of his is sure to carry a certain amount of excellence with it; and, evidently with much labour and research, he has not only reproduced from the almost defaced relics in antiquarian collections the varied and beautiful alphabetical and numerical characters of the ancients, hitherto regarded by many as unmeaning hieroglyphics, but has added a series of original and beautiful designs in various styles for complete alphabets, initials, numerals, monograms, crosses, &c. The British Museum, the Vatican, the Bodleian Library, Westminster Abbey, &c., have furnished the scrutinizing eye of the author with a variety of specimen characters from the eighth to the seventeenth century, and the styles comprise Anglo-Saxon, Embroidered, German, Gothic, Church Text, German Arabesque, metal ornamental, &c. Those would-be mediæval alphabet designers of the present day who, by way of novelty, twist and torture letters into an almost inconceivable variety of shapes. and embellish them with fantastic ornamentation, so as to puzzle the most accustomed reader as to their intended meaning, might with advantage take a few wholesome lessons from this little work in the *true and legitimate* principles of artistic design. Its worth, combined with its cheapness, must command extensive patronage. No draughtsman, painter, engraver, lithographer or carver should be without it.

Miscellaneous.

GURNEY'S PATENT STOVE.—This invention, which is being manufactured, and has been supplied by the London Warming and Ventilating Company to several public buildings in England, as also to the Royal Dublin Society, where it may be seen in working order, consists interiorly of a plain cylindrical stove, having doors for supplying fuel and withdrawing ashes, also a connecting open with a flue which may be placed either horizontally or vertically as desirable; but exteriorly it has a number of vertical projections which serve to augment the heating surface considerably, thereby rendering the action of the apparatus many fold more efficacious than ordinary stoves, of similar dimensions. It is seated in a receptacle for water, caused by the heat from within to evaporate, and give any required temperature, which, being produced by the combined action of air and water, is stated to be free from the aridness so generally objected to where apartments are heated by hot air only. A stove value £8 will effectually heat a building containing 10,000 cubic feet, but the invention is applicable to suit any greater dimensions, and the cost is proportionately calculated. Mr. Bunning, the city (London) architect, and well known as an *authority*, has testified to its efficiency. Mr. John Maguire, of Dawson-street, ironmonger, is the agent.

ANOTHER IMPROVEMENT IN NAVIGATION.—A gentleman of Boston, who is a practical machinist, is constructing a steamer upon a novel plan, by which he proposes to attain a speed of thirty or forty miles the hour. He has made experiments with a model on a small scale, which were very successful, and he is now building one sixty feet in length, to further test the practicability and value of the invention. He relies on both air and water to obtain his propelling force; with machinery in the stern of the vessel, upon the propelling principle, to obtain a speed of twelve miles an hour, which, he says, is the highest rate that can be realized from that agency. In the bow of the vessel, and worked by the same engines, he places an apparatus something like the wings of a wind-mill, which is to make 560 revolutions a minute, and by its action upon the atmosphere, will pull the vessel along, he calculates, at a speed much greater than has heretofore been attained.

ARCHITECTURAL ARTISTS IN LONDON.—Unlike Dublin, there is a distinct class of gentlemen connected with the architectural profession in the great metropolis, who are generally know as "Architectural Artists," and whose particular province in the preparation of finished drawings is their embellishment, whether in plain sepia or Indian ink tints, (whereby some very beautiful effects are produced by a skilful hand), or in a variety of colours, with skies, foregrounds, &c; after the outline has been furnished by the draughtsman. Many of these gentlemen are draughtsmen likewise, and prepare geometrical and perspective drawings, untouched by colour, and frequently etched to imitate line engravings, with marvellous accuracy; recently we had an opportunity of visiting the studios, as also of inspecting at the Architectural Association, the works of some of these artists and were highly pleased at the exquisite and effective finish produced, and the perfect development of features. Without invidiousness to *any*—for we desire to do equal justice to all—we should particularize some recent competition *prize* drawings, prepared by Mr. Connop, 188, Strand; a gentleman perhaps second to none in his peculiar branch. Architects in Ireland embarking in important competitions—and pictures sometimes do contribute to success—can with great facility in this railway age, and under arrangements conditional with the result—have their designs effectively finished on short notice. Possibly we should mention that foremost in the list of architectural artists, are to be found many of *our* countrymen, so that we may not incur censure for counselling a preference to strangers and rejection of *our own* equally competent.

THE ST. HELEN'S GLASS WORKS.—Messrs. Pilkington, the proprietors, are the largest manufacturers of crown, sheet, patent plate, rolled plate and coloured glass in the world.

Of rolled plate glass, they manufacture weekly 15,000 superficial feet, or 20 tons; annually 78,000 superficial feet, 1044 tons; of shades and miscellaneous articles 3500 superficial feet, or five tons per week; 182,000 feet, or 244 tons annually; weekly summary 252,000 feet, 150 tons; annual summary 31,104,000 feet, 8106 tons. Of crown glass 148,800 feet, or 72 tons weekly; 7,737,602 feet, or 8742 tons annually; employing 1350 hands at the weekly wages of £1050, or £56,600 per annum; the weekly consumption of coal being 1700 tons. Of sheet glass the annual manufacture was 4,596,400 feet, or 3071 tons. The whole of the glass works employ 4077 hands, use 3710 tons of coal weekly, or 192,920 annually, and pay in wages £3099 weekly, or £161,148 annually. In 1853, Messrs. Pilkington alone manufactured 6813 tons of sheet and crown glass, upon which the duty would have been £600,000.

Sir Charles Barry is named the architect of the new Palace of Art in Piccadilly, to be built for the Royal Academy.

THE NEW PATENT BALANCE ROLLING BRIDGE.—We are requested to mention that the inventor and patentee of this new bridge (as noticed at p. 41) is Mr. Michael Kenny, foreman to Mr. Wm. Turner. Messrs. Turner and Gibson, are the proprietors and manufacturers, and have obtained an order from the Board of Works to fix one at the south George's dock, near the Custom-house.

INSCRIPTION ON HOLY CROSS BRIDGE.—Over the following inscription, on the dexter side of this bridge, are carved the Dunboyne arms and crest; and on the sinister side, on a separate shield, quarterly, first and second three lions passant gardant in pale, second and fourth a pheon—crest, a hand and dagger, for O'Brien. This Margaret was daughter of Donough, second Earl of Thomond, and was the second wife of James, Lord Dunboyne. Burke ("Peerage") says that the latter died in 1624; if so, his wife erected this tablet.

IACOBVS · BVTLER · BARO · DE · DVNBOYNE · ET
D · MARGARETA · BRIEN · EIVS · VXOR · HVNC
PONTEM · COLLAPSVM · EREXERVNT · ET · SVIS
INSIGNIBVS · ADORNARVNT · ANNO · DMINI · 1626
DIC · PRECOR · ANTE · ABITVM · VERBO · NO · AMPLIVS
VNO : EVADAT · STIGIOS · AVCTOR · VTERQV' LACVS.

DESTRUCTIVE EFFECTS OF RED LEAD UPON IRON.—Mr. Nathan Mercer, F.C.S., after inspecting the iron ship, *William Fairbairn*, the plates of which were coated with red lead prior to her late voyage to Calcutta, observed that the extent to which the iron had been corroded could not fail to attract the attention of the most superficial observer. On a close inspection, he found the red lead coating covered with blisters, from each of which, on being opened, a clear fluid escaped, and left exposed on the surface of the iron a number of brilliantly shining crystals of metallic lead. Mr. Mercer says each blister is, in fact, a galvanic battery in minature, and that, as wherever there is electrical there must also be chemical action, the corrosion is easily accounted for. This action, he says, will continue as long as any red lead remains, and is necessarily at the expense of the iron. He also points out that the "sweat," so well known to every person interested in iron ships, is not, as is generally supposed, salt water, but a solution of chloride of iron manufactured in the blisters. Mr. Mercer considers this sweating is due, in a great degree, to the use of red lead paint in immediate contact with iron; and he recommends, therefore, that it should never be used as a coating for sea-going vessels, unless special precautions are taken to prevent its coming into direct contact with the iron.—*Liverpool Albion.*

IMPROVEMENTS IN THE CONSTRUCTION OF FLOORS, ROOFS, AND ARCHES.—*J. Bunnett*—Dated June 8th, 1858.—Earthenware or dry clay blocks are used with tie-rods and wall-plates, so that the thrust is brought in each case to act on the tie-rods and wall-plates, the several blocks being so formed as to over and underlap each other. The wall-plates are made of angle iron, and are tied together by tie-rods at intervals. The tie-rods should pass through the blocks, such blocks being made hollow with that view, as well as to obtain lightness. The two sides of each block are each composed of two parallel inclines, each about half the depth of the block, connected by a horizontal, or nearly horizontal plane, and the two inclines on the one side are parallel with those on the opposite side.

A NEW RAILROAD CONTRIVANCE.—The Connecticut River R. R. Company are making experiments with a passenger car, whose propelling power is a small steam engine, stationed in the forward end. The car will seat forty passengers, and the apartments allotted to their use is entirely separate from the engine room, and perfectly free from any annoyance therefrom. It is intended as a desirable and economical arrangement for short distances.

THE GREAT EASTERN.—About five-hundred workmen of various departments are now employed on board this noble vessel, and as the necessary funds are now available, it is confidently anticipated that she will be completed by August next.

THE VICTORIA BRIDGE, MONTREAL.—This great work has been pushed forward so energetically, that the bridge will probably be opened for traffic in October, 1859, instead of January 1, 1860, in accordance with the contract terms. The past season 3,281 men were employed in its construction, including 450 men employed at the Canada Works, Birkenhead, in making the tubes. Five steamers, 63 barges, 21 scows, and 27 ferry and row-boats, 143 horses, 3 locomotives, 17 pumping, hoisting, and stationary engines, 2 rivet-making machines, and 2 riveting machines. were employed on the work. The total length of the bridge over the St. Lawrence is two miles, less 150 feet.

A new Academy of Music is about to be erected at Brooklyn, the contemplated cost being 150,000 dollars; and the Cincinnati Opera House, in course of erection, will occasion, before it is finished, an outlay of, according to the *New York Herald*, not less than half a million dollars.

The monument to Commodore Perry is to be of fine white marble, the pedestal to be eighteen feet high, and the statue of the hero seven feet, making a total of twenty-five feet. Its expense will be 6,000 dollars, to be paid by the city, private subscriptions of citizens, and by the proceeds of the sale of a large lithograph, printed in colours, just received from the establishment of Sarony, Major & Knopp, New York.

A fountain, to be called the "Calder Fountain," intended for a memorial of the late Captain Calder, has been erected in Queen-square, Belfast, from the designs of Mr. Smith, Engineer to the Harbour Commissioners. It will contain a drinking fountain for the use of bipeds, and a trough for the use of quadrupeds The expense of the latter will be defrayed by the Harbour Commissioners, and the Water Commissioners will supply water for both gratuitously.

The house in which Corneille was born in the Rue de la Pie, in Paris, has been recently taken down for the purpose of carrying the street in a straight line. On a spare piece of ground, a little in rere of the spot on which the house stood, a small building has been erected, with a tablet in front, indicating that it was formerly the site of the house in which both the Corneilles (Pierre and Thomas) were born.

The Cork Gas Consumers' Company have purchased the works and interest of the United General Gas Company for £26,000.

NOTICE.

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TENDERS

For rebuilding St. Patrick's-bridge, Cork. Sir John Benson, engineer:—

Joyce, Queenstown	£18,250	0	0 !
Edwards, ditto	17,780	0	0
Moore, Cork	16,350	0	0
Hargrave, ditto	14,450	0	0
Ewright, Dublin (accepted)	11,640	0	0 !

To Correspondents.

R. P. (Through some mistake your name was omitted from subscription list); W. T. M. jun., Belfast (We are willing to abide by the agreement made; we shall answer your note in other respects, either personaly or by letter, probably before this reaches you); Subscriber, Longford (We have received several such complaints, and can only attribute the cause to Post-office irregularities, as we know your paper was duly posted); T. and Co., London (Far under a remunerative mark, but nevertheless willing to give a trial, certain of obtaining appreciation and better terms hereafter;) E. A. M. (Too late for this No.—available for June—biography would be inserted.)

ENLARGEMENT OF

"THE DUBLIN BUILDER,"

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Shall receive immediate attention.

The Dublin Builder.

VOL. I.—No. 6.

BUILDERS' ESTIMATES—BILLS OF QUANTITIES.

IT is a matter of much importance to architects, their clients, and builders, that every reasonable facility should be afforded for the preparation of estimates in competition. We are often startled (and how much more so must the public be?) by the widely different amounts of tenders for works of apparently the most simple and straightforward character; which to the non-professional must proclaim some builders look forward to an enormous margin of profit, while others must be *de facto* totally ignorant of one of the most essential qualifications of their avocation, namely, the means of calculating the different quantities in detail of their estimates. Either or both may be true to some extent; probably some builders who may be called upon for tenders have at the time a reasonable amount of work in hands, and are therefore not anxious to incur the expense of paying a surveyor or infringing upon the already fully occupied time of their clerks in taking out quantities on a remote chance of success; they, therefore, by the short process of cubing the dimensions, arrive at an amount which is certain to cover all possible contingencies; while others—and there are some, we regret to say—are so utterly heedless of consequences that if they do trouble themselves with quantities at all, are sure to do so by a process known only to themselves, substituting guess work for all established rules, and setting down gross sums in minimum for the different headings of items which should be entered upon in the fullest details. Both of these are highly injurious, and subversive of all confidence in builders' prices, and consequently the builder who has laboriously devoted himself to, or expended his money upon, ascertaining the quantities, and has priced each item at the most reasonable percentage, is looked upon, if not with distrust, at least with suspicion.

There are other instances where enormous differences arise in tenders, which may be attributed to the prospect of obtaining extra works, sending forward a proposal twenty per cent. under cost price, at the same time fully aware of the chances of we will not say of victimizing, but charging at a high rate the proprietor on additional works, which the far-seeing contractor knows must follow, or through the more objectionable means of obtaining loopholes in the architect's specification; these latter instances, we rejoice to say, are "few and far between."

Again, we can trace these differences occurring from inexperience on the part of young building practitioners, and again in a few instances from want of proper description in architects' specifications, some of which from their very verboseness are ambiguous, and others which merely state, in describing the most important portions of their works, that "they are to be done in a proper and workmanlike manner," without even a hint at the minutiæ of detail.

We have had specifications placed in our hands, where lead (always an important item) is described as "to be laid with sufficient drips;" and where gutters are of considerable length to their outfall, this can hardly be deemed data for the intending contractor. Copper we have met with as "to be laid with proper laps and standing combs," and slating "with sufficient cover." We have sometimes, too, although rarely, met specifications which conclude with the ultimatum, "the works to be finished and completed in every respect and with every necessary, whether mentioned in this specification or not"! Now it is quite clear that each and all of these can be interpreted differently by different builders, and so cause very considerable variation in the amount of tenders.

As an efficient remedy for this state of things, we would recommend (what has already been suggested by those who feel most interested) the adoption, in all cases of competition, of bills of quantities prepared by experienced surveyors, accompanied by clear and detailed description of the works to be executed; every builder applied to for a tender being furnished with a copy, and the charges defrayed either by the proprietor or the successful competitor, as may be previously understood, although, in our mind the proprietor, who is seeking information and reducing the cost of his outlay, should not allow it to interfere with the builders' profits. To some extent this practice has been adopted in England, and, generally speaking, with good result, as architects can in all cases discriminate, and advise their clients accordingly, as to who is and who is not the bona fide contractor.

In order to render the supplying of bills of quantities properly effective, and to remove entirely the idea of favor beyond the reach of question, which possibly never exists except in the imagination of the unsuccessful competitor, the quantities themselves, as well as the description of works, should be delivered, printed, to each intending contractor; the several amounts of tenders can then only vary in the pricing, which can hardly extend to their present range.

While upon this subject, we would merely allude, *en passant*, to the new regulations which are in process of issue from the War Department. We are glad to see a change made in those days of improvement which will enable all builders who are fairly inclined, to become contractors for ordnance works. Personal security is not required, and that security which should alone be demanded in building contracts, namely, a sufficient per centage from instalments upon all works executed, will in future be the rule. In our next Number we shall be enabled to lay the matter more fully before our readers.

PAPER WATER PIPES.—Water pipes have been made of almost every conceivable material—wood, metals, gutta percha, india rubber, stone ware, glass, &c., but paper pipes are novelties. The new pipes, a Parisian invention, are made of paper dressed with bitumen; they are capable of resisting a pressure of fifteen atmospheres, and made to bear much more by increasing the thickness of their walls. They are, of course, very light, very homogenous, inoxidable, perfectly wholesome, and remarkably cheap. The bitumen is mixed with a certain quantity of chalk, not given, and is heated in a boiler to melting; a roller of paper is then made to pass through the liquid bitumen, and immediately afterwards it is rolled upon an iron mandrill of the size desired for the interior of the pipe, to the thickness required. When this is done, the mandrill is placed in another cauldron, which contains pure bitumen, and afterwards rolled upon a flat stone sprinkled with fire; the mandrill is then drawn out, and the inner surface of the pipe dressed with pure bitumen. These pipes are four times cheaper and five times lighter than cast iron. Joints are made with perfect ease, and altogether this novelty promises to be useful.—*Scientific American.*

ON THE ANCIENT ARCHITECTURE OF IRELAND.

THOSE specimens of Gothic or pointed architecture, of which Ireland possesses any remains, have, with very few exceptions, been derived from England; and from various causes, the best works of that kind which we do possess, are greatly inferior to the ecclesiastical architecture of the latter country. Their history, too, in many instances must necessarily be obscure and uncertain. All the monastic archives and annals in these countries suffered great, too often, wanton spoliations. Besides these difficulties, it does not appear to have been the fashion of those remote times to have recorded much information connected with the foundation of those buildings, so that a chasm occurs in their history which conjecture will very imperfectly supply. As to the architects and builders actually employed in these erections, nothing certain is known.

From a recapitulation of what has been already advanced, it will appear that at the termination of the Roman empire in Britain, France, Germany, Italy, and even in the East, the Roman buildings were imitated by the natives of those respective countries, or by the rulers, whose sway over them succeeded the Roman government. This imitation produced a general similarity of style in their architecture, between nations very remote from each other. Every copyist varied a little from his model, and the imitations differed greatly from each other; but some general principles indicative of their source pervaded the entire, and might be traced through them all. In Britain these imitations were called Saxon; in France, Norman; in Italy, Lombardic or Gothic; and in Greece, Constantinople, and the eastern provinces, Byzantine.

With respect to Ireland, as she had never suffered under the tyranny and degradation of Roman subjugation, neither did she in those early times reap any of the advantages which the refinement of Roman arts and manners had diffused, more or less, among the other nations. Her architecture, therefore, until her conversion to Christianity was, if I may use the expression, in a state of nature, being little, if anything improved by the casual intercourse of the Irish people with that once powerful and, at least comparatively, civilized empire.

If such be her state in the nineteenth century, why may we not, without much stretch of fancy, suppose a similar state of inequality of condition upwards of a thousand years ago? This supposition would at least solve the paradox which has puzzled many of our speculative philosophers, who cannot believe, and therefore treat as fabulous, those glowing pictures of ancient Irish splendour which Irish writers blend up with the simple manners of those early ages.

But to return from this digression. When new colonies introduced improved manners and new arts, domestic buildings would naturally improve; but their progress must necessarily have been slow and almost imperceptible. Until the introduction of Christianity, the national religion did not require any covered or enclosed building in which to celebrate their solemn rites. But when Druidism became exploded by the conversion of the people, the new proselytes would of course endeavour to imitate the churches which their instructors described as existing in other Christian countries. We may go beyond hypothesis in this matter, for the fact is, we know that the first care of those pious apostles was to build churches either of wood or of stone for their new disciples. These were evidently, at first, very rude and homely structures, as we may perceive by the remains of many which carry with them, even to the present times, innate evidence of great antiquity.

It is not easy to determine which of those structures that have descended to our time is the oldest, nor is it necessary to do so in our present inquiry. Most of them are peculiarly rude and unfinished, as far as neatness of workmanship comes under such a definition; but of a soundness of material and cement, where cement has been used, that may defy, in point of durability, the best specimens of building at the present day.

Coeval with these structures, or according to General Vallancy, much more ancient, are the *Turres Ecclesiasticæ*, or round towers. It is not the present purpose to speculate on the use of these lofty buildings, but we will assume that they were erected merely as steeples to the churches to which they were attached. If this supposition be correct, their erection must have been posterior to the erection of belfries or campanies, which Dr. Ledwich and some other writers limit to the eighth or ninth century. Whether in this statement they are right or wrong I will not pretend to say. Perhaps if these towers be more ancient, we must adopt the theory that they were, previous to that invention, used as minarets are at present among the Musselmen. I can hardly bring myself to think with General Vallancy, that they were Persaic structures, dedicated to the fire worship of the sun. For my own part I see no reason to doubt of their being Christian edifices, built immediately after the introduction of Christianity. Bells were invented, or rather in use, so early as the fifth century; and I imagine no good cause can be shewn, why a belfry should not be an equally ancient appendage to the church. If, however, we adopt the General's hypothesis, we need set no narrow bounds to our imagination; for in that case, we may date their origin as early as we please. Some writers imagine that they were penitentiary towers, the habitation of certain recluses called "Inclusi, or Cellant," erected in imitation of the pillar of St. Simon, the Stylite, as he is called, of Syria. It was a favourite opinion of those who advocate his theory, that the penitent, as he grew in grace and sanctification, ascended higher in his tower, storey by storey, till he reached the summit, in order to hold a closer intercourse with the skies. Others assert that the penitent at first took his station at the top, and descended by degrees as his sins were remitted, till, on reaching the door, he obtained complete absolution, and was received into the body of the church by the officiating priest. The learned Harris and Dean Richardson were of this opinion; and Dr. Milner, adopting it on their authority, says—"it is impossible to show what other purpose they were calculated for, and that it is equally impossible to discover the vestiges of any other *Clusoriæ* in the neighbourhood of the great churches."

From this theory, though upheld by such learned antiquarians, I must venture to dissent. Dr Milner seems to forget the existence of such "*Clusoriæ*" as the stone-roofed cells at Killaloe, Kells, and elsewhere, which were as obviously suited to the purpose as the towers; besides, cheaply as labour in those days could be procured, one of these towers would cost too much to the monastery, or the district, or whatever other community, civil or religious, might be then in being, to be thus devoted for the exclusive salvation of an individual, to the prejudice of many hundred pious souls, equally ardent in their aspirations, after such superior sanctity and mortification. It is equally unlikely, that the insulated individual who had made a vow of poverty, could, from his own resources, or by his own exertions, erect such a pile for his own use.

The ascetic life held forth, or was supposed to hold forth, too many advantages to the numbers who embraced it, to permit the dispension of those benefits to be limited to so few, as all the Irish towers together could accommodate I can see no way of getting over the difficulty, except by supposing, that the virtue of the Anchorite's prayers and austerities was communicable to those who acquired an interest therein, by contributing to his support; and who, in this way, were enabled to enjoy the merit of these austerities, which, it may be said, they thus performed by proxy. In this view, no sacrifice of expense would be too great in return for such advantages. It is, however, very possible, that the fanatic zeal which suggested such voluntary mortifications, would also occasionally suggest these towers, if previously in existence, as very convenient retreats wherein to perform them; and to the solitary recluse, the steeple tower would afford as comfortable a retirement as the cloistered cell. But whatever might be the uses of those towers, or for whatever purpose erected, in their masonry, which is, at present, our principal object, they rival the best specimens of church building in their vicinities, though many of those churches appear of a different, and frequently of a more recent kind of workmanship. Their rotund figure has not only tended to their durability, but proves incontestably that the art of masonry had then attained a considerable share of perfection. To build to such an immense height, with rude stones—to give these towers the circular and taper form, which most of them present, and to have their durability so well ascertained, as it has been to us, devolves a degree of skill, and a perfection of art, for which, supposing churches and round towers the only stone buildings then in use, we can hardly account. The practice those masons would require to become expert at their business must, in my estimation have been much more extensive. It may also be fairly questioned, whether the best builders of the present day could erect a tower of similar dimensions and materials, which would last half their term.

The best opinion we can adopt as to their dates, is to suppose them the work of different ages; and, accordingly, simple as was their form, we find various fashions prevail in their construction, and often a greater difference in the material of which they were built. In many of them the doors and windows are quite square, without the least approach to the arched form; in others, the doors are circularly arched and some of them assume the form of the Gothic pointed arch; so that without any abuse of the term, the round towers may be classed among our earliest Gothic structures.

From all these circumstances an attentive observer will perceive the gradual progress of the Gothic style of architecture, in its amalgamation with the original architecture of the country. Through this union, it was certainly at times debased by the mixture of the ruder alloy of the native architecture; and by this means operating with other causes, the Gothic style was prevented from attaining that perfection of which it was susceptible, and which it did attain in England and other countries, more wealthy, or more happily situated than our own.—*Thomas Bell.*

It is said that a valuable freestone quarry has been discovered in Killough, on the property of Lord Bangor. Lord Bangor has set a number of men to work it, and it is confidently expected that it will afford work for a considerable number of hands.

MODEL DWELLINGS FOR WORKING MEN.

THE operations of the Society for Improving the Dwellings of the Poor in London, will be best understood by a description of one of their model dwelling-houses for families—namely, that situate in Streatham-street.

A large building, four storeys in height, has been erected. It forms three sides of a square. The upper storeys are reached by open galleries carried along one side the square. In this way all internal staircases save the one by which the galleries are approached, are avoided. The separate dwellings consist of a dwelling-room and two bed-rooms. Each opens by its own private outer door on one of the corridors of the galleries. Suppose we visit one of these dwellings on the first floor, for example. This is covered over head, but open and protected by iron railings, towards the interior of the square. We find a neat outer door with its knocker, and probably the name of the tenant on a brass plate. Knocking, we are admitted into a suite of rooms having all the privacy of a single house or cottage. The outer door does not open abruptly on the dwelling-room—we pass through a little passage, which leads to the door of the principal room. We find it well-lighted, airy, and wholesome; provided with a capital range, with a boiler. In addition, there are two comfortable bed-rooms, one with a fire-place in case of illness. Now we come to some matters of detail, common-place, and vulgar enough, perhaps, but upon which, not only the health, but even the moral purity of the inhabitants may depend. We find an excellent scullery, which communicates with a shoot connected with the basement of the dwelling, and also a means of exit for the dust and refuse, which are immediately carried far away from the dwelling, and the trap being shut down excludes any effluvia which might arise from the distant dust heap. There is also a water-closet well supplied with water. Nor does this enumeration exhaust all the conveniences. We find a closet opening into the living-room, in which a bed may be turned up by day, if the exigencies of the family should require the conversion of the dwelling-room into a bed-room by night. There is also a well-ventilated meat safe. Indeed, no set of chambers could be well devised more conducive to health and comfort. All these advantages may be secured for the small weekly rent of from 2s. to 7s., the majority being at 5s and 6s.—very little more than the poor man must pay in some parts of London for a single room, with no water laid on, save in the bottom of the house, no privacy in things most essential for moral purity. We have, however, not yet exhausted the advantages of our model building There is a well-ordered wash-house in the basement of the buildings By paying to the superintendent of the dwellings threepence, the thrifty housewife who would keep her husband's dwelling free from the annoyance of soapsuds, can secure an unlimited supply of hot and cold water, and all the necessary appliances for washing for three hours. Should her work take her longer, she can procure an additional ticket at the rate of three-halfpence per hour. The spacious area of the interior of the square, formed by the buildings, afford an excellent drying ground, as well as the place where the children may play, secure from the contamination of the streets. When we visited these buildings lately we found them all let, save one or two on the basement or underground floor; which, though clean and comfortable, not being so eligible as those above ground, are let at a cheaper rate. For the best dwellings there are several applicants on the books in case of a vacancy occurring. These applicants, many of them, had produced to the superintendent as a satisfactory testimonial of character the rent-books of their present residence to show their regularity as to paying their rent. We found ourselves welcomed by many of the inmates, who cheerfully, and with honest pride showed us how comfortable they were. One woman made an observation, which called our attention most forcibly to the great peculiarity of the building All the ceilings are vaulted over and rendered fire-proof. She declared that she should be afraid to move into any other building not so constructed, for fear of being burnt out of her home by her neighbours. The collection of so many as fifty-four families in one building affords the society the means of giving their tenants another advantage. A respectable coal-merchant finds that he can profitably supply the inmates with coals at the market price. Those who choose to avail themselves of this, can pay for their coals along with their rent, and thus obtain a considerable boon, with no loss of independence

The cost of this building was £7,370. The rendering it fire-proof, as well as preventing the communication of sound or the percolation of water through the floors by tile arches, hardly exceeded £50 more than the ordinary combustible floors and roof would have cost. The building is erected on ground belonging to the estate of the Duke of Bedford, let for a lease of 99 years, at an annual ground rent of £50. This his grace generously returns as a subscription to the society. We now come to a most important question in a pecuniary point of view. Is the building a loss to the society, or does it pay its own expenses? After deducting all charges for ground rent, repairs, bad debts, agent or superintendent for collecting the rents, &c., we are assured that this model building returns a profit of nearly 4½ per cent. on the outlay. Here, therefore, we have a model dwelling, affording a healthy, wholesome home, in a crowded and valuable portion of the metropolis, to fifty-four families, without in the least compromising their feelings of independence, or rendering them in any degree recipients of charity. It may be said that this percentage is too small for private landlords, who generally look for their 8 or 10 per cent. To this we reply that it is far better than most railway returns. We cannot help thinking that the day will come when parishes, instead of trying to thrust the poor man out of their boundaries, will learn that it would be sounder wisdom to follow the example of the "Society for Improving the Dwellings of the Poor," and erect their own model dwelling-house on similar principles. It would not be difficult to show that the increased healthiness, as well as moral improvement, thus introduced among a few hundred families, would soon make a greater return than 10 or 12 per cent. in diminished poor or death rates.—*Morning Chronicle.*

PARLIAMENTARY TRAINS.

THE Railway Cheap Trains Act received the royal assent in its amended shape. In our number of 15th May last, we gave a report of the case of "Rice *v.* Dublin and Wicklow Railway Company," in which it was decided by the Court of Common Pleas in Dublin, that the company was not entitled to charge parliamentary passengers for fractions of a mile over a complete mile. The company had charged 2½d. for 2¾ miles. The case was governed by the following words in section 6 of 7th and 8th Vict., c. 85:—"The fare or charge for each third-class passenger by such train, shall not exceed one penny for each mile travelled." The act says nothing specially as to fractions of a mile. In the case of the North British Railway, a court in Scotland decided that the company were entitled to charge a penny for a fraction of a mile travelled by parliamentary train, the company having charged 7d. for 6¾ miles. This decision was overruled by the Board of Trade (though they have no jurisdiction in the matter, the fares being expressly excepted by sec. 8 of 7th and 8th Vic., cap. 85, from their powers) the law officers of the crown for England and Scotland having given an opinion to the effect, that the company was only entitled to charge proportionate fractions of pence for fractions of miles.

The Irish Court of Common Pleas decided in the recent case against the Wicklow Company, that they were not entitled to charge such fractions at all; and it follows that they were to carry passengers for portions of miles for nothing. Three different and conflicting interpretations have, therefore, been given to the provision above quoted. On the case being brought before the Board of Trade, Mr. Henley introduced a bill to settle the absurdity arising out of this "beautiful uncertainty of the law." If the company were not entitled to charge for portions of a mile in addition to whole miles, it follows that if the same construction of the same words were applicable, they could not charge for such portions where the distance travelled was under one mile. The Wicklow company have several such cases on their lines (like others running in suburban districts) where the distance between stations is under one mile. Parliamentary passengers of adult age would, therefore, be entitled to a railway journey from one station to another and back again, daily, and in any number, for nothing; and the act says, children are to be carried for half the fare for adults!

Mr. Henley's bill, however, would hardly have made matters better. It would have provided that, "when the distance travelled is a portion of a mile, and does not amount to one mile, or when such distance amounts to one mile, or two or more miles, and a portion of another mile, the fare or charge for such portion of a mile, if the same exceeds one-half mile, may be one halfpenny." What in cases where the whole distance between stations (and there are several such cases on the lines of the company against whom the above decision was pronounced) does not exceed half a mile? The bill, however, upon further representation before it left the House of Commons, was amended as it now stands in the act, which provides, that when the distance travelled by a parliamentary passenger "is a portion of a mile, and does not amount to one mile, the fare for such portion of a mile may be one penny; or when such distance amounts to one mile, or two or more miles, and a portion of another mile, the fare or charge for such portion of a mile, if the same amounts to or exceeds one half mile, may be one halfpenny;" and half for children. The act has also a retrospective clause protecting companies from actions where their parliamentary charges have not exceeded one farthing for each quarter of a mile travelled. The effect is, that the minimum charge for a railway journey is a penny for an adult, and a halfpenny for a child—not a very exorbitant charge for buying land, making the railway, providing engine, covered carriage, plant, and staff; and half this for half miles, where the journey extends half a mile beyond the whole mile or miles. For this satisfactory result of the decision against the Wicklow Company, much credit is due to Mr. Moore, the Secretary of that company, whose lines are peculiarly affected by it, and for the manner in which he has brought the case before the Board of Trade; and Mr. Henley's readiness to remedy an injustice in this instance, when pointed out, speaks well for the fairness with which he is disposed to deal with any real grievance. It has been estimated that "20, 30, or even 50 per cent. of the low penny-a-mile fares" are concerned in the question, it having been the general practice in England, as well as the other parts of the United Kingdom, to charge the halfpenny for half miles or more; and this is now legalized, with the addition that no adult fare is to be under one penny, though the distance may be less than a mile, or than half a mile.—*Herapath's Railway Journal.*

HOW GREAT GUNS ARE MADE AT THE WOOLWICH FACTORIES.

A 68lb. gun, when finished, is 17 feet long, 28 inches in diameter at the breech, and weighs 95 cwt. As guns of this description are cast vertically, and require a "dead head" of considerable magnitude in order to secure sufficient density, it may be imagined that the furnaces are matters of important consideration. In practice it was found advisable to use two furnaces in the melting of a sufficient quantity of iron for the production of one such gun as we have described. The furnaces would each hold sufficient molten metal for the casting of one gun, but as it was not possible to charge with ten tons of pig iron at once, it was found better in every way to charge two furnaces with five tons, and melt simultaneously. The quality of the iron produced in this way was found to be superior to that resulting from one furnace, when a portion of the charge must have been melted first and the remainder afterwards. Repeated tests proved this fact to demonstration, and it is a practical point of much consequence. The furnaces are partly constructed of Stourbridge fire-brick, but the beds are of different material. The throwing in of old "carronades, " dead heads," and "pigs," was found to chip off, or to crack and destroy the fire-bricks, and a substitute for these in the construction of the furnace beds had to be found. A cheaper substance, and one which admits of easy repair, is now used. It is composed of equal parts of glass-grinder's sand and blackfoot sand. The former is the refuse from the Thames patent glass works, and contains a considerable admixture of fine particles of glass, and the latter is obtained from the sand pits at Charlton. These are amalgamated, rammed hard upon the foundation of the furnace, and after the application of heat from a vitrified surface impervious to liquid iron. The sand furnace bed is in point of efficiency and economy immeasurably superior to that of fire-brick, and we recommend it strongly. With respect to the dimensions of the furnaces it may be stated that they are about 22ft. long, from centre of fire-grate to centre of chimney; 5 ft. 2 in. wide; and 2 ft. 6 in. in height from bed to crown. The fire-grate is 5 ft. 2 in. square, and open for the admission of air at the end of the furnace, and the chimney is 60 ft. in height, and 2 ft. 6 in. square. The furnaces are always heated before receiving their charges, and when the latter are sufficiently fluid and hot, the molten streams from two furnaces, as we have stated, are made to flow through separate channels into one reservoir. Here they mingle and blend for a little time in one harmonious whole, so as to equalise any difference of temperature which may have existed prior to their being tapped. Metal is now ladled in small quantities from the reservoir for the purpose of casting testing bars, and a sluice door being opened, the molten ocean courses its way down, river-like, into the centre of the gun mould, which is placed vertically, and muzzle upwards, to receive it. Scoria and other impurities float upwards as the metal rises, and great precautions are taken to prevent their flowing with the iron into the "trunnions," which they would weaken, and thus make the whole casting useless. When the metal reaches to within a few inches of the guide shute, the flood-gates through which it flowed are shut for a minute until the shute is removed, and then again opened for the complete filling of the mould. In cooling there is a great subsidence of the metal, especially in the centre, but the hollowness thus produced is in the dead head entirely, and by no means deteriorates the gun. Every thing is suffered to remain *in statu quo* for about three days and nights after the pouring operation. The mould is then opened and the casting, usually perfect, is prepared by lathe and the boring mill for proving, and mayhap for battle. Such is some account of the gestation and birth of a great gun, which in these non-piping times of war may be acceptable to the public generally, and certainly must be to the scientific reader.—*The Guide.*

BELFAST EXHIBITION OF FINE ARTS.—A highly creditable collection of works of art has been brought together at Belfast, despite the more immediately commercial and matter-of-fact qualifications of the respected townspeople there; and as we had an opportunity of visiting it personally, we can say that, considering available resources, it bears more than a fair comparison with similar undertakings in other towns, and reflects generally much credit on the talents of the exhibitors, and the judicious discrimination of the committee.

BELFAST.

DONEGAL-place, once the abode of the aristocracy, and where two or three still linger, apparently unwilling to concede to the innovations of modern times, is fast becoming a first-class business street. Very recently two extensive mercantile firms opened in their respective lines, after having fitted up their places of business, in such a way that they have materially added to the elegance of the town in the matter of shop fronts, in which we believe Belfast can now vie with any town in the empire of equal magnitude. At present there are no less than four houses on which workmen are engaged in this street. The Bank of Ireland is erecting a new house for their branch here, now about five or six feet above the surface. The new Ulster Bank progresses rapidly, and is from a design by Mr. James Hamilton, of Glasgow. It comprises a union of the Doric and Corinthian orders, and is the second example of such combination in the town—the Ballymena Railway Terminus being the first. The building will be 100 feet square and 78 feet high. In the centre stands the cash-office, which will be a square, spacious apartment, lighted by a large dome of stained glass, supported by Corinthian pillars. The dimensions of this room are, 68 feet by 41 feet, and 83 feet to the ceiling. On either side are apartments for the directors and principal clerks. The structure is two storeys in height, with a basement containing the porter's residence, safes, and stores, arched over by fire-proof roofs. The body of the house is very substantially built of brick, and white stone copings, by the Messrs. Fulton; and under the superintendence of Mr. Moore, who erected the Ulster Arcade. Glasgow freestone, of fine colour and excellent quality, has been used in the building of the front and in the side wings. The entrance will be approached by a flight of steps leading to the portico, which will be supported by eight massive columns of the Doric order. Above these are Corinthian columns supporting entablatures, with Corinthian enrichments. The Ulster Arms will appear conspicuously on several parts of the façade, and the whole will be surmounted by a splendid figure of Britannia, supported on either side by one of Justice, with the balance, and Commerce, with the cornucopia. The carving is by the Messrs. Fitzpatrick It appears to us, however, that it is a great pity such a handsome building should be so disadvantageously circumstanced as regards site, and we should have much preferred seeing it in a wider and greater thoroughfare. Tho Messrs. Riddel, of High-st., have taken extensive premises, which run out into Fountain-st., to which, when completed in a style of splendour unknown to our forefathers, they intend, we hear, to transfer their business. Messrs. Ewart and Co. are also putting in a new front into their premises; and fourthly, what was until now a private dwelling-house, is being converted into a shop for an apothecary. Various other buildings in the town and vicinity we hope to be able to notice in our next.

STREET ARCHITECTURE.—An extensive establishment has just been opened by Telford, china and glass warehouseman, at No. 50, Henry-street. It is named "Telford's Crystal Palace," and certainly the appellation is most appropriate. The progress of an improved style of street architecture, particularly as far as it relates to shop fronts, is becoming every day more general through the city, and amongst the most attractive of those and most suitable for their purpose is the front of the establishment of the Messrs. Telford. It is exceedingly rich and ornate without being overwrought or gaudy, and is admirably adapted to show the articles offered for sale to the best advantage. It consists of two of the largest squares of plate glass to be found in any window in Dublin, erected by Messrs. M. Brookes and Co., Sackville-place. Within these windows oblong panels of polished mirror, of great size, are placed, which produce a fine effect, and in the centres of the window spaces two richly ornamented chandeliers are fixed The external decorations are carried out with much taste and sound judgment. The interior of the establishment consists of a vast apartment 150 feet long by 88 feet wide, and brilliantly lighted from the roof.—*Abridged from the Freeman.*

NEW PROCESS OF PAINTING.—M. Andrew, an old engraver of Paris, now living in retirement at Braine, has made known a new process of painting, the invention of which is the result of numerous experiments made by him since the commencement of the year 1855, when he first directed his attention to the subject. His process consists in the employment of a sort of pastel paint, which, according to the preparation used, produces the appearance of all kinds of painting known, as oil, water-colour, crayon, varnish, enamel, at the pleasure of the artist. It may be added that this new process is executed with a rapidity of which no other style is susceptible, except, perhaps, the large water-colour. Those who have inspected the pictures produced by M. Andrew through his new process declare that the imitation of crayon drawing is perfect—that it displays the softness and freshness which is the charm of that style, and that the imitation of water-colour and oil-painting is so excellent as almost to deceive the most attentive examination.

SANITARY CONSIDERATIONS.

SEWERAGE—NO. IV.

WHETHER or not it be a fact that "the Board of Health slew its hundreds at Croydon by Sampson's weapon," as facetiously remarked after Mr. Chadwick's speeches had accomplished the establishment of the Board of Health system, and thereby fixed a fearful fever in the town—it cannot be denied that the fever came, and that hundreds died, also that almost every house, with respect to which the system had been adopted, was visited by death or sickness, and that the three houses whose privies were left standing, escaped without evil. These are all facts, which the elaborate reports of Dr. Arnott and Mr. Page have put beyond doubt, and which are well worth the study of those who profess to lead in sanitary improvements. The system was, in fact, an utter failure, though bolstered up for years by government subsidy, and written and spoken up by one whose "*cacoethes scribendi*" was only to be equalled by his "*cacoethes loquendi*," and who was designated in the debate in the House of Commons upon the Croydon question, "the greatest pest that society had ever met." We, of course, pronounce no opinion on the latter question—we merely chronicle facts, and point to realities which deeply affect the *quæstio vexata* upon which we write.

The *second* of the three propositions for sewerage improvements to which we have alluded, is one which has attracted much attention. About the same time, Mr. Wicksted and Mr. Dover suggested that the evil of discharging the solid or excrementitious matter of sewers into rivers, might be obviated by collecting the whole at the sewer's mouth, separating the solids from the fluid, and converting the former into a manure, which, calculating upon the constituents for fertilization known to exist in night-soil, was shown to be a fertilizer of the most valuable description.

Almost simultaneously with the original efforts of these gentlemen were those of another, Mr. Moffit, who, adopting or conceiving the same ideas, determined to put the scheme into operation for private advantage. He leased from the Corporation of London a very well known place called "Puddle Dock," where ships discharge, but into which also discharges a main sewer, supplied from an immense district, and which gave name to the dock in question—for it contained, not water, but *puddle* of the foulest kind. Just in proportion to the intensity of its filth, so, it appears thought Mr. Moffit, would be the immensity of his fortune. In the ratio of the foulness which assailed his nose as he snuffed up the odours from the sewer's mouth—the sweets of which he coveted to possess—his imagination pointed out the extent of his riches. In the inkiness of the matter which exuded from the sewer, he only saw the brilliant gold into which it was to be turned; and, like a prudent man, he said, "Let Mr. Wicksted and Mr. Dover hold forth to the public upon the public good they propose to effect; I'll say nothing about it, but take a lease from the Corporation of all that flows into Puddle Dock, and that which now runs to waste, I'll run into ingots of gold."

Accordingly the lease was taken, and, at a cost of several thousands, he established works at the sewer mouth to make his fortune. *His* operation and Wicksted's and Dover's were alike in principle. The whole matter of the sewer was pumped up into tanks, or drawn into them by Archimedian screws. There it was acted upon by what, in scientific jargon, was termed "*milk of lime*," otherwise an admixture of lime and water, analogous to whitewash. The chemical action quickly precipitated the whole of the solids to the bottom, thus enabling the fluid to be drawn or pumped off, leaving the deposit to be dried by any means devised, and which deposit, as before stated, was to be sold as a manure.

So far as the collection of the solid matter, the action was perfect—it was quickly precipitated and readily collected; but there is little more can be said of the arrangement, either as a sanitary measure or a commercial one.

In a sanitary point of view there was nothing to remedy the evil of sewers, within which—not at the sewer mouth—is the wrong committed. From the sewer mouth, no doubt, comes abundant filth, discharged in London into the river at some 80 or 100 different points, each of which locality suffers, as well as the river itself. But the real wrong arising from the sewers is, the never-ceasing emanation of noxiousness from every inch of every sewer throughout every street in the metropolis. That noxiousness either forces its way back into the houses through the closet-pipes, into the streets through the gulleys, or into the subsoil, to lie there pent up until the surface is opened for repair, when it is given out in a most deadly shape—its virulence being greater or less in proportion to the time it is held within the soil, feeding, it may be said, upon itself until it becomes an essential essence of deadly poison. It is never destroyed so long as it is so pent up, and cannot be, until diluted by the atmosphere, or burned.

As a sanitary measure the proposition was, therefore, specially defective. It, no doubt, would save the river from pollution; but the land would be still impregnated, and the atmosphere filled, with poison.

As a commercial measure it was also fallacious and without true foundation, as we shall now show.

The leader of the Board of Health, Mr. Chadwick, had about this time become a director and the mainstay of a company formed upon the Chadwick theory, designated "*The Metropolitan Sewage Manure Company*." Its object was to supply the neighbourhood of London, "for 50 miles round," with the liquid sewage matter of the metropolis—to be conveyed in metal pipes for that distance, in the first instance, and then over the farms, by means of mains running through or round each farm. About as baseless a scheme as ever was proposed. First, because no known power of hydrostatic or hydraulic law affords the means to drive such matter through a pipe of 50 miles in length; and next, because the cost to convey it, if it were possible, would far exceed the advantage to be obtained. But Mr. Chadwick was the *godfather*, and no little band of little ones at a christening ever ran more anxiously after the dispenser of the cuts of cake, than the grown children of London ran for the shares of the company, till they gorged themselves with slips of parchment representing money to the value of some £300,000. Every share was taken up, and every shareholder was taken in. He was to make a fortune. Out of, as was said, "*What do you think?*" That was the beauty of the thing, and that was what put Mr. Chadwick upon the pinnacle he then occupied. All the filth of London was to take excursions every morning into the country, there to be converted into "golden grain;" whilst the operation was to put millions of gold into the fortunate speculators' pockets. Yes, millions! This was *such* a novelty; and as it was made so clear that every shareholder would be a contributor towards his own fortune, the success was complete, and the money got.

A most elaborate calculation was gone into, founded upon the analysis of night-soil. It was demonstrated that the weight of matter yielded from each adult, in 365 days, averaged 10 cwt.—that the fertilizing constituents of this matter gave, at the market value, a sum not less than £1 per head, and that, therefore, the money value of the human refuse of London was, at that rate, arising from three and a-half millions of people, three and a-half millions of pounds per annum!!!

It was no wonder the shares of the Metropolitan Sewage Manure Company ran up. Mr. Chadwick was then the *alpha* and *omega* of every sanitary move; and it was no wonder that poor Moffit ran mad, or next to it, on the value of the Puddle Dock. We say it is no wonder these things should have occurred, because the periodical insanity of the people of London is a matter of history; but we can scarcely imagine a more transparent hallucination if the propagators believed, or a more transparent humbug if they did not.

That poor Moffit believed, there is the most convincing proof. He spent all his own money upon the speculation, and then involved himself, as is known, to the amount of many thousand pounds.

Now let us trace the fallacy to its source.

It is quite true that excrementitious matter—urine and fœces combined—in the original state, contains the elements of nutrition for plants, equal to the money value, perhaps, of 12s. or 15s. per annum for each adult; which is, in all conscience, quite enough to show the millions and millions of value now lost to the country by its waste.

But the process of deterioration produced by the existing sewerage system was not taken into consideration. It was assumed that because the matter possibly reached the sewer, containing the fertilizing matter as stated, that it retained it till it was discharged at the sewer mouth.

So far as we can trace, the only opposition offered to that doctrine at the time is to be found in Mr. Jasper Rogers's publication, of 1849, "Sanitary Reform." In that we discover the following passage:—"Permitting the excretary matter of cities to be driven into public sewers with the hope of using it and the surface and other waters as a liquid manure, entails upon the operation a drawback which cannot be compensated for; because, even if it be possible to force it 50 miles around, by some means that science has yet to discover, it will contain, on the average, *perhaps but 5 per cent. of nutriment for plants.*"

Here is the key of the fallacy. It is evident, however, that Mr. Rogers's views were not heeded. If they had been, so egregious a scheme could not have been effected; but it must be plain to common sense, that if the matter arriving at the sewer mouth only contains five per cent. of fertilizing ingredients, that it was either gross ignorance which based the return of profits on the original constituents of the matter found in it before it was discharged into the sewer, or gross deception. These appear to be the two horns of the dilemma, one or other of which Mr. Chadwick, Mr. Dover, and Mr. Wicksted must impale themselves upon—it must be either.

It has been since incontestibly established by a government commission that the fertilizing matter discharged at sewer mouths is about the quantity stated by Mr. Rogers in 1849; but some eight or nine years were allowed to elapse before the influence of the old Board of Health was so far neutralized as to permit that public investigation. In the interim the evil had been accomplished. It appears clear enough to common sense, that from the moment excretary matter reaches the sewer, it must, of necessity, give out its fertilizing properties. The action of the air and water decomposes it as it floats along or deposits itself at the bottom or sides. The gaseous emanations from the sewers proves the facts which simple reason points out. But reason or common sense was not permitted to act until ruin came.

First, Mr. Moffit's speculation totally failed, and was ruinous.

Next, Mr. Dover's.

Then came the utter failure of the Metropolitan Sewage Manure Company. It could neither pump its matter away "for 50 miles around London," nor find in the matter sufficient elements of nutrition, and, as a last resource, the sewage was filtered through "Rogers's patent peat charcoal," and sold to the farmers round as *a solid manure.* On our last visit to *Stanley-bridge* (about two years since), where the company's *liquid* sewage works are established, we saw there a large quantity of this *solid* manure for sale.

Lastly came the result of the operations established under Mr. Wicksted's care at Leicester. Above £50,000 was expended—very ingenious machinery erected to deposit and collect the solids of that town *at the sewer mouth.* The entire arrangements were made on clever and scientific plans, and *the water of the river relieved from contamination.* But the sewers themselves were left as noxious as ever, and the manure produced was found to be of so little value that it would not pay for the lime required to deposit it; whilst it has been fully proved that the action of the lime upon the excrement during deposition is to disengage and discharge from it all its ammoniacal matter. In short, the proposition has proved itself to be fallacious, and if anything were necessary to establish that fact, the debate upon the subject, held at the Society of Arts last season, is sufficient.

In our next number we shall describe the third, or *peat charcoal* proposition.

SOCIETY OF ANTIQUARIES OF SCOTLAND.—Seventy-ninth session.—The Society of Antiquaries of Scotland met within their Hall, No. 24, George-street, upon Tuesday at 3 o'clock, p.m. The following members were admitted:—Robert Hutchinson, Esq., proposed by the Rev. W. Stephenson, D.D.; J. Paton, Esq., proposed by Wm. Fraser, Esq. The following communications were read:—A paper on the subject of Burns' pistols, recently presented to the society; by the Right Rev. Bishop Gillis. Remarks on the Round Tower at Abernethy, with drawings; by R. R. Brash, Esq., architect, Cork. Note of a Styca of Osbercht found near Jedburgh; by John Alex. Smith, M.D., F.S.A., Scotland. The following donations were received from His Grace the Duke of Northumberland, K.G.:—Surveys of the Roman Wall, and other remains in the north of England; by the Rev. Henry Maclauchlan, made by the direction of the Duke of Northumberland. Memoir written during a survey of the Roman Wall. By Rev. Henry Maclauchlan.

WATER FOR THE CITY.

A LENGTHY report has been issued by Committee No. 2 of the Municipal Corporation, relative to the supply of water to the city, and the proposed works in connection therewith. This document shall form a subject for very special comment in the next No. of the "DUBLIN BUILDER," and for the present, therefore, we content ourselves by a simple abstract of particulars.

Suggestions from competent gentlemen were sought for by public advertisement, and the following gentlemen entered the lists as competitors, to untie this Gordian knot; and various were the systems advocated, as briefly set forth hereinunder.

Mr. Mulvany,	supply to be derived from	Grand Canal.
Mr. Robert Mallet,	do.	Dodder.
Mr. Samuel M'Clane,	do.	Liffey and Grand Canal.
Mr. John Louch,	do.	Royal Canal.
The Sanitary Association,	do.	Royal and Grand Canal.
Mr. Thomas Brazil,	do.	Liffey, at Poulaphuca.
Mr. Richard Hassard, 1st plan,	do.	Royal and Grand Canals.
Mr. Richard Hassard, 2nd plan,	do.	River Vartrey and Lough Dan.
Mr. Neville,	do.	Royal Canal.
Do.,	do.	River Dodder.
Do.,	do.	Liffey, at Kippure.

On submitting the foregoing plans to Mr. Hawkesley, an eminent engineer, the Committee, on the recommendation of the latter gentleman, came to the resolution of recommending that

A supply of 6,000,000 gallons per day from the Grand Canal Company, for £1,500 a-year, to be taken at the eleventh lock of the canal.

A supply of 4,000,000 gallons per day from the Royal Canal Company, for £1,000 a-year, to be taken at the twelfth lock of the canal.

Differences, however, arising as to the terms on which this latter could be effected with the Royal Canal Company, it was proposed to take portion of the supply from the Dodder and portion from the Grand Canal, on which project Mr. Hawkesley thus reports:—

"I am satisfied that a quantity of water equal to from eleven to twelve million gallons may be depended upon from these two sources, and that with moderately judicious management this quantity will be found to be sufficient to afford an ample and constant supply at high pressure, even to a possible future population of 400,000 persons.

"The water of the river Dodder is unquestionably of very superior quality in all respects, except its liability to be occasionally coloured at its mountain source by peat and other vegetable matters. This water, after admixture with the limestone water of the Grand Canal, in the large reservoir proposed by Mr. Neville, in which it would become exposed to the decolourizing influence of light and air, and after undergoing a subsequent slow filtration through a stratum of sand in the proposed filter beds, would cease to be in any degree objectionable on account of its occasional brown tint.

The Committee subsequently came to the following resolutions:—

"That this Committee are of opinion that it is necessary and expedient that the Corporation should take measures to procure for the citizens of Dublin an ample supply of water, of a better quality and description than at present supplied to them, and that it should be delivered at high pressure and on constant service, in the manner now being universally adopted in the cities and large towns in England and Scotland.

"That, in the opinion of this Committee, the plan for obtaining the improved supply of water for the use of the city from the River Dodder, in conjunction with an auxiliary supply from the Grand Canal (as fully described in the City Engineer's Report of the 3rd December, 1858, and in the Report of your Consulting Engineer, of the 30th December, 1858), is the best plan to adopt, and they base their opinion on the facts, that this plan will require but one reservoir and system of works for filtration, &c., to be constructed. That the site selected for these works is situated at but a short distance from the city, in a district thinly inhabited, where land can be procured at a moderate price. That the localities of those works would be most favourable to enable the Corporation (if hereafter called on so to do) to supply the township of Rathmines, and the districts of Baggotrath, Irishtown, Sandymount, &c., with water. That the water of the Dodder and Canal when mixed in the proposed reservoir will be a softer water than taken solely from the canals, and experience proves that the mixed waters do not encrust the interior of the water mains with calcareous deposit to anything like the extent the canal water alone does. That should it hereafter be found necessary, large increased supplies of water can, at a moderate expense, be derived from the Dodder by constructing storage reservoirs on the higher portions of the river, and that your Committee believe the ultimate cost of those works, including the purchase of the mill power on the water courses, will not exceed the cost of taking the supply from the two canals, after adding ten per cent. to Mr. Hawkesley's estimate for contingencies, while the rent demanded by the Royal Canal, £1,200 per annum, will be altogether saved.

"That this Committee recommend that the amount estimated by Mr. Hawkesley, £150,000, as requisite for carrying out this plan to completion, be borrowed from Government at the rate of four per cent.

"That this Committee recommend that the Corporation shall solicit from Parliament, next year, an amendment to their Water Works Bill, and that all necessary steps be taken by your engineer, under the advice of your consulting engineer, for preparing the surveys, sections, plans, and estimates, during the ensuing summer, in order that they may be ready to be lodged in the private bill office next November, pursuant to the standing orders of Parliament; and the Committee consider, that as the lease with the Grand Canal Company, under which the present supply from this canal is taken, will expire in 1865, there is now no time to be lost in obtaining the proposed bill.

"That the Committee recommend that permissive powers be taken in the Bill, for purchasing the rights of the mill-owners on the Dodder, above the City Weir, and below the Weir on the City Water Course, and the Earl of Meath's Water Course, as also for supplying with water the Earl of Meath's Liberty.

"That powers be taken to contract with the Grand Canal Company for water from the Grand Canal, or the Midland Great Western Railway Company for water from the Royal Canal, as may be found necessary.

"That powers be taken to alter the present system of rating for Pipe Water Rents, so that after the passing of the proposed Bill, the Water Rate shall be levied from the owners of houses opposite which Water Mains are laid as a Poundage Rate on the Poor Law Valuation; and that for all holdings under the value of £8 per annum, the landlords shall be liable for the water rate, as they are for the improvement rate. That all charges for water-closets, private baths, and stables be abolished, and that the water to be supplied to large consumers and manufacturers shall be charged for by the quantity supplied—to be ascertained by meter or otherwise, as may be fixed on.

"That power be taken by the Corporation to assess, levy, and collect a water rate not to exceed 7½d. in the pound, on the Poor Law Valuation; this rate to be applied for pipe-water purposes only.

"That power be taken to enable the Corporation to afford a supply of water to, and to lay mains for that purpose, within the Township of Rathmines, and the parishes and townlands adjoining the city boundary, such as Baggotrath, Ringsend, Sandymount, Irishtown, Rathgar, and Clontarf, upon being called upon so to do by a requisition from the ratepayers, in which case the Corporation shall have the power to levy a water rate on such places, not to exceed sixpence in the pound on the Poor Law Valuation; this rate to be only levied on houses fronting to or immediately situated on the line of street through which the mains are laid, as in the city; and that the Corporation shall have power to make special agreements for the supply of water within such districts, by meter or otherwise, for any purpose other than household purposes."

TRINITY CHURCH, KILLINEY.

THIS church was opened for service on Sunday, the 15th ult. From the resort of inhabitants to this pleasing locality it was felt that increase in church accommodation was required, and Mr. Warren, the proprietor of the soil, having presented a site and liberal subscription, also contributed largely towards the fund now collecting to defray the expenses, the foundation stone with its usual archives and coins of the realm was deposited 16th March, 1858.

The building is in the early English style, picturesquely situated on the north side of Killiney Obelisk Hill commanding extensive view of the suburbs and Bay of Dublin, and having enclosing wall and gate in appropriate character. It affords accommodation for 250 persons, has a tower on its south-west angle forming a porch surmounted by a bell turret and spire, of light proportions. There is also a gallery and robing room, the latter forming an attached building, and serving with the projecting chancel to make variety in the outline of the design. The roof is of open timber-work, and with the pewing stained and varnished, giving, on the whole, a pleasing effect, and with the stove and general arrangements every comfort desirable. The walls are of the mountain granite, quarried, for most part, from the site, and the slating is worked out in trellis pattern of different coloured material. A mural tablet has already been erected to one of our Crimean heroes, who in youthful days, resided in a neighbouring mansion. The endowment was effected by the Rev. John Gregg, Archdeacon of Kildare, from money entrusted to him for church purposes by the late Thomas Vance, Esq., of Dublin. The design is that of Mr. S. Symes, architect, and the work has been ably executed by Mr. W. Moyers. The total cost, complete for service, being £1,500.

THE ROYAL HIBERNIAN ACADEMY EXHIBITION— A PEEP INTERNALLY.

Previous to particularising a few of the many beautiful works of Art which adorn the walls of the Academy's *salons* this year, we take occasion to offer a few introductory remarks respecting the past history of this Institution, in which all admirers of the Fine Arts must feel a greater or lesser interest.

Happily those differences that did exist amongst its members have become mere matters of *the past*, and therefore it would be bad taste for us to comment upon them; but we must in common offer our congratulations to the Academy that, far from evil results arising therefrom, they seem rather to have stimulated to increased exertion, and contributed to raise the Institution from the level to which it had sunk, to that standard its mission and its resources eminently entitle it to attain.

We are permitted to mention, that, in the course of the current month, important changes will take place in the constitution of the Academy; and, we need scarcely add, it will afford us much additional pleasure to chronicle advancing steps. On the 5th of August, 1823, this Institution was incorporated, and since that date has continued to receive a grant of £300 per annum from Government, which, however—devoid of other support—is quite inadequate to secure even a bare existence. We have reason to hope that the late investigation into the state of affairs will result in an increased annual grant, and that the popular saying, "out of evil cometh good," may he substantially and speedily fulfilled. Such benefactors of artistic tendency as the founder of this Institution, the late Francis Johnston, architect, unfortunately present themselves in this country but once in an age; therefore exists the double necessity for self-reliance and the energetic application of the lever of exertion to elevate the fabric. Much has been done by the Academy even under untoward circumstances towards the cultivation of an artistic taste in Ireland; but with returning prosperity we trust that the members will become sensible of the fact that much more palpably remains yet to do. An important impetus has been given to Art by the annual artistic displays of the Academy, by our great national collection of 1853, and the consequent establishment of the National Gallery, as also by the introduction of Art Unions based on sound principles, whose silent workings will gradually find their way into the humble cabin of the peasant as well as into the stately halls of the nobleman, and this is a fitting opportunity to embrace an advantage and push on in the path of progress with redoubled ardour. The pecuniary encouragement to exhibitors is at present comparatively trifling, though we believe that this year there has been a slight reaction, mainly owing to the rights of selection by prize-holders in the Art Union of Ireland, and to the voluntary aid contributed by the Lord Lieutenant, who purchased largely. We would suggest a "prize fund" to be established either by subscription or otherwise, as an additional inducement both in a meritorious and a pecuniary point of view, and doubt not that the influx of pictures would be important, possibly the Academy may say "alarming!" However, the trial would appear to be desirable, and is not altogether without precedent.

Though the collection of pictures in this the *thirty-first* annual exhibition, may not, numerically speaking, be as important as some previous displays in our recollection, it is quite equal in merit to any that have hitherto taken place under similar circumstances. The portraits are not quite so numerous this year as usual; but those exhibited, with one or two exceptions, fairly stand the test of criticism—the contributions by Catterson Smith, Martin Cregan, G. F. Mulvany, Charles Grey, and the series on marble by B. Mulrenin, being especially noteworthy. In this department the most conspicuous are, the colossal portrait of Alderman Atkinson in his late mayoralty robes, by Mr. Cregan; and of the present Countess of Eglinton, by Mr. Catterson Smith—wherein the tone and style of drapery is to our mind somewhat ineffective, and questionable as to consistency. The paramount feature of interest to which all steps are instinctively bent is the picture in the Antique-room by P. Van Schendel, illustrating the Nativity, and entitled "*La nuit de Nöel, ou la naissance du Christ.*" We are told in the descriptive note attached to the registry of this picture in the Catalogue, and printed in very questionable French, that—

"Two different opinions, equally probable, exist on the subject of the birth of Christ. Certain authors pretending that the Saviour of mankind was born in a grotto; others, in a ruinous stable; it is under this last point of view that the artist has desired to reproduce the history. The character of his architecture is borrowed from the Ruins of Palmyra and Baalbec. Foremost in the tableau is seen a woman clothed with a white and scarlet robe, the artist being convinced of the existence of this tissue amongst the Hebrews, having had in his possession a piece of that material found on an Egyptian mummy, has considered himself at liberty to adopt this costume."

The effect of torchlight upon the newly-born Redeemer—a chubby infant—as he lies in a manger, and on the other figures and objects in the picture, is marvellously truthful. We must allow the artist his licence as regards the architecture of the stable, though we experience difficulty in reconciling its consistency.

Turning from this beautiful picture we find at either side a collection presumed to represent the Architectural Department. Gladly, however, should we—if enabled truthfully—award a meed of approbation to the display here likewise, but we are precluded from that pleasure, and for the credit of the profession sincerely wish it had been omitted altogether. Ireland has produced and still possesses some of the first draughtsmen and colorists; and there can be no excuse therefore, for architects sending half-finished dauby drawings to a public exhibition, or on the other hand for being so very sparing of their contributions. We apprehend that the Academy and the profession cannot mutually appreciate each other, and that possibly the desirability of exhibiting good drawings and liberally is not sufficiently impressed on the latter.

Mr. W. J. Barre (Bappe in the catalogue) of Newry, a rising young architect, exhibits a good perspective of his design for the proposed Molyneux Church, and which, although not adopted, justly attracted much of the committee's attention and favour. Mr. M'Carthy, a newly-elected A.R.H.A., contributes two perspectives, and fairly executed, of Holy Cross Church, Tramore, now being erected from his designs, as also of the recently built Foreign Missionary College of All-Hallows, near Drumcondra. Two views of a church—not named in the catalogue, but presumed to be submitted in the recent competition for the Molyneux Church—are exhibited by Mr. M'Curdy, and display some praiseworthy points. The others are by Messrs. Gribbon, Geoghegan, and Henry J. Byrne respectively. The former gentleman contributes six drawings, comprising collegiate, ecclesiastical and commercial buildings executed from his designs. We should have wished No. 351 had been consigned to oblivion, for the veriest novitiate might be ashamed of it, both as to design and execution. Our space reminds us that we must postpone further notice until our next number, when the subject shall be reverted to.

SANITARY CONDITION OF BELFAST.

We are told "that the sanitary state of this town is most satisfactory; that the inspector, Mr. Lavery, is making every exertion to promote health and general cleanliness; that in districts hitherto notorious for dirt and epidemic there is a marked improvement; that houses are being whitewashed, cesspools removed, privies built; overcrowding in small lodgings houses stopped, and ventilation extended and promoted as far as possible." For ourselves we must admit that on the occasion of a very recent visit we noticed much room for improvement. The principal thoroughfares, where obstacles to health would be palpable, seem right enough, but in immediate proximity in narrow lanes and courts, where one might shake hands from opposite sides, filth is predominant, noxious odours are sent forth to be breathed by the habitual frequenters of Castle-place, High-street, &c., &c., and while such passages as those from Rosemary-street to High-street exist, the lauded sanitary state of Belfast is imaginary and delusive.

It will be seen by our advertising columns that the respected firm of Messrs. Sheils and Scott, for upwards of thirty-five years known in Dublin as the most extensive manufacturers of ladies' and children's boots and shoes in this country, with a view of meeting their increasing trade, are removing to a more extensive concern in the centre of the metropolis, and from the last number of "The Dublin Builder" it appears their establishment in Westmorland-street is being attractively fitted up from designs and plans by J. J. Lyons, Esq., architect.—*Belfast Daily Mercury.*

METROPOLITAN COMMERCIAL ARCHITECTURE.

That *old* Dublin, yielding to the innovations of modern times, is gradually consigning to oblivion her quaintness, her peculiarities, and, we may add, her deformities, is, at least as regards commercial architecture, a notable fact, and a subject for congratulation. Ill-fashioned shop-fronts with squat story-posts, many-squared sashes, entablatures mean or tawdrily decorated, pigeon-hole windows above, and dangerous gratings—receptacles for dust, &c.—below, are being replaced by lofty plate-glass, consoled and richly-entablatured elevations transmitting light to basement through handsome cast-iron work in the pedestals, and suitably decorated in all their parts. It becomes our peculiar pleasure this month to chronicle some progressive steps which cannot fail to add to the architectural embellishments of our city; and amongst them we may particularise the following:— Mr. Scriber is about erecting in D'Olier-street a repetition of his present handsome front in Westmoreland-street; Mr. Caldbeck, architect. In the same street, Messrs. Sheils and Scott's new warehouse, already described, is completed; Mr. J. J. Lyons, architect, Mr. W. Hughes, builder. Close by, Messrs. Fry and Co. have taken two houses in Fleet-street, and are enlarging; Mr. M'Curdy is the architect. Mr. Gatchell, late of Pill-lane—and removing therefrom, owing to the commencement of a new street from Four Courts to Church-street—has taken premises and contracted for a new warehouse in Dawson-street, at an expenditure exceeding £2,000; Mr. Gribbon, architect. In Henry-street, that monster of monster-houses, Cannock, White, and Co., is *still* extending; three different builders being under contract at present for its enlargement, by directions of Mr. Anthony, architect; and immediately opposite its gigantic front has recently been opened a new establishment, of less magnitude no doubt, but possibly having proportionate claim on public favour; we allude to that of Mr. Telford, and fancifully designated "The Crystal Palace." The appellation may possibly be suitable as regards the interior, which is plentifully stocked with a choice collection of all that is beautiful in glass manufacture; but our uninitiated friends must not be misled as to its architectural resemblance to the great prototype of 1851. The front is cemented from cornice of showboard to parapet, and the showboard—surmounting large square sashes filled with plate-glass, and a central recessed porch with mahogany swinging doors—has a frieze with continuous glass panel and illuminated lettering, and a scroll-carved ornament on cornice. We presume the architect, Mr. Gribbon, made the most of the means at his disposal, though there was an opening here for a little more architectural display. Several matters of importance are in embryo, of which it would be premature to speak just now.

MOUNT ARGOS NEW BUILDINGS—RATHFARNHAM.

In a recent number of "The Dublin Builder," we gave a few descriptive particulars of a large structure about to be erected for the society of Blessed Paul, in the neighbourhood of Rathfarnham, announcing at the time the name of the superintending architect, and the then declared contractor, Mr. Hugh Kelly.

Subsequently, however, changes took place both as to the designs to be executed and the parties concerned in carrying them out; and we are now enabled to lay before our readers an exact description of the work as it is to be, unless some further changes—of which we are not aware—be deemed desirable. The building as contracted for will form two sides of a quadrangle, viz., the south and west; the former presenting a principal front extending 200 feet, and the latter a flank of about 218 feet in depth—all three storeys high, and terminating by a projecting corbelled roof of high pitch. Externally, the style of architecture is very plain, perhaps slightly savouring of Byzantine; the windows lighting apartments, on ground-floor being semicircular-headed—double lights introduced in wing—and those of the upper, square, with semicircular relieving arches over them. With the exception of one projecting wing at junction of the south and west elevation, the fronts are unbroken in outline, and will be constructed of rough-punched mountain granite and Ballyknockin stone-dressings, plinths, &c.

Internally, the principal storey comprises, in the southern building, a central entrance-hall 29 feet wide, approched by an open porch pedimented, and communicating with a corridor 9 feet in width which runs thorough. At either side of hall are apartments for reception-rooms (two in number), parlour, wardrobe, almonry, and four confessionals; and in the western flank is a large refectory 76 feet 10 inches by 32 feet, with six polished lime-stone columns supporting groined-arching, and in the locality of same, and at either side, are the culinary offices, lavatories, pantries, closets, &c. The second and third floors respectively contain library and oratory, each 49 by 24 feet; infirmaries, bath-rooms, closets, novitiates and community rooms, &c., and about seventy cells approached by continuous corridors same as below. The new plans for this building have been furnished by Mr. J. J. M'Carthy, A.R.H.A., architect, and will be carried out under his superintendence by Mr. Meade, the contractor, at £13,200.

ST. DOULOUGH'S CHURCH, COUNTY DUBLIN.

Attention having been recently called to the dilapidated condition into which this time-honoured structure is gradually falling, we subjoin a short sketch of its history, and sincerely trust that a desire to preserve our national antiquities is sufficiently present to ensure this—perhaps the most interesting and perfect remnant of Ecclesiastical architecture in the neighbourhood of Dublin—from the speedy ruin which is said to threaten it:—

This church was originally, as indeed it still continues to be, a cruciform structure, but the original nave has long since given place to a small modern church. At the time of its foundation, however, this form appears not fully developed, for the transepts are remarkably small, as also is the eastern portion, or original chancel. Though it possesses the stone roof in common with the Saxon churches, all its windows and arched loop-holes approximate to the pointed form; a circumstance that may be taken, either as a proof of the extreme antiquity of the use of the pointed arch—admitting this to be one of the early Saxon churches—or used as an argument for its Danish origin, if it had not been built until the termination of the tenth century. This is one of the churches which, according to Mr. Beaufort and other writers who have followed his authority, "different in its style of architecture from any in Britain, has been built in imitation of the original Christian churches in the southern countries." For our own part, in this particular specimen we can discover very little even of the rudest similitude to the "columns and pilasters of the Corinthian or Doric orders," of which those gentlemen speak; nor are these churches, in our opinion, anything superior to the Gothic or Pointed architecture afterwards introduced, as they very confidently assert. Dr. Ledwich contends, on the contrary, that a chapel in the ancient church of Rippon, in Yorkshire, founded A.D. 660, and the cryptical sepulchres and oratories, mentioned by Gregory of Tours, and Bede, are the exact archetypes of ours. He also gives credit of their erection to the Danes, though his proofs are rather problematic. "St. Tulloch," says he, "is a corruption of St. Doulough, and both are a corruption of St. Olive." This latter Saint was not born, it is said, till the year 993, and dying in the year 1028, he could not reasonably be canonized, and have this church erected to him sooner than a century after. Indeed, considering how cavalierly he treats poor St. Patrick, by denying him the honour of having ever had any existence, one is apt to wonder at his overstrained complaisance to the Danish saint, whom he ranks as a downright modern, about whose existence, or saintship, he could entertain no doubt at all. But the object of Dr. Ledwich, in the latter case was to prove that the cryptical and stone-roofed churches (with the exception of the round towers, confessedly the most ancient specimens of stone buildings in Ireland), were the work of the Danish invaders; in which, if he succeeded, it would follow, of course, that the Irish themselves had not before that period any edifice of stone, either for religious purposes, or any other; that to these northern invaders the original inhabitants of Ireland were indebted for whatever portion of the arts or of civilization which the country could boast; and, in a word, that all the stories which Irish historians have so repeatedly asserted to the contrary, were no better than the inventions, or, as he learnedly terms them, "the figments" of modern times. That the church of St. Doulough, let the saint be what countryman he may, and the other stone-roofed edifices of Ireland present an order of architecture something singular in its construction, and differing in many particulars from the pointed Gothic style, there can exist no doubt. In a former section we have shewn how closely they assimilate with our round towers. They are both stone-roofed edifices, and the only difference is, that the one, from its circular form, where perfect, produces a cone; the other, with its lofty gables, forms a very acute angle, in the shape of a wedge. The octagonal well which adjoins the church, affords another specimen of this mode of roofing, forming a cone with eight sides. But the grandest example of this Saxon style in Ireland, both for magnitude and beauty of architecture, Dr. Ledwich admits, is St. Cormac's Chapel, at Cashel. He is also inclined to think that this Cormac was slain in battle by the Danes, and he forms this opinion on the testimony of Caradoc, a Welch historian, on whom he relies more as to this royal saint's existence, than on the plausible fictions of national writers. Taking, therefore, this admission of the Doctor against his own hypothesis, it is pretty clear that the Danes would not erect this chapel in memory of a saint, who had thus fallen a martyr in defence of his religion and his country, against pagan invaders; and who in fact had been slain by themselves. If this argument be conclusive, the Danes did not build that chapel to the memory of St. Cormac. But we have another reason against the supposition still stronger; for the Doctor himself proves, not only that it assimilates with the best and oldest specimens of Saxon architecture in England, but that "it is infinitely more curious, and in every respect purely Saxon." Neither is it probable that they built this church of St. Doulough as a shrine for St. Olave, who was not born till the year 993. The building is apparently of a much older date, and appears to be one of the earlier and more imperfect attempts of the native architects or masons at this style of Saxon architecture, of which St. Cormac's chapel was (in Ireland) the *chef d'œuvre*, and most probably had been erected at least a century later than that of St. Doulough. Indeed it is not likely that a roving barbarous people, like the Norwegians or Danes, whose sole object was invasion and plunder, would much trouble themselves about building churches at all, especially in the earlier period of their irruption. If afterwards, when they had completed their conquest, and acquired a permanent settlement, they resorted to the practice upon their conversion to Christianity—and that we can suppose the church of St. Doulough to be really their work; or if it was built as a shrine for St. Olave, subsequent to the year 993, as Dr. Ledwich suggests—it would in that case be pretty clear that so far from being the original introducers of building with stone and mortar into Ireland, they only adopted and conformed to the fashion of the religious buildings long in use in this country. The conclusion we arrive at by this train of reasoning is, therefore, simply this: that if the Danes built this church, it was but a clumsy imitation of the superior style in use before their arrival; and if they did not build it—which I think is the more probable supposition—they only acted like most other successful invaders, by seizing the churches of the people they had conquered, re-consecrating them in honour of their favourite saints, and appropriating them to their own use. In this part of the inquiry, however, we are no farther interested than as it enables us to ascertain thereby the period of their foundation. If that object be in any degree accomplished, the discussion has not been altogether useless. We may presume, therefore, that if the stone-roofed churches at Glendalough were founded by St. Kevin, and probably built under his immediate inspection, their origin must have been in the sixth century, for that saint died in the year 618. St. Doulough's church would deem the work of perhaps a century or two later; for the round tower steeple seems to have been discarded at the period when that church was built, and the Campanile or square tower substituted in its place. Perhaps the latter might have been a subsequent addition. Cormac's chapel, if founded by that monarch, must have been built in the latter part of the ninth century.

AN ANCIENT SCULPTURED PILLAR STONE.

ACCORDING to tradition, an interesting relic of remote antiquity—of which the accompanying particulars convey an idea—marked the grave of an early Irish saint. It is of hard granite, in length three feet five inches, in breadth one foot ten, and in thickness five inches. The stone bears two sculptured crosses, symbolical of the Christian faith, one on the front and the other on the back; each cross is enclosed within a circle, the emblem of eternity. The crosses and circles are greatly worn by the action of the elements during more than twelve centuries. It stood in "Owen's-lane" (which leads from Corn Market, through St. Audoen's arch, to Cook-street), near the door of entrance to the ancient church of St. Audoen, or Owen. From time immemorial it was called the "Blessed Stone," and was held in very great respect and veneration by the Catholics of Dublin. In the year 1826, when the church near which it stood was undergoing repair, this ancient monument was taken up, carefully removed, and buried in a yard in Cook-street, where it remained for some years. It is now in the possession of the Very Rev. Dr. Spratt, of Aungier-street, who looks on it as an object worthy of respect for its very great antiquity.

The following is from the celebrated antiquarian, Dr. Petrie, M.R.I.A., author of the "Round Towers of Ireland," &c.:—

67, Rathmines Road, 21st Oct., 1853.

MY DEAR DR. SPRATT—In obedience to your request that I should give you my opinion respecting the probable antiquity of the interesting ancient stone on which a cross within a circle is sculptured, and which, till it came into your conservating custody, was to be seen near the ancient Parish Church of St. Audoen, I have no hesitation in expressing my opinion that it belongs to a class of monuments—most probably sepulchral—which are now rarely to be met with in Ireland, and which appears to me to be of a very early Christian age; and I have no doubt that this stone is much more ancient than any portion of the very old church now remaining, with which it was formerly connected.—Believe me, my dear sir, most faithfully yours, GEORGE PETRIE.

Biographical Sketches.

THE LATE WILLIAM VITRUVIUS MORRISON, ARCHITECT.

WILLIAM VITRUVIUS MORRISON was descended from a race of architects: his father, grandfather, and great grandfather having successively exercised and illustrated that profession by their works. The family had resided for several generations at Middleton, in the county of Cork.

Numerous specimens of the taste and professional ability of the late John Morrison still exist in that part of Ireland. He was as celebrated for his mathematical and scientific as for his architectural abilities; and he realized a handsome fortune by the exercise of his profession.

The father of W. V. Morrison (the late Sir Richard Morrison) left his native province early in life. His original destination had been the church.

The state of the father's affairs changed the original destination of his son, whose tastes, moreover, leant strongly to the family profession, although discouraged by his father, who seems to have been strongly tinctured with that professional jealousy, which seems to characterise that profession, and which will not admit an emulator even in a son.

Richard Morrison arrived in Dublin at an early period of life, where he pursued with avidity the tastes which led him to the profession he had chosen, under the most eminent professor of that art. The name of his master, Gandon, will live as long as taste shall endure. The Custom-house, the Courts of Law, the east Façade of the Bank of Ireland (then the Houses of Parliament), the King's Inns, in our city, will hand down his fame and abilities to posterity. Richard Morrison was enabled to pursue his studies with advantage from the emoluments of a government appointment in the Ordnance Department, procured for him through the influence of his godfather, the Earl of Shannon. He soon developed considerable talent in the profession he had selected, and having lost, by reductions, the place he held, he was shortly afterwards selected from the superiority of the designs which he had furnished to carry into effect some considerable alterations in the Cathedral of Cashel, in the county of Tipperary. He had shortly before this been united in marriage to Miss Eliza Oulde, the daughter of the Rev. William Oulde, LL.D., Rector of Philipstown, in the King's County, and Chaplain of the Lying-in-Hospital, Dublin, and granddaughter of Sir Fielding Oulde, who held during a long period the highest rank amongst the physicians of Dublin. Richard Morrison continued to exercise his profession in the south of Ireland for some years. He resided for some time at Clonmel, where he planned and erected the County Court-house of Tipperary, and there William Vitruvius Morrison was born on the 22d April, 1794. He was named Vitruvius by his father, in anticipation of his future pursuit. His constitution was very delicate from his birth, and with this delicacy of fibre, as he advanced in life, was developed the highest sensibility of character and feeling. These traits were the leading features of his nature, and ended only with his existence. His strong attachment to his relatives, his disinterestedness, his kindness of heart, his high sense of honour, were born with him and accompanied him through life. His delicacy of temperament prevented his being educated at school, and it precluded him, likewise, during the age when study is pursued with the greatest advantage, from that degree of application which combined with his high natural talents, would have gifted him with all that science can add to genius. His education was entirely domestic; he applied himself with avidity from an early period to the pencil, and became, perhaps, the first architectural draughtsman of his age. This is, indeed, the first and greatest artificial requisite for the architect, and in this William V. Morrison was perfect. His talent for design developed itself at a very early period of his life. His father, Richard Morrison, had removed to Dublin about the year 1800, and was applied to about 1809, by Colonel James Crosbie, late M.P. for the county of Kerry, to furnish a design for a new mansion in the castle style for his seat at Ballyheige in that county. The site of the mansion was a cliff overhanging the great Atlantic ocean. More as an experiment to try the extent of his son's powers, than with any idea that he was capable of such a production, he suggested to William Vitruvius to make an essay at the design for the contemplated castle. (The boy was at this period scarcely fifteen years of age.) To the astonishment of his father he, in the course of a few days, produced the noble design subsequently erected which displayed an accuracy of knowledge of the details and proprieties of this species of architecture, which, in an artist of his years, ranked him at once amongst the few rare examples of early genius, which illustrate the history of the human mind.

The studies, however, of this boy had, from the earliest dawn of reason, been directed, by the natural bias of his taste, with avidity, to the subject of architectural composition; he had examined with an intuitive glance, the history and progress of every species of style and composition; he had marked the beauties, the proprieties, and the defects of each, and he had, at a period when the reasoning faculties are scarcely developed in others, already become an architect.

Richard Morrison from this period found in his son a valuable assistant, indeed, in his professional pursuits; he found in him an exhaustless mine of taste in design and composition. Shelton Abbey, the seat of the Earl of Wicklow; Kilruddery Hall, in that county, the seat of the Earl of Meath—the latter a noble and correct example of the Tudor or Elizabethan style; and Ballyfin, in the Queen's County, the seat of Sir Charles Coote, bart.—an edifice in the Grecian style, attested the rising of the bright star which was soon to illuminate the hitherto dark hemisphere of Irish architecture.

William V. Morrison visited the Continent in 1821; he resided for some months in Rome, and, bringing as he did, so gifted a mind to that classic abode of ancient art, he could not tread her soil and contemplate her majestic ruins without adding to the stores of taste and knowledge in which he was already so rich. At this period of his life and studies, he laboured under extreme ill health, the result, in a great degree, of his assiduous application to his professional pursuits. This prevented him from deriving as extensive advantage from his travels as otherwise might have resulted; it prevented also his visiting Greece, which he had proposed to do. He extended his journeys, however, to the south of Italy, visited the ruins of Pæstum, remained for some time at Paris, and visited on his return all the most remarkable edifices of England. There he improved his knowledge of that style which he ever preferred, and which he indeed introduced into his native island—"the Tudor," for we believe there exists no example of an edifice of this style in Ireland before its introduction in his works.

William Vitruvius for a short time after his return to Ireland, carried on his professional pursuits in connexion with his father, but he soon found that the numerous applications to him individually rendered it desirable that he should pursue his career independently. He was speedily indeed overwhelmed with business, which with the aid of several assistants he could scarcely accomplish.

We have remarked, as the great and striking peculiarity in the works of this eminent man, on the propriety which characterized his designs. This extended to every department of his edifices; his interiors, his ceilings, his stair-cases, chimney or mantle-pieces, all harmonize so beautifully with the principles of his design, that we feel ourselves transported into the times which the work characterizes. His sedulous care in thus guarding and exhibiting the propriety of design, extended to the laying out of the grounds and gardens of the mansions—a care which he ever took upon himself, and in which his nice judgment and intimate knowledge of his subject were equally displayed. The furniture of his Tudor buildings was likewise generally designed by himself, and his taste is exemplified in those minor details in all those edifices.

Whilst thus illustrating his noble art in his native country, and leaving monuments which should for ever establish his fame and his talents, he laboured under almost continued ill health, which seemed to have its seat chiefly in the nervous system. His malady produced the most extreme debility and dejection of spirits, which increased as he advanced in life, until at length every source of joy and pleasurable sensation seemed (as he often stated to the writer of this feeble tribute to his memory) "shut out for ever," and life for him seemed a "dreary waste." This melancholy state of health seems to have been connected with original delicacy of fibre and sensibility of temperament; and the severe attacks of malady to which his latter years were subjected, caused long and serious interruptions to his professional pursuits, as he was induced, with the hope of benefit to his shattered frame, to visit the continent. He resided during one winter at Nismes, in Languedoc, and visited the mineral springs of the Pyrenees; but in the summer of 1837, he was attacked at Bourdeaux with an accession of malady which brought on phrenzy; and after a subsequent paralytic stroke and protracted scene of suffering of nearly four months, he expired at his father's residence, Vaucluse, near Bray, on the 16th October, 1838.

During the long absence occasioned by his malady, the works were superintended by his father, a gentleman who had the good fortune to carry the health, strength, and energy of youth into an advanced stage of life.

Owing to this circumstance, it has occurred that the authorship of many of the designs of William Vitruvius has been attributed to Sir Richard Morrison—a mistake the more to be regretted as the latter very eminent architect has no need of adventitious laurels, having by a long series of admired works fully established his own professional fame and character.

The remains of William Vitruvius repose in the cemetery of Mount Jerome, village of Harold's-cross, near Dublin (as previously noticed in "THE DUBLIN BUILDER," in "A Ramble through our Cemeteries") where the piety of his friends has inscribed an epitaph to his memory.

The following are the most remarkable buildings designed and executed by William Vitruvius Morrison, M.R.I.A.:—

Ballyheige Castle, County Kerry, the seat of the late James Crosbie, Esq., M.P. (*vide* "Neal's Views of Seats," vol. 6, 8vo edition); Borris House, County Carlow, the seat of the late Walter Kavenagh, Esq., M P., a Tudor building (*vide* "Neal's Seats," vol. 6); Oak Park, County Carlow, the seat of Colonel Bruen, M.P.; Glenarm Castle, County Antrim, the seat of the late Countess of Antrim, a Tudor building, situate in a most lovely spot on the sea-shore of Antrim, surrounded by a noble park, and in full view of the highlands of Argyleshire, Scotland, distant not more than fifteen miles; Hollybrooke, County Wicklow, the seat of Sir George Hodson, Bart.—a building in the florid Tudor style. It is situated in a most romantic position, under the Sugar-loaf mountain, on a wooded bank, overhanging a mountain lake, and surrounded by bold and varied mountain scenery, twelve miles south of Dublin; Baron's Court, County Tyrone, the seat of the Marquess of Abercorn—a splendid edifice in the Grecian style; Clontarf Castle, County Dublin, the seat of John E. V. Vernon, Esq.—an union of the Tudor and castle styles of architecture. The castle and the ancient village of Clontarf (the site of the celebrated battle fought under King Brian Boroime against the Danes in the eleventh century) forms one of the most picturesque spots in the Bay of Dublin, distant scarcely two miles from that city; Oxmean, near Belfast, the seat of the Marquess of Donegal—a building in the Tudor style, on the shores of the river Lagan; Ballygiblin, near Mallow, County Cork, the the seat of Sir W. W. Beecher, Bart.; Mount Stewart, Newtown Ards, County Down, the seat of the Marquess of Londonderry; Brittas Castle, Co. Tipperary, the seat of Captain Langley. The design of this edifice was, by the desire of the proprietor, both in form and proportions, that of the ancient English baronial castle of the earlier period; the building, owing to the sudden death of Captain Langley, was never completed. The Priory, County Tipperary, the seat of Sir Henry Carden, Bart.—a building exemplifying the union of the abbey with the Tudor style of architecture, as seen in many edifices of the reigns of Henry VIII., Edward VI., Mary, and Elizabeth, when the confiscated abbeys were converted into dwelling-houses by those to whom they had been granted on their dissolution. Cottage at Lough Bray, County Wicklow, the seat of the late Sir Philip Crampton, Bart.—an example of the Swiss cottage style with the old English cottage (this building was erected at the expense of the Duke of Northumberland, when lord lieutenant of Ireland, as a complimentary offering to Sir Philip Crampton, for his professional services); monument to the memory of the late General Ross, at Ross-Trevor, County Down, erected by his widow; monument to the late Captain Skinner, at Holyhead, erected by subscription; Court-house at Carlow—a superb example of the Grecian style of architecture; Court-house at Tralee, County Kerry; Fassero, near Bray, County Wicklow, the seat of the late Judge Crampton; cottage at Ross-Trevor, County Down, the seat of S. Hamilton, Esq.; design for tower and alterations proposed at Trinity College, Dublin; Miltown, County Kerry, the seat of Sir John Godfrey, Bart., Tudor style (see "Neal's Seats,") vol. 6.

The following buildings, designed by William V. Morrison, were erected and carried on whilst in partnership with his father, the late Sir Richard Morrison:—

Ballyfin, Queen's County, the seat of Sir Charles Coote, Bart.—a superb edifice in the Grecian style; Kilruddery Hall, County Wicklow, the seat of the Earl of Meath—a noble example of the florid Tudor style. This edifice stands in a most romantic position in the midst of a mountain-park and surrounded by the grandest scenery of the county. The interior decorations correspond with the majestic style of the exterior, and it is a noble example of the taste, talent, and science of William Vitruvius Morrison. Shelton Abbey, County Wicklow, the seat of the Earl of Wicklow—*vide* "Neal's Seats," vol. 6—an union of the abbey with the Tudor style of architecture. A great part of the old fabric having been preserved by desire of the proprietor, and adapted to the modern building, the taste of the architect was much fettered in his design, and the building rendered much less perfect than it otherwise would have been.

HEALTH OF TOWNS.

Seeing that in "The Dublin Builder" considerable interest is being manifested in the sanitary arrangements of our towns, I take the liberty of offering a few observations on this important subject:

I think it may be laid down in a theorem that no individual has a right to do anything prejudicial to the rights of the community at large for his own benefit. In fact this is taken for granted in all sanitary legislation, and on this basis the whole of the coercive clauses of town improvement acts, &c., proceed. Clauses against overcrowding human beings in lodging houses, against erecting dwellings without yards, and others of a like nature, show that our senators are in some degree acquainted with the necessity which exists for such restraints. But I hold that legislation on this head, as in almost all others, is exceedingly defective. In a town improvement act, which applies to one of the largest towns in Ireland, there is a clause requiring each house to be hereafter built to have a yard 10 feet broad, but there is no provision made to prevent any part of this from being built on, and usually the greater part of it is covered with a return, offices, &c.

There may be towns in Great Britain and Ireland which are stationary as to their population, but I am not acquainted with them, and they are, if they exist, exceptions to the general rule, that all thriving towns are rapidly increasing in extent and population, and as a natural consequence many of their streets and thoroughfares are becoming much too confined for the increased number of wayfarers who now frequent them. Land also in many situations, when it was formerly of little value, has greatly increased in price, and as a necessary consequence soon becomes closely covered with dwellings, in order that the maximum amount of rents may be drawn from it—all tending to increase and perpetuate the evil of which I complain—of overcrowding the people. The ancient and laudable custom of forming squares in towns, seems altogether abnegated, and landowners appear willing to adopt only that design which will show the largest rental.

When a speculator has taken a plot of building ground, he puts his affairs into the hands of some percentage paid architect, and their views completely harmonise, for each desires to make the most he can out of the transaction; it is the interest of both to crowd as many houses as possible on the ground, irrespective of all other considerations. Such views, without legal restraint, has led to the building of lanes and courts in our towns, perfectly unfit for the habitation of man, or even the lower animals, and the work is still going on, for as yet there is no law to prevent it. To my mind legislation on the subject would be simple. Each house should occupy a certain number of square feet of ground, a certain portion of which should not be built upon. We have a general Towns' Improvement Act to be adopted, in whole, in part, or not at all, just as the influential classes think proper, and to three or four of the most important towns it does not apply, as they are excepted from its operations. In those towns the lawyers reap a rich harvest from the continual necessity which *they* see to exist for improvement bills. In a northern town of my acquaintance there are at least three governing bodies acting under the authority of Acts of Parliament. The Town Council has become rather notorious for the number of acts it has obtained, and there are besides the Water Commissioners and the Harbour Commissioners, each of whom have spent a considerable sum in the same way. All this convinces me that it is not lack of legislation which is the cause of the evils we complain of remaining unabated, but it has not yet taken the right direction. Surely the time has arrived for giving us laws that we can understand laws, applicable to all. I am of opinion that one general act could be made to apply to all towns, to all harbours, &c., and that there should be no exceptions, and that the time has arrived for applying the same laws to each of the three kingdoms. However, all I wish at present to enforce is, that the law, as it now stands, is entirely inefficacious to prevent or remedy many of the sanitary evils of our towns and villages. That drainage, cleanliness, an abundant supply of water, and the reformation of the dwellings of the poor, in narrow lanes and courts, should be compulsory everywhere, taking care that only a certain number of individuals should be allowed to reside on a certain area. Prisoners confined in our jails are usually allowed one thousand cubic feet of space to live and sleep in, with airy corridors and yards to take exercise in, scientific ventilation, and the enjoyment of many comforts, which are denied to the labouring classes of our towns and villages. The perpetual warfare carried on in Town Councils and the Houses of Parliament between the two great factions of Whig and Tory into which the population is divided, has a great effect in retarding useful reforms, so that with all our advances in the arts of locomotion, transmission of news, and substitution of mechanical for human labour, beyond that of our forefathers, we have in many respects been stationary, if not even retrogressive sanitary evils, and sanitary ignorance still largely prevail. Examine your churches or places for religious worship, and you will find many of them without any appliance for ventilation. Walk abroad and see noxious trades carried on in the very centre of a dense population. Look into some of the courts and alleys, three or four feet wide at most. Enter one of these abodes and count how many human beings reside in every thousand cubic feet of space, &c., &c., and say if there has been sufficient progress made in this direction. This is a subject to which, doubtless, you must recur again and again. M.

THE RENAISSANCE; OR, TUDOR STYLE OF ARCHITECTURE.

The taste displayed by most of our countrymen for works of art, in the erection of their residences, from the villa of the humble artizan to the lordly mansion of the possessor of Erin's broad acres, induces me to lay before your readers some few remarks upon that style now so generally adopted, and which for many centuries has so distinguished the works of English and foreign architects; and as these observations have been culled from the note-books of an honoured relative now no more, I think it but due to his memory to bring before your notice the complimentary remarks made by the compiler of that most interesting work, "Neale's Views of Seats," where, in speaking of "Kilruddery," the seat of the Earl of Meath, in the county of Wicklow, he says—"Much is due to the architect for the good taste of introducing into his native country a style before unknown in it." The note-bock from which I have taken the following, contains many exquisite designs, original as well as copied—they never came before the public; but I think when so manifest a display of refinement in the taste of our rising generation is made, more particularly in the style of which we are speaking, it would be selfish to withhold the information contained in the following:—

After naming the various descriptions of mansions remarked by him in his tour in Italy, France, and England, he mentions more especially "four houses," of which he says there were three sorts, "the kennelled, or embattled mansion, the hall, or unembattled gentleman's house, and tradesmen's habitations. The embattled mansion partook both of the castellated and collegnated forms; like the former, it was crowned with embrasures, and surrounded with a moat to the country, always one and sometimes three towers (though seldom more than one) placed at the front of most strength, which consisted of three or four storeys containing each a floor or room. Like colleges, the unembattled houses were uniformly constructed around a court with a turreted gate-house of entrance, throughout fortified with towers and a portcullis, as were castles; the principal apartments were the hall, the guest-chamber, kitchen, and chapel. The hall was a copy of those colleges which, in their time, were of conventual origin; here the master, with his guests and family, dined every day at a long oak table, elevated two or three steps above the rest on the high dais, whilst the retainers were seated below at right angles with it. The hall was lighted by one or more gothic windows and a long bow-window on the dais forming a recess; it had no fire-place, but was warmed by a thaycer of live coals in the middle, the smoke escaping by the rere dosse from the roof. At the lower end was a screen of latticed-work supporting the minstrels' gallery; under it was a narrow lobby communicating with the shuttery hatch, and beyond this the kitchen and other offices. The guest-chamber opened at the other end, and had a fire-place. The chapel was a small room over the gallery.

To those houses succeeded the embattled mansions of Queen Elizabeth's time; these were of two kinds, the greater and less. One an improvement on the rude quadrangle, the other an expansion of the castellated. One luminous and magnificent, the other compact and lofty. The characteristic accompaniments of those houses were huge arched fire-places in the halls and kitchens, chimney-places to the chambers of state, richly carved and adorned with armorial bearings, mixed with grotesque figures; and to those houses were generally grand long galleries for music and dancing—an apartment never existing in the more ancient mansions.

The embattled gentleman's house partook of these general features, but was smaller; it was in general returned from the street by a court round which opened the apartments, and entered by a gate without a lodge. The most ancient of these houses consisted of a through lobby with a "parler" beyond it on one side, and on the other the kitchen and offices. These were followed, in Elizabeth's time, by mansions having an enclosed park which led to the hall, where in the windows are found remains of painted glass with arms, cyphers, figures of ancient and scripture history. Small round or oval pieces, well drawn but in faint colours, unlike the glowing colours of the foregoing centuries. They appear to be of Flemish manufacture. The tradesman's house was one or two long ranges, terminating by gables in the street. The shop occupied the entire breadth, and was without glass; behind was the kitchen, and beyond a small court around which the warehouses and offices (the pride of the owners) were the signs which denoted their craft by some ancestral device; these either presented face to the street or were stuck on high roles opposite the door.

The foregoing I copy as written, perhaps, not intended for the critic's eye, but I think it best to give the ideas of the author without interference with the composition or diction. E. A. M.

Notes of New Works.

The Bank of Ireland Directors have completed their new office in the town of Roscrea, from the design of their architect, Mr. S. Symes. The building contains the usual requirements of cash-office, private office, and safes, &c., together with accommodation for the agent and sub-agent, and is somewhat in Italian style, having basement, dressings, and cornice of the neighbouring sandstone, with front of Coal Island fire-brick, forming, on the whole, a pleasing contrast. The work was executed by Mr. J. J. Bagnell, of Athlone, at total cost of £2,500. We understand that a building of somewhat similar arrangements but of larger proportions is about to be erected by them in the town of Tipperary.

The new Roman Catholic church of Louisburgh, Co. Mayo, is progressing towards completion.

The Roman Catholic church at Ballinrobe, for some time in an incomplete state, is to be finished. It is in the Gothic style, and was designed by the late Mr. Pierce, of Wexford, architect.

The model bas-relief for the northern pannel of the Wellington Testimonial is complete in the studio of Mr. Farrell, the sculptor, and represents the eventful moment in the battle of Waterloo, when the Marquis of Anglesey had his leg shattered by a cannon ball. This and the other bas-reliefs will be cast in bronze at Woolwich. The pannels are 87 feet in length by about 7 feet in height, and the figures are life size.

It is proposed to erect a new Scots' church in the city of Cork, and £1,400 was recently subscribed at a public meeting for that purpose.

The works on the Newry and Armagh Railway are being pressed forward by the contractors, Messrs. M'Cormick and Co., who have recently completed the Dundalk and Enniskillen line, and are engaged on extensive works at Birkenhead.

The Earl of Portarlington is about to commence building an extensive wing to his mansion at Emo Park, with a saloon and drawing-room, and sundry internal decorations, which will cost from £5,000 to £6,000. Mr. W. F. Caldbeck, architect; Mr. Thos. Connolly, Besborough Parade, Rathmines, Dublin, contractor.

A new church is to be built at Upper Falls, Belfast, by the Ecclesiastical Commissioners; also by the same Board, one at Kilmachedar, Co. Kerry. Extensive works are to be executed at the churches of Forkhill, Co. Armagh, and Aglish, Cloghane, Co. Tipperary.

The county courthouse at Longford is to be enlarged and altered, and an entrance lodge built to the county gaol.

Additional works beyond those already mentioned are to be executed at Newbridge barracks.

The Committee No. 1, Dublin Corporation, are seeking for contractors for several proposed new sewers, and improvement of some existing ones in the city. Tenders to be in before 10th June.

A new Protestant Hall is to be erected at Waterford, and tenders are invited.

A Bridewell and Courthouse are to built at Newport, Co. Tipperary.

New works are to be built for the Dungarvan Gas Company.

The remaining portion just opened of the Limerick and Ennis Railway is nearly complete, including a heavy bridge over the river Fergus. The terminus at Ennis is in a forward state.

Mr. Meade is building the Commercial Mart in Grafton-street, under the direction of Mr. Rawson Carroll, architect; expenditure, £6,100. Also two houses at Rathgar, for Henry Todd, Esq., and two for Dr. Gray, in same locality.

MUSIC AND THE DRAMA.—During the past month, English opera has been in the ascendant at the Royal, and the Pyne and Harrison troupe have been charming crowded audiences. Coming so quickly after the galaxy of "stars," lately visible in our hemisphere, no artists of mere moderate ability could secure an attentive ear and an applauding hand. Such, however, did Miss Pyne and Mr. Harrison, especially by their excellence, and the other members of the corps, partially succeed in doing, and amongst the novelties produced was Balfe's opera, *The Rose of Castile*, most favourably received by the criticising deities of our National Theatre, an *impresse* almost indispensable to secure success elsewhere. At the Queen's, Mr. Charles Dillon, Miss Isaacs, and Mr. Norton have been delighting the multitude.

The first stone of a villa, which Rossini intends building at Passy, was laid recently, near the promenade du Ranelagh. The maestro himself officiated on the occasion, and placed under the stone an inscription and a medal, which had been struck in honour of his "Stabat." Mme. Rossini concluded the ceremony by planting a rose tree.

Reviews.

Moore's Handbook of Railway Law. London: W. H. Smith and Son, Strand; and Bradshaw and Bradlock, Manchester.

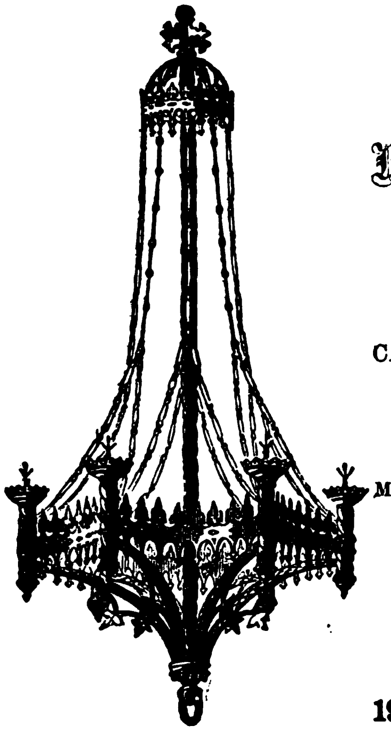
ACTS of Parliament are seldom palatable subjects, unless, perhaps, for certain legal gentlemen of peculiar digestive organs, much less so would they be for us than even the general public, considering our peculiar avocations. If, however, a work readable by any and every person, compiled in a clear and simple manner, divested of abstruseness on the one hand, or wearisome repetitions and puzzling technicalities on the other, is presented, we should—even though its contents might not come strictly within our province—reasonably incur censure were we to decline its perusal or hesitate to advance an opinion on its merits. Such is that before us, and we cheerfully contribute our meed of approbation to a gentleman who has undertaken a Herculean task fulfilling it with peculiar credit to himself, and advantage to the public. As an evidence of the labour incurred in its compilation, we may mention that during the thirty-eight years ending 1858, no less than 1686 special Railway Acts passed the British Legislature, no trifling pile of documents for an author to wade through, even to cull an intelligible abstract. The work opens with a very interesting sketch of the history and progress of railway legislation, to which are added statistical and financial statements, comprising mileage of each gauge, table of employés, expenditure, average working expenses, &c., &c.; and we may also notice that much valuable information is contained in this volume for railway engineers respecting the standing orders with regard to deposit of plans, the regulation of level crossing, arches, viaducts, tunnels, drainage, fencing, junctions, &c., &c., without lightly passing over the quantity of valuable *materiel* of a more immediately legal character with which the work is filled. The author, Mr. Moore, is Secretary to the Dublin and Wicklow Railway Company, and distinguished for his efficiency, coupled with a courtesy and affability occasionally but not *always* to be met with amongst railway officials, and was formerly assistant secretary to the Poor Law Commissioners, author of "A Compendium of the Irish Poor Law, &c."

Town Swamps and Social Bridges. By George Godwin, F.R.S., Editor of *The Builder*, &c. London: Routledge, Warnes, and Routledge.

HAD the work before us been compiled by a mere essayist in philanthropic and sanitary pursuits, a special analysis of its claims for favour should have been rendered desirable previous to our hazarding an opinion; but when we come to review the production of an author who has laboured indefatigably in a certain cause, collecting incontrovertible data and material during many years of careful observation, and thereby acquiring a justly-earned celebrity, the case is altered, and criticism almost becomes unnecessary. With a view of ameliorating the condition, social and sanitary, of the low London poor, the author has penetrated into the dark mysteries which are to be found even in that metropolis, illumined by the wealth, beauty, and talent of the world, and has succeeded—by bringing to light startling facts—in thoroughly verifying the old saying that "not one half of the world knows how the other half lives." Mr. Godwin, in his conduct for many years of that able and popular periodical, *The Builder*, has systematically and in a series of articles maintained the necessity that exists in our towns for important sanitary reform, for spacious and well-ventilated dwellings, effective sewerage, &c., &c.; but not simply content with advocating improvement as a theorist, he applied himself practically to the illustration of results arising from non-observance of the fundamental principles which sustain animal life, and which in the social scale are calculated to raise man above the inferior branches of creation. These articles, with many additions, have been reproduced in book form, under the respective titles of "London Shadows," and "A Glance at the Homes of Thousands," to which latter the book now before us is a sequel, and they are well worthy the perusal of every well-wisher to the community. If we might express a regret, we should proclaim it a pity that a work having objects of such a laudable and permanent tendency should have been presented in so perishable a form. The contents, however, will outlive the cover, and we wish it may be read extensively.

The Masons, Bricklayers, Plasterers, and Decorators' Practical Guide. Edited by Robert Robson. London: James Hagger.

THE first few numbers (1, 2, and 3) of this work have come to hand, and though we cannot judge of the whole by a part, we nevertheless believe ourselves to be in a position to offer a few comments upon it. The author of a book presumed to be intended for *practical* instruction to the working classes should keep that object strictly in view from first to last, and not attempt too much otherwise, by way of variety. To construct is *one* thing; to design *another!* In the *one*, instruction may be imparted unsparingly, but in the *other* slowly, systematically and judiciously. Workmen are wont to overrate



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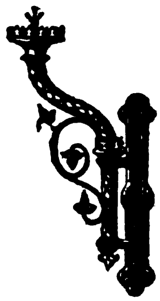

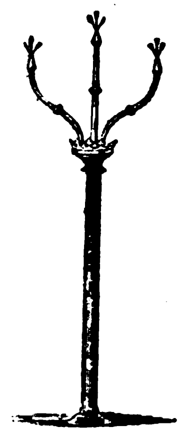

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The Dublin Builder.

VOL. I.—NO. 7.

THE CASTLE OF AUGHNANURE, CONNEMARA.

THE road from Galway to Oughterard runs thro' a wild mountain district, in many places bearing no vegetation whatever — the surface shewing, as far as the eye can reach, little save the limestone strata which everywhere presents itself to view, sometimes occurring in large, rude and irregularly detached masses, but more frequently appearing as if strewn by nature's hand with giant pebbles in her playful moods; while here and there enormous boulders of granite, with lesser ones of freestone and sandstone, are scattered with an unequalled profusion. Occasionally the limestone crops out from the surface in steplike form, strongly reminding us of the Giant's Causeway from the sea; and were it not that occasional valleys and terrace-like slopes are clothed with luxuriant vegetation, appearing like so many oases in the desert, we could easily impress ourselves with the notion that the entire district had been but a few days lifted from the depths of the Atlantic, where it had lain submerged for ages; this more forcibly presents itself to view on examination of the surface stone, which shows the freshest appearances of their gambols with the waves in their original ocean bed.

A recent ramble of ours in the wilds of Connemara led us to the town of Oughterard; here the river Feough, a mountain torrent, dashes impetuously over numerous obstructions of rock forming itself in a succession of magnificent falls through the highly picturesque grounds and romantic dell of Clareville. Immediately under the cottage of the late celebrated Dean Kirwan the current has completely washed away the lower strata of limestone, leaving overhanging ledges of rock covered with plantation to their summits, and projecting fully twelve feet over the stream, looking like the ruined arches of gigantic viaducts of a former period overgrown in their decay.

Following the course of the river towards Lough Corrib, and passing through a portion of the estate of G. O'Flaherty, Esq., of Lemonfield, and of John Doig, Esq., a hardy Scotchman and recent proprietor, we cross a natural bridge which has been hollowed out by the continuous percolation of the waters underneath, and deriding, in the solidity of its construction, some of our most modern engineering works; then, after traversing a distance of about two and a-half miles, we arrive at the Castle of Aughnanure—in Irish, "*Achana nu-re*," "the field of the yews," so called from the number of trees of this genus which formerly grew in the locality; one alone of their number now survives—an isolated and truly venerable specimen—with its scathed and timeworn trunk of many centuries overgrown with pendant ivy, yet exhibiting in the undergrowth from its stem an amount of vitality scarcely to be credited when considering the traditionary age assigned to it.

Edmond O'Flaherty, Esq., the present proprietor, in shewing us over the ruin, called our attention to the numerous young trees of yew which he had planted, and which he informed us were presented to him by Dr. Willis, of Dublin, a zealous antiquarian, as a memento to perpetuate to future generations the derivation of the name of the locality.

The castle itself, a square embattled structure, stands upon a slight eminence over the river, and must have been a place of very considerable strength and importance, surrounded by its bastioned courtyard and loopholed towers, entered by an embattled gateway and portcullis with its attendant drawbridge; no vestiges of either of the latter uow remain. The style of architecture is an intermixture of later Norman and early Tudor, and presents an unequalled specimen of the homestead of the Irish warrior chieftain of about the period of Elizabeth. The great kitchen, with its enormous fireplace, its huge cellars and culinary offices, with accommodation for numerous retainers, surround the dwelling, while the remnant of a magnificent banqueting-hall exhibits a *penchant* for architectural grandeur scarcely to be expected in feudal times. One flank of this building alone remains, the other having been undermined and washed away by the mountain torrent which flows underneath the castle.[*] The window mullions of the existing flank are still perfect, the jambs and soffits of which are richly and elaborately carved—the vine, with its clustering bunches of grape, forming a prominent feature, as if to attest the magnificent hospitality of its former proprietors.

Entering the castle through a deeply embayed doorway, our attention was particularly directed to the intrados of the arches of the dungeon keep, still shewing the remains of the centreing (and this appearance presents itself more forcibly in the adjoining double stone-roofed barbican), displaying their construction upon wattles or basket-work, the mortar still presenting nearly the same appearance as when the centres were struck, but indurated and coated over with the stalactite formation of ages. The mezzanine floors between the dungeon keep and arched ceiling of the principal rooms have all disappeared; an immense fireplace in what was the principal apartment, with its chiselled and corbelled dressings, shews that turf was consumed in vast quantity in these ages. Ascending by a winding stairs loopholed on two sides, and built in the solid wall, with its newel chiselled in the limestone (and which, with the exception of a few steps having given way, is in a good state of preservation), we reached the arched floor over the chieftain's own apartments, and thence ascended to the embattled parapet, from which we obtained a magnificent view of Lough Corrib, tinted in a deeper blue in the reflection of a cloudless sky, and studded with its countless islands clothed in the richest verdure of June, with their shadows unbroken in the calm waters upon which they appear to float. The roof has entirely disappeared, and no vestiges are there to indicate its construction, if we except the corbel blocks which supported the girders, but these we are inclined to suppose were a later addition, possibly introduced from necessity by the failure of the original stone roof, traces of which may be imagined in the haunchings still shewing on the surrounding walls; around the parapet cullisses or gutters cut in limestone, with their accessory gurgoyles, still remain. Similar gutters with basined heads also occur in connection with the machiolations of the corbelled parapets, as if for the purpose of pouring molten lead on the heads of besiegers.

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[*] Tradition tells strange tales in reference to this Castle. Our attention being directed to a trap in the floor of the dungeon keep, we were informed that prisoners were consigned after execution through it to their last resting-place, by being lowered into the torrent underneath, where their bodies were rapidly borne off in the stream. Like Dunluce Castle, it has its histories of countless treasures buried within its precincts, on the summit of its arches, and beneath the waters which flow within its walls, but these form no part of our researches to reveal—possibly their origin may be traced to the fireside tales of a highly imaginative people.

In an ancient manuscript preserved in the Library of Trinity College, Dublin, some account is given of this Castle; the names and occupations of all the followers or retainers of the great O'Flaherty are stated with precision, and it is referred to by the learned Roderick O'Flaherty as affording protection to the Lord Deputy, the Marquis of Clanricarde, when Galway was besieged by the parliamentary forces under Sir Charles Coote, in 1651.

The date of this building is uncertain; all we could ascertain upon the spot was that in the last century the keystone of the arch of the great entrance gateway had the inscription of its foundation still remaining upon it, but this stone has disappeared, and here our information ceased. That its age must be considerable, there can be no question; from its architecture we would assign it to the early part of the sixteenth century, but the banqueting hall must have been a later erection, when the necessities for predatory warfare no longer existed.

The only authentic and unquestioned information we can adduce respecting this interesting ruin, is—its being erected by and recognized for centuries as the stronghold of the O'Flahertys, the great chieftains of Connemara (who are now represented in the family of the O'Flahertys of Lemonfield, direct descendants in the female line through the celebrated chieftainess, Granu Uile); and as pacing through its ruined courtyard—history, with its myriads of recollections crowded upon us—by an easy transition of fancy we peopled the now desolate and beautiful ruin with phantoms of the past. Stretching before us lay the mighty expanse of Corrib; while on our left peered forth heavenward, bathed as in mist at a distance, the giant amphitheatre of the Joyce mountains, heightening the charms of the scene; and far and away over the bronzed heather* and freshly turned upland, the peasantry, with their sunburnt faces and foreign aspect, were engaged in industrial occupations, assisted by women and young girls with their madder-dyed petticoats and hooded heads reminding us of their Spanish origin; and the waters, the mountains, the heather, the upland, and the people appeared with little change as they did long, long ages ago—recalling to us reminiscences of deeds of (we would fondly imagine) the darkest pages in Irish history, of which the spot where we then stood had been one of the occasional theatres.

A paper read at the Institution of Civil Engineers, "On the Permanent Way of the Madras Railway," gave rise to a discussion in which it appears that the simplest form of construction is to be preferred—that is, screwing the rails directly down upon wood-sleepers, because the natives are much given to steal chairs, "fishes," and bolts. It is believed that cast-iron sleepers will be found preferable to wood, especially in hot climates. Iron sleepers answer best in Egypt; and a form known as "trough-sleepers" and "cup-sleepers," having no chair or projecting parts, has been tried for some years on one or two of the main lines running out of London, and with success. On the Midland Railway they were laid near the Derby station, "where they were subject to a traffic of 550 engines, 2400 wagons, and 120 carriages every twenty-four hours;" which may be regarded as a pretty severe test. Sleepers of Scotch fir, properly creosoted, have been found quite sound at the end of sixteen years. Better still is the yellow pine brought from St. John's, New Brunswick, which, after twenty years' use in docks at Liverpool and Sunderland, remains sound and unaltered; and, so far as experience goes, creosoted timber is not attacked by the teredo.

CONTRACTORS' LIABILITIES!!

THE LATE FALL OF A HOUSE IN GRAFTON-STREET.

KEMPSTON *v.* BUTLER.—This was an action brought by Mr. Kempston, the late proprietor of an establishment, carried on at No. 82, Grafton-street, against the defendant, Mr. John Butler, a builder under contract for the erection of the adjoining house No. 83, to recover damages for alleged negligence of the plaintiff in taking down said house in November and December, 1858. The summons and plaint charged the defendent with gross negligence, by reason of which the plaintiff's house fell; and it also stated that Mr. Kempston's house was entitled to rest on the adjoining house, No. 83, and that the defendant having improperly removed that house was liable to make good the plaintiff's loss. There were also counts for breaking into the planitiff's house and carrying away his goods, and in trover, &c. The defences traversed or denied all these allegations, and pleaded to the two last counts, that the plaintiff's goods were encumbering his close, and he took them away, and was justified in doing so, &c. The damages were laid at £7,000.

It appeared that the house in question, No. 82 Grafton-street, formerly belonged to Mr. James O'Reilly, who had expended about £400 on the premises within a short time before he sold them to the plaintiff, who also expended a sum of £100 additional, and continued to carry on the same business, which was alleged to be an exceedingly profitable one. The adjoining house, No. 83, was at this period (March, 1858) the property of a gentleman named Ferguson, but that gentleman shortly afterwards disposed of his interest to Mr. Francis Falkner, of Grafton-street, who employed the defendant to take it down and rebuild it upon a more extensive scale. The defendant proceeded to take down No. 83 in November, 1858; but the case of the plaintiff was, that having neglected to prop or shore up No. 82, as he was bound to do, that house fell in the month of January, by which Mr. Kempston lost a considerable amount of property, &c. The amount claimed for damages was £975 to rebuild the house, and the injury sustained by the loss of business, and the value of the goods destroyed and damaged.

Upon the part of the defendent it was sought to be sustained that the house No. 82, which fell, was a very old one, and that everything was done by Mr. Butler to prevent it from falling, and that, in fact, it came down from the effects of old age, and not owing to any negligence whatever on his part.

Counsel for plaintiff, Sergeant O'Hagan, and Messrs. Lynch, Q.C., and J. J. Murphy; and Messrs Fitzgibbon, Q.C., M'Donough, Q.C., J. E. Walsh, Q.C., Exham and Osborne for the defendant.

The plaintiff at the conclusion of his case, was non-suited on a technicality that the plaint only alleged negligence in taking down defendant's house, and not as a fact that it was his duty to shore up defendant's house. Liberty permitted to apply to the full court to set aside the nonsuit.

We extract the following paragraph on the same subject from the *Freeman's Journal*:—

"We observe that in the case of the house that fell in Grafton-street, the owner has not been successful in recovering the amount claimed from the builder of the next house, the learned judge having directed a non-suit. The decision is a most important one. It has been too much the practice, especially in our trading streets, to build houses against each other, and not self-supporting, as they ought to be. The result is that an enterprising and improving shopkeeper is prevented from altering or rebuilding an old house, because a number of other old houses are resting upon it, and he runs the risk of bringing them down and leaving himself open to actions for damages to an enormous extent, as in this case, where compensation was sought for the actual loss incurred, and in addition for the consequential damage for interruption of business, &c, &c. The learned judge clearly laid down that the parties building were not bound to uphold the other house, or even to prop it. If it had been supported for twenty years by the adjoining house, just for so long had the latter had a just cause of complaint. In future, therefore, each party must look to his own house, and we consider the decision a most beneficial one to the interests of the trade."

THE SANITARY STATE OF BELFAST.—*The Weekly Press* says that some time ago, a paragraph was published with respect to the sanitary condition of London, and upon this statement the Police Committee of the Town Council—or, at least, their officer—made an investigation into the sanitary condition of this town. We are highly gratified to learn that this return will show that Belfast stands in a first-class position when contrasted with other towns in the United Kingdom, and we believe that this is greatly to be attributed to the vigilance of the present inspector—Mr. Lavery.—[This contrasts very strongly with the account to be found elsewhere in this journal, as furnished by our correspondent, which is unimpeachably authentic.—ED.]

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* This entire district is peculiarly rich in fern—every moorland, dell, fence, and rock being overgrown in profusion, from the stately osmunda regalis down to the humble asplenium tricomanes; to the admirers of these interesting habitats of the wilds, we strongly recommend a visit to Connemara.

Biographical Sketches.

JAMES GANDON.

DUBLIN enjoys a world-wide celebrity for the beauty of her public buildings; and foremost amongst the architects of bygone times, whose abilities were enlisted in her embellishment, stands the subject of our present biography. Unfortunately, although Ireland proudly boasts of many of this great man's realized conceptions, she cannot classify him amongst her own gifted children—of whom, however, in the architectural profession practising at home, there always has been an acknowledged scarcity—inasmuch as Mr. Gandon was born in London, and descended paternally from French ancestors, and his mother was a Welsh lady of the name of Wynne. On the 29th of February, 1742, James Gandon was born, and at the age of seven years was sent to a boarding-school at Batfield, in Herefordshire, where he remained two years, and subsequently was removed to another at Kensington, where he was five years, and early displayed a great taste for drawing, mathematics, chemistry, landscape, and ornamentation. At first his father intended him for the corps of Engineers, but fate had ruled otherwise; for on the coming of Sir William Chambers to pursue his profession in London, young Gandon was apprenticed to this great master, who recognised in his boyish architectural essays, abilities of an uncommon order. Whilst pursuing his studies with him, he was introduced to, and, in fact, became the *protegé* of the late Earl of Charlemont—a nobleman distinguished for his scientific and artistic attainments. Several other valuable friends stepped forward afterwards to aid him in his career, and Mr. Gandon withdrew from his master's office to practise on his own account, as he thus expressed it—"I have now commenced my career, with a determination to make every effort to obtain public approbation."

Some of the young architect's first works were for halls and offices for public companies in London, and he was appointed by the East India Company, architect and C.E. to Fort Marlborough, in the Island of Sumatra; but he subsequently declined the appointment, on account of the climate. In 1776, he, in conjunction with Mr. Woolfe (an Irishman), the Board of Works architect, formed the intention of publishing a continuation of "Vitruvius Brittanicus," commenced by the eminent Colin Campbell, and three volumes of which were published by him. With this work our readers are mostly familiar, and the undertaking may be considered as one of an arduous and formidable character. In 1767, Mr. Gandon exhibited drawings at two public exhibitions, which attracted much admiration. In succeeding years, until he came to settle in Ireland, in 1781, Mr. Gandon executed several works in England of a palatial and domestic character chiefly; but the first work in this country with which his name is identified was the competition for the Royal Exchange, now degenerated into a "City Hall" for the second city in her Majesty's kingdom, in which, however, he was unsuccessful, as Mr. Cooley obtained the work. The Royal Academy, in 1769, offered to give three gold medals for the best designs in painting, sculpture, and architecture, and Mr. Gandon entering the lists as a competitor, "was soon informed, to his very great gratification, his design was declared the best, and that, consequently, he should obtain the gold medal." The subject was that of a triumphal arch; and on the occasion of the distribution the impromptu powers of the competitors were tested, and it falling to the lot of young Gandon to sketch a design for a park gate, he immediately did so, and the Committee, amongst whom was Sir William Chambers, congratulated him warmly on the success of his designs. In 1771, Mr. Gandon married, and became the proprietor of an extensive household. Competing for a proferred premium of 100 guineas for the best design for a lunatic asylum, "The new Bethlehem Hospital," on a very extended scale, with a frontage of 540 feet, and depth of 350 feet, it was unanimously awarded to him by the committee, but the execution of the work was handed over to some man "of mere lath and plaster." This was the last public work for which he competed in England, and it nearly cost him his life, as it became necessary for him to inspect personally each apartment in the old building, where, to use his own phrase, "he encountered the most deplorable cases of the wreck of the human mind," which first caused sleepless nights, horrible dreams, and finally produced brain fever. We next hear of him preparing designs for the new Custom House in our city, and being called on to superintend its erection, he arrived in Dublin on the 26th of April, 1781. At this period of his career, then, we leave him for the present, intending to resume our biography in next number.[*]

ELECTRIC LIGHT.

WE stated a few days ago that an experimental car, bearing an electric lighting apparatus, had been seen in the streets of Paris; hence it may not be uninteresting to explain to our readers the nature of such an apparatus. The principle on which it is constructed is electro magnetism – that is the property which electricity has, under certain circumstances, of producing magnetism, and conversely. Suppose a wire, many yards in length, and clothed with silk, to be coiled round a hollow cylinder, and let a magnetic bar of steel fit like a core in the hollow; then, each time this core is introduced into the cylinder, an electric current passes through the wire; though of short duration, its intensity is proportional to the length of the coil. Again, each time the core is taken out another electric current is produced in an inverse direction; so that by constantly inserting and drawing out the core an indefinite number of electric currents may be obtained. If the core, instead of being a magnetic steel bar, consists of a bar of unmagnetized iron, and an electric current be made to pass through the coil of wire, and then an equally singular effect is obtained; the iron core becomes so highly magnetized that it will raise heavy bars of iron, and the attraction is so great that it requires a strong man to wrench the bar from the magnetized core. This effect, however, ceases as soon as the electric current is interrupted. It is clear from this that it is much easier to obtain a permanent effect, by magnetizing and unmagnetizing a bar in this way than by alternately inserting and drawing out a steel magnet, as in the former method; and the only difficulty that remains is to give the apparatus a convenient mechanical arrangement. This is done as follows:—Suppose a hexagonal frame, placed horizontally on legs, like a table. At each of the angles let there be one of the electro magnets, or cylinders of induction with wire coiled round, above described, and supported by an inner frame, so that the whole may have the appearance of a horizontal wheel, with electro magnets for spokes; only the nave is supplied by a hollow frame. In this hollow there fits a drum, revolving on a vertical axis, and carrying on its circumference eight bars of soft iron, which, in going round, come very nearly in contact with the electro magnets. Now, from what has been said, it is easy to understand that, whenever one of these bars approaches the electro magnet, it is attracted laterally until it comes in front of it, when the action of the electro magnet ceases; but at that instant the attractive power of the next electro magnet commences, and so on. Now as each of the bars thus receive six impulses in one revolution, and as there are eight bars, the number of impulses received in all by the revolving drum is 48, which impulses occurring in a very few seconds produce in point of fact a continuous motion. Now, if the place of the spokes be occupied, not by cylinders of induction, but by magnetised iron bars, the cylinders being fixed on the revolving drum, and their hollows fitted with cores of unmagnetised soft iron — then, each time a cylinder comes in front of a magnet, the soft iron becomes magnetised, and generates a current in the coil, which ceases as soon as the cylinder changes its place. Now, as the motion is continuous, and the revolution rapid, each ceasing current is replaced by another, and so on *ad infinitum*. These currents are concentrated into a common conductor, and by this means an amount of electricity is obtained which will melt an iron wire three yards long and one-fourth of a line in diameter, and perform greater wonders still, according to the power of the apparatus. One consisting of 32 cylinders and 24 magnets, and made to revolve 235 times in a minute, was seen to produce a permanent and regular light equal to that of 230 tapers. Such, indeed, was the intensity of the light produced, that a lighted candle being held against a white wall, not only the shadow of the candle, but also the shadow of the flame was projected on the wall by the electric light. The cost at which electric light of the intensity described might be produced, would not exceed 15 centimes per hour for each apparatus.—*Galignani's Messenger.*

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[*] We are indebted for the principal incidents in the life of Mr. Gandon the work compiled by the late Thomas J. Mulvany, R.H.A.

Scientific and Artistic Memoranda.

Mr. Mallet, C.E., in an able paper read before the Institution of Civil Engineers, stated that "the larger the mass of wrought iron ore, the more liable is it to the occurrence of flaws on cooling," and that "overmuch forging is a cause of weakness."

Mr. Wheatstone has invented an improvement in telegraphy, called the automatic writing telegraph, by which 500 letters a minute may be printed, with simpler instruments than those at present used. It is now in use at the House of Lords, and at the London Docks. It admits of ready application indoors, and in the field; the Emperor of the French ordered a pair some three months ago. Provided with these, he could flash messages from the front to the rear of his army over a distance of fifty miles.

Mr. Fleming, C.E., has invented a new compound rail for railways, in which he inserts a core to maintain the continuity, and thereby do away with the joints; and the top and bottom of the rails being alike, admit of them both being used for the same purpose.

Mr. Ruskin, in a recent lecture at Bradford, advised artists and manufacturers not to study mere fashion and caprice, but that which is true and elevating; to leave off stealing designs from one another, and seek rather to invent for themselves. [We wish he would promulgate this doctrine in some of our Irish towns.]

Mr. Allan proposes a system of telegraphic communication between England and her colonies and foreign possessions, which shall keep clear of the continent, by means of a submarine line direct from Plymouth to Gibraltar, thence to Malta and Alexandria, and onwards to India. This, as he shews, would render us independent of foreign powers and operators, and enable us to communicate with the more dispatch. Mr. Allan would make his cable with a solid copper core, strong enough to resist any amount of strain, whereby it would be stronger and yet lighter than the Atlantic cable laid last July.

Mr. Hearder of Plymouth says, that as engineers have got over the mechanical difficulties of laying a cable. so electricians should overcome the difficulties that hinder its working. As the result of his investigations on the subject, he states that a cable is best fitted for the transmission of a charge when it has a fibrous layer between the wires and the gutta-percha, or between the gutta-percha layers themselves. Flax or hemp would be a suitable material, and at the same time greatly strengthen the cable. "Such a cable," says Mr. Hearder, "when made of the requisite dimensions, need not weigh more than six hundredweights per mile in air, or one hundredweight in water; and from experiments made with a sample of an analogous construction, the breaking strain would be upwards of seventeen hundredweights, or equivalent to between 17 and 20 miles of its own length in water. It will be remembered that the Atlantic cable would not support three miles of its own length in water; and I question much if the integrity of its gutta-percha coating could be depended on under the strain of a single mile."

SUPER-HEATED STEAM.—Further experiments are making with super-heated steam, and with the advantage—a saving of 30 per cent. The *Valletta*, a steamer belonging to the Peninsular and Oriental Company, has just been fitted with an engine on the super-heating principle, by Mr. Penn, and the result is as described. The temperature of steam, as commonly used in engines, is 250 degrees; the super-heating raises it to 350; and it is by an admission of a portion of this to work with the common steam that the effect is produced. The super-heating, in the present case, is accomplished by a system of pipes in the smoke-box; and we are told that the principle is applicable to all kinds of engines. The coal-bill of the Peninsular and Oriental Company amounts to £700,000 a year; hence a saving of 30 per cent. will add largely to their profits.

By advices from New York we learn that, although the *Ericson* was a failure on the great scale, the air-engine has nevertheless completly succeeded on the small scale. Up to five-horse power, it is as effectual as steam, and not one-tenth of the cost; so that, in American phraseology, "the Ericson air engine is going to wipe every other kind of engine off the slate:" that is, so long as it does not exceed five-horse power.

BELFAST FINE ART EXHIBITION.—The Committee of the Fine Arts Society, having very judiciously determined to admit the working classes on Saturday evenings, on payment of threepence each, a "limited" number of individuals availed themselves of the great privilege thus offered to them. When it becomes better known amongst the working classes, we doubt not but hundreds of them will take the opportunity of visiting this excellent collection of works of art. [We are glad to see that the Society has thus far met "the working classes," but in this age of cheap education, we think they might have gone still farther and reduced the charge to *one penny*, for the prudence of which they have precedents in a metropolitan institution of a similar character.—ED.]

DECIMAL COINAGE.

THE final report of the commissioners appointed to investigate this subject has at last been sent in. The document is published in the form of a blue-book, the bulk of which consists of drafts or preliminary reports, and copies of documents put in in evidence, some of value. but the greater number partaking of the ordinary character of blue-book appendices. The actual report consists of a statement of the reasons in consequence of which the commissioners have decided not to recommend any change in the existing coinage. The following are some of them:—That there appears to be no approach to unanimity of opinion, on the question of the introduction of decimal coinage, in the commercial or other classes of the community. That it is very difficult to come to any useful conclusion as to the merits of the decimal principle in the abstract, distinct and peculiar difficulties attending each separate form in which it has been proposed to introduce the decimal principle into the coinage of the country. That the pound and mil scheme is the only form in which, under the present state of public feeling in this country on the question, the introduction of the decimal principle into our coinage can be contemplated with any reasonable probability of sufficient support. That as regards paper calculations there appears to be a preponderance of advantage on the side of decimal coinage; but the extent of the superiority in that respect may be the subject of much difference of opinion. That as regards the comparative convenience of our present coinage and of the pound and mil scheme, for the reckonings of the shop and the market, and for mental calculations generally, the superiority rests with the present system, in consequence, principally, of the more convenient divisibility of 4, 12, and 20, as compared with 10, and the facility for a successive division by 2, that is, for repeated halving. That as regards the comparative convenience of the coins provided by the rival systems, the advantage appears to rest with our present coinage. That the advantages in calculation and account-keeping anticipated from a decimal coinage may, to a great extent, be obtained without any disturbance of our present coinage, by a more extensive adoption of the practice now in use in the National Debt Office, and in the principal Assurance Offices, viz. of reducing money to decimals, performing the required calculations in decimals, and then restoring the result to the present notation.

NEW CHURCH OF ST. PATRICK, CELBIDGE.—The dedication of this new edifice took place on the 19th ult. It is something more than two years ago since the foundation was laid by the most Rev. Dr. Cullen. It is in the early pointed style of the thirteenth century, comprising nave, chancel, and side aisles, with votive chapels, one dedicated to the Virgin, and another to the holy sacrament. The high altar has a slab or table supported by pillars of Cork red marble. The reredos is similiarly composed of opes and pillars of the same rich materials, with richly wrought capitals. The marble tabernacle is of beautiful design and workmanship, over which rises a canopy to the height of thirty feet, surmounted by a richly carved cross and adorned with figures of angels, &c. The great eastern window over the altar is filled with stained glass of beautiful design, the compartments containing representations of the mysteries of the faith, and beneath pictures of the Virgin, St. Joseph, St. Patrick, and other saints. The arched ceiling of the chancel is pannelled for the reception of appropriate paintings. The aisles are separated from the nave by pillars of wrought sandstone, with moulded capitals, from which spring pointed arches, over which is a high clerestory containing two tracery windows. The west front presents the graceful and deeply moulded arched entrance forming the main portal, above which rise a couplet of lanceolate windows richly adorned. The windows of Our Lady's chapel and the other votive shrines are of splendid design in stained glass, through which light falls upon the interior.—Mr. J. J. M'Carthy was the architect; Mr. Robert Farrell, the builder.

At a recent sitting of the State Council, the Empress Eugenie in the chair, and in presence of ex-king Jerome, it was settled that a bronze column, as tall as that in the Place Vendome, to be formed out of Austrian cannon from Italy, should be set up on Place de la Concorde, with a statue of Napoleon III. to correspond with that of Napoleon I. At Milan, the Arco del Sempione, a marble structure of the first Emperor, is to be completed on its original design, with a chariot of bronze on top, and Napoleon III guiding the team. It is to take the name of the "Arco della Pace."

THE NATIONAL PORTRAIT GALLERY.—Several works have been added to the National Portrait Gallery, London. They consist of Cowley, the poet; Selden, the Marquis of Ormond, Lord Hood, and the seven bishops who were tried and acquitted in James II.'s reign. The two first-named are, however, the only one of these new acquisitions which are yet hung up in the rooms. The others, requiring to be framed, and otherwise prepared for exhibition, will not be exposed to public view for a few days yet.

SANITARY CONSIDERATIONS.

SEWERAGE—NO. V.

HITHERTO we have described in our papers on this subject a succession of failures of plans for remedying the evils of the present sewerage system, and we have pointed out the utter uselessness of throwing away hundreds of thousands of pounds in the shape of lime, by way of "disinfecting" the sewers and obviating the pestilence of the Thames. We have shown the latter operation, carried into effect by the authorities of London, apparently as a *dernier resort*, to be contrary to all scientific and chemical principles, and we prognosticated results which have already proved themselves. Several months back we pointed out the monstrous fallacy of casting lime into the sewers, at the cost of £150 a-day, "to disinfect the river;" but the engineers of London dictated, and the commissioners paid the money, whilst the inhabitants who provide it, suffer the double penalty of payment and pestilence.

The following paragraph—one of several appearing in the London papers within the last month—now tells of the commencement of the odoriferous season of London:—

> "RENEWED SYMPTOMS OF FETID EXHALATIONS FROM THE THAMES.—The medical officer of health for the city of London, Dr. Letheby, states that the Thames has, within the last few days, exhibited unmistakeable signs of offensiveness, but much more pungent than last year. From London-bridge to the point below Blackwall these evidences are already unmistakeable, and call for the immediate attention and interference of the Board of Works or the Conservators of the Thames."

What will the Board of Works or the Conservators of the Thames do? Nothing! The monster sewers now in course of construction will go on, and the rivers and the sewers will, from day to day, give more "*unmistakeable signs of offensiveness.*" When the £3,000,000 already voted shall have been expended, then possibly a new *commission of enquiry* will be established, and, if truth be told, it will be found that every sewer has increased its quantum of filth and effluvium. The Thames will speak out in such noisome language, that even the most sceptical will not doubt, and Dr. Letheby's "*liquid deodorizer*," which is now announced to be in preparation, will have about as much effect as the use of a trident to keep out the tide.

But to our task. We have now to describe the *third* proposition for remedying the sewerage evil, named "*the peat charcoal system*," devised by Mr. Jasper Rogers, C.E.

It would have been well, perhaps, that it had received any other name. There is no doubt that "peat charcoal" has been "a bone of contention" in the scientific world. For some years its singular deodorizing and absorbent properties, now universally admitted, had been almost totally denied, and the groundwork of Mr. Rogers's plans, which are patented, rests upon the power of peat charcoal to absorb and at once destroy all emanations arising from the foulest fœculant matter.

Mr. Rogers assumed in his publications, commencing in 1849, what must be admitted has since been incontestibly proved—namely, that night-soil could not be forced through the sewers by the action of water; and taking that as his data, he proposed a total change—in fact, a return to the original and still recognized principle of sewerage law—namely, that night-soil should be wholly excluded from public sewers. To enable this to be done effectually, he suggested three methods for adoption in existing streets, and one for new streets.

1st—That outside each house, sunk under the flag-way, or in the area, or at the rere of the premises, should be a portable or fixed tank or receptacle, into which the pipe from the water-closet should discharge. At one side of the tank (within it) a compartment contains peat charcoal, and from the bottom of the division a pipe issues to the main sewer. The action is evident. The solid matter remains in the tank; the water, passing through the peat charcoal, is deprived of its impurities by the chemical action of the carbon, and is discharged into the main sewer in a comparatively pure state, whilst the solid matter is retained in the tank, to be converted into a manure, the final deodorization being effected by peat charcoal.

2nd—In the event of portable tanks being inconvenient, his second suggestion is the construction of *one tank*, placed in a vaulted chamber, say at the end of and under each street, to receive the matter of a number of houses, conveyed thither by metal pipes in connection with the soil-pipe from the closet. The principle of the arrangement is the same as already described—the water passing in a purified state into the main sewer, the solid matter being retained and converted, in the chamber beneath the street, "into an *inodorous* compost, capable of being at once packed in sacks, and transported by any conveyance."

The 3rd plan is, to carry through the public sewer of all streets a close metal main or pipe, such as our water or gas mains, into which the closet pipes only shall discharge; these mains to pass into a chamber of cast iron, erected *at the sewer mouth.* The *principle* is, of course, as already described—the filtration and manipulation of the manure being effected in the chamber, and the produce taken away in barges. There is added a very unique proposition for preventing the stoppage of the matter in the pipes, and as we are not aware of anything similar being suggested, we give the following extract, descriptive of the latter plan, from "*Facts and Fallacies of the Sewerage System*":—

> "It will thus be seen that if the house refuse main be adopted, the general sewers would have no impurities passing through them, and there would be nothing to contaminate the water except what it might take up in its passage over the surface of the streets to reach the gully; therefore there would be no future noxious emanations from the sewers, because there would be no sensible noxiousness in them.
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> "The house refuse mains, made of cast metal, I would carry through every sewer in the metropolis, increasing their diameter as they neared the point of discharge. I would concentrate the falls towards the most facile points, adopting such of the fifty-eight or sixty principal sewer mouths, as might be found desirable, for the final discharge; and at each of these, within the banks of the river, I would construct the filtering and vacuum chambers shown in plate No. 5, into which the mains would empty their contents; and it will be observed that there would be no disturbance of the thoroughfares necessary in order to lay the house mains; the work could be done within the sewer itself.
>
> "Now the first great object gained would be, that decomposition of the matter discharged into this close main would be almost wholly arrested; and the result—no noxious gases could reach the houses, simply because they would not exist in the main, or at most in an infinitesimal degree, from the absence of atmospheric action. Thus, both streets and houses would be freed from poisonous emanations.
>
> "The house refuse main, ending at the filtering chamber, would enter, as shown, near its centre. At this point would be a valve, to cut off the connexion with the chamber when necessary. The solid matter brought by the main would sink to the bottom of the chamber, where, the water being undisturbed, it would naturally precipitate; whilst the water would pass upwards, through the grating shown.

and ascending to its own level through a body of peat charcoal, would not only leave all solid matter beneath, but would be totally divested of its impurity, and might pass away at any time of tide into the river. This is simply provided for by means of tide-valves, which close as the tide rises, and oblige the water in the chamber to ascend to a higher level, before it discharges itself. The tide water, therefore, could never enter the chamber or the mains.

"The filtering and vacuum chamber represented in plate No. 5, is provided with an Archimedian screw, as shown, which extends to the bottom of the receptacle, and is set in motion by the small steam-engine represented on the upper floor of the chamber—up that screw the contained matter continuously ascends as if up an inclined plain; the greater portion of the water, intermingled with the matter, passing out through the exterior of the screw, which is composed of open wire work; and when the matter reaches the mouth of the screw, it is in a semi-solid state. At this point, the final deodorization takes place, by immediate intermixture with peat charcoal—in the same manner exactly as I had the honour of proving before two meetings of citizens of London, in October, 1849, when I first lectured upon my discoveries on this subject—which is described in the certificates and extracts from the pamphlets and papers published at that period.

"From the intermixing machine, the manure will pass at once into a barge, at the side of the tank, in a perfectly deodorized state, without the loss of any of its original fertilizing elements—whilst the removal will take place without the slightest inconvenience or annoyance to the public.

"But I almost imagine I hear some one say, 'Suppose your mains become choked, what then becomes of your proposition?' Well, suppose they do, I shall not be in a worse position, nor as bad a one, as when the sewers become choked at present, which we all know is constantly taking place—when the only possible remedy is to open some half-dozen apertures in the street, until the place of stoppage is discovered—and then to bucket the matter up, perhaps at mid-day, and cart it away—oftentimes with the summer sun beaming on it, as it wends its unsavoury course, not unfrequently through Belgravia.

"Now as regards the stoppage of my mains, a simple blow of a hammer given to the pipe by a workman as he passes within the sewer seeking for the defect, will infallibly tell him, by the sound, where it is; and if there were no other way to remove the accumulation, it would be only necessary to disconnect the one length of pipe in which it existed, when it could be at once removed. Let it be recollected that, even now, the sewers are entered and walked through by workmen; but I trust the day will come when they may be traversed (except in case of floods or storm) almost without soiling a shoe.

"I would now, however, point out another mode provided to prevent stoppage in my mains. In the plate No. 5, will be seen where the pipe, or 'house main,' is connected with the 'filtering chamber:' at this point there is a slide valve. I have already explained that the 'Archimedian screw' lifts all the solid matter out, whilst a pump is arranged to draw away the water remaining at low tide, and the chamber is so constructed of cast-iron plates, bolted together, that it is not only perfectly air-tight, but strong enough to resist, at all points, the full amount of atmospheric pressure, when a vacuum is produced within; and the area or cubic contents of the chamber should be in proper proportion to the cubic contents of the pipes discharging into it.

"Now, suppose that a stoppage take place in any part of the pipe or main. The slide valve where it joins the chamber is screwed close; the valve at the exit passage is also secured, and whatever water remains in the chamber is pumped out.

"This being accomplished (and it would be an operation of no moment, because the process of removing the soil from the chamber would be continuous throughout each day), an air pump would be set in motion by the engine, and as soon as a perfect vacuum were produced in the chamber the slide valve would be lifted, and I need scarcely add that everything in the mains connected with the chamber must rush towards and into that vacuum, until it no longer exist.

"Thus, I believe, I have provided an arrangement which would not only effect its object in cases of need, but which is capable of being put into operation, without any difficulty, every twenty-four hours, if found desirable. A novelty, no doubt, and liable, therefore, to objection; but still, perhaps, not unworthy of practical test, as grounded on one of nature's most powerful laws."

The fourth plan is that for *new streets.*

It is proposed, that in place of a sewer, as at present under each street, an arched vault, or *dry tunnel*, be constructed, about six feet high and three feet wide, with a footway at bottom, formed of flags about an inch apart, to permit drainage, these flags forming the covering of an inverted circle or sewer, of about two feet diameter, under the footway—this sewer being intended to carry away the surface and drainage water from the streets, but nothing else. Through the tunnel it is proposed to lay the water mains, gas pipes, electric wires, &c., also a metal pipe, called an excretary or *house refuse main*, into which the closet pipes would discharge in the same manner as already described. By this means it is proposed, not only to obviate the evils of the sewerage system, but to prevent all the others which we now suffer from through constant disturbance of the surface of our streets—for laying and repairing the several mains, for cleansing the sewers, &c., &c. The space within the tunnel would be ample to permit ready access for workmen; the slightest escape of gas or water could be detected; repairs executed at comparatively trifling cost; and, inasmuch as the surface of the streets need never be disturbed, the repairs of thoroughfares would be infinitely less than at present.

Such are the leading points of the *third proposition* for remedying the evils of the sewerage system; and which we have, as faithful chroniclers, to add to the list of *failures*, inasmuch as it has failed to obtain public support. Why, we confess we are at a loss to decide, particularly as the merit of the "*dry tunnel*" or sub-way plan has been fully recognised by three of the leading engineers of London, and by the Metropolitan Commissioners, and *a prize granted for it*, as may be seen by the following paragraph from a contemporary:—

"The publication from which we have taken the description of Mr. Rogers's peat charcoal filter and apparatus for intercepting sewerage at the sewer mouth is dated 1857, and the patents had been long previously secured, consequently Mr. Rogers's cannot be deprived of the advantages of his invention and genius; but it is a singular fact that this is the second time his plans respecting the sewerage arrangements for London, &c., have been brought forward by Londoners as their own. We recollect attending Mr. Rogers's lectures, given at the Dublin Society House, on the Sanitary Improvement of Dublin, when he produced an admirably executed diagram of his design for *dry tunnels for new streets*, through which should be laid the water, gas mains, and electric wires; and a *House Refuse Main* and filtering apparatus, by which arrangement all impurities from the sewers would be prevented, and all further breaking up of the surface of the streets rendered unnecessary. We happen to have before us a copy of the *Commercial Journal*, with a full report of that lecture, still, although it was subsequently published for the Sanitary Association, and copies sent by that body to the metropolitan courts of London, the commissioners gave to a Mr. Davis a prize of 100 *guineas*, for an almost literal copy of that plan and diagram after it had been published in London, as one of the plates attached to Mr. Rogers's 'Facts and Fallacies of the Sewerage System.'"—*Freeman's Journal.*

We are aware of other instances where our good neighbours of London have appropriated to themselves things that did not belong to them, but in this instance we confess astonishment at so barefaced a plagiarism succeeding in obtaining the reward from the person really entitled to it, *although an Irishman*—and we confess also at a loss to understand why so easily tested a general proposition as that made by Mr. Rogers, *has not been tested;* particularly when we find such an offer made as follows, which we extract from a letter from him, published in the London papers, addressed to the Committee of the House of Commons appointed to inquire into the state of the Thames:—

"The facts, certificates, &c., set forth in the publication submitted, will, I believe, testify as to the feasibility of my proposition, and I shall only take the liberty of adding on that score, that, if they obtain support so far as to steps being taken for publicly testing their assumed advantages, an ample supply of Peat Charcoal shall be at command, free of all cost, for the purposes of one tank and

apparatus to be erected at the mouth of any London sewer, with metal mains, laid through any district or street; and all working plans, details, &c., shall be supplied by me for experimental operation, which would be simple, and of moderate cost."

We have a strong impression that if these propositions had been made by a *Londoner*, they would have been long since adopted—at least tried. It appears to us that when so many facts exist to bear out the theory, and when the test is so simply and inexpensively within reach, that there is little justification for not adopting Mr. Rogers's offer, which we find reiterated in several parts of his publications and letters to the London authorities. Proofs that cannot be questioned have been given of the deodorizing properties and disinfecting powers of peat charcoal—its singular capability in filtration, its value as a fertilizer, &c., &c. These are now established realities. Why, then, should so simple a means be left unnoticed, while such gigantic ones are put in essay against the proofs of all experience to the present moment?

But for the present we close. We have faithfully described all that has been hitherto done to damage or to remedy the sewerage. We shall return to the subject. We should wish much to hear the opinions of others on what we have disclosed, and whether we have erred in the descriptions given. There is, perhaps, no subject of more vital importance to the welfare of the general community.

It is now in the hands, we may say, of a clique in London, and, like the unhappy flock of sheep that wait to see *one* begin to nibble the turnips, although half starving whilst they wait; the community wait to see the result of the London monster sewers. No one appears to have courage to go out of the beaten path, notwithstanding that it is about the foulest and filthiest that ever was travelled; and the influence of the men in power in London who have committed themselves to the fallacious plans now in use, is so great, that we can scarcely hope for a change *there* until it becomes *unbearable*, as we believe it in time will under the present *regime*. But why we in Ireland should blindly follow the fallacies of London, we cannot comprehend, nor do we think it is creditable to our nationality and talents.

ARTISTS' COPYRIGHT, AND PHOTOGRAPHIC PIRACY.

AN important decision has recently been given by the Master of the Rolls at Dublin, in the case of *Turner v. Robinson and Egg*, wherein, a petition had been filed to restrain the respondent from exhibiting, publishing, selling, or exposing to sale, or in any way parting with the photographic picture entitled "The Death of Chatterton." The petitioner submitted that he possessed the exclusive right of copying this picture painted by Mr. Wallis, exhibited at the Royal Academy's exhibition in 1856, and of which it was alleged that the respondent, Robinson, had made photographic copies. Mr Augustus Egg purchased the painting with the exclusive right (as the petitioner stated) to engrave, print, and publish it, and by an agreement entered into between petitioner and Mr. Egg on the 18th of March, 1859, this right (as was alleged by respondent) became vested in petitioner, but prior to this agreement an illustration from the picture had been published in the *National Magazine*. Subsequently the picture had been exhibited at the establishment of Mr. Cranfield, artists' warehouseman, Grafton-street, in this city, and was, both from the nature of the subject, and the meritorious character of the painting, an object of much admiration. The respondent being a photographic artist of much eminence, and, doubtless, seeing a favourable opportunity for a lucrative speculation, bethought himself of producing stereoscopic views in imitation of the original picture, and for that purpose procured a living object, resembling in appearance and similarly clad and posed, to personate the *dying poet*.

The following able judgment of the Master will fully describe further particulars:—"It was quite plain from the importance of the question at issue that the injunction should be continued until the hearing of the cause. Suppose that Mr. Wallis had never sold this picture, but exhibited it at Mr. Cranfield's for the purpose of engraving, would he in that state of facts have a right to sue? He had a very strong opinion (though he admitted the question had never been the subject of decision) that the painter had by common law the very same protection which the author of any work enjoyed previous to publication. Surely nothing could be more unjust than to say that if a painter gave the public the privilege—and a very great privilege it was in some cases—of allowing them to see a work of art in his studio, a person who had thus inspected the picture, having a good memory, and being an artist himself, would have a right to endeavour by some contrivance to make a copy of that work—for instance, by getting his apprentice, as was done in the present case, to dress himself up in a peculiar manner, so as to represent the principal figure in the painting, and then take a photographic representation of the subject, composed in imitation of the picture, and representing it in terms by advertisement as a copy of the picture. This had been done in the present instance—the photographic pictures sold by the respondent having been advertised in the newspapers as 'The Death of Chatterton.' He looked upon this as nothing short of a fraud, a deliberate fraud; and he had not the slightest difficulty in holding—on the principle laid down in the case of Prince Albert *v.* Strange, which was the principle of common sense, and in the admirable judgment of Mr. Justice Erle in the case of Jeffrey *v.* Boosey—one of the ablest judgments that had ever been delivered—that it would be the bounden duty of a court of equity to interfere in such a case, quite irrespective of the common law right of the painter to sue for damages, which right he would have as long as he had not published the picture. The question then arose whether there had been a publication of the picture; because, if there had, then considering the principle laid down in the case of Jeffrey *v.* Boosey, it would be very questionable what the law might be. He had no hesitation in saying that the exhibition of the paintings at the Royal Academy was not such a publication as would deprive the artist of his right. It was a qualified publication—it was a privilege allowed to the public to see works of art. Did any one suppose that if Sir Walter Scott read out one of his productions to a number of his friends, and that one of them had such an accurate memory that he could reproduce every word of it, or that some one was in a corner taking notes in shorthand—did any one suppose that in such a case the reading of the work would amount to a publication so as to give the person who had taken notes a right at common law to bring out an edition of the work? In an analogy to that case the exhibition of a picture at the Royal Academy, or at Mr. Cranfield's, or elsewhere, for the like purpose, would be nothing more than a qualified publication, which would not deprive the painter of his remedy at common law or in equity to prevent a party from the commission of a fraud in attempting to copy the picture. A difficulty, however, as to the third point—namely, that there had been a publication in the *National Magazine*. But for that publication there would not be any serious doubt in this case. He was not prepared to say, nor did he wish at present to offer an opinion on the matter, what was the effect of that publication in the *National Magazine*. If the respondent had simply confined himself to copying that engraving it was questionable whether the petitioner would have any cause of action against him. But he had not confined himself to merely copying the engraving; he had undoubtedly used it in the preparation of the photograph, but he had also adopted the colouring of the picture for the purpose of inducing the public to believe that the photograph was taken from the picture itself. He thought this was a fraud; he did not use the word in an offensive sense, but a fraud in contemplation of a court of equity. He might entertain some doubt as to whether the photographic pictures produced by the respondent would be a serious injury to the owner of this valuable painting; but if this were overlooked the photograph might by a very easy process be enlarged to the size of the original, and thus an unimportant piracy might be followed up by the adoption of another mode of piracy which would be most injurious to the owner of the painting. His Honour concluded by saying that he would continue the injunction, but he would not draw up his order for a few days until the petition had been amended as suggested.

Mr. Sullivan, Q.C., said that Mr. Robinson had published advertisements in the newspapers that the photographs were not copied from the picture.

The Master of the Rolls—A great many persons may have read the first advertisement that the photograph was taken from the picture, who never saw the subsequent one contradicting that statement.

The discoveries lately made under the church of St. Clement, in Rome, consist of an aisle, 150 Roman palms (112 feet) in length, with five columns still standing, remains of mural painting, the fragments of an ancient mosaic pavement of the Constantinian period, and a sepulchral inscription found in the ancient porch, and bearing the date of the Consulate of Orsus and Polemius, namely, the year 839.—*Civilta Cattolica.*

SANITARY STATE OF BELFAST.

Belfast, as many of our readers are aware, is chiefly built on the delta formed at the embouchure of the River Lagan. The greater part of the streets of the town are only raised a few feet above the high-water level, some on the same level, and parts of others even below that level. Many of the streets may be said to have no sewerage whatever, as the old sewers when opened are found to be filled with a hard, dry, black residuum, up nearly to the top of the soffit of the arch, which can scarcely, from its hardness, be dug with a spade; in other cases which we have seen, it is about the consistence and colour of tar; some of these are opened now and then, and cleaned out. In some of the principal streets new sewers have been built at a low level, perhaps about that of ordinary neap tides, and the mouths of all those which are connected with low-lying districts, liable to be flooded at high water, are provided with valves to prevent the ingress of the sea, and during part of the time are in fact cesspools. A portion of a new sewer was built in High-street some four or five years ago, but after being carried up so far as Sugar-house entry, the work was abandoned. A small rivulet runs down this street, and the arch over it is so old and imperfect, that holes in the middle of the street are of no rare occurrence, but as the bottom is filled with small boulder stones, and not more than two or three feet below the surface of the street, no serious accident has yet occurred. All the sewerage of the town is ultimately discharged into the Lagan river and the harbour, and only that the sewerage is very imperfect, and water-closets very far from being universally adopted, they would rival the Thames in impurity. The quantity of sea and river water, however, so far exceeds the sewerage, that, in its diluted state, it has not hitherto been much complained of. Such, however, is not the case with the Blackstaff and Pound Burn. In the summer and in times of dry weather, they become open sewers of the most filthy and obnoxious kind. The improvement of the Blackstaff river has been a subject of consideration in Belfast for the last twenty years. Engineers have been consulted, and very various have been the remedies proposed; lawyers have been feed, briefs written, acts of parliament obtained, but all in vain—there it still flows with all its impurity, blackness, and disgustfully poisonous effluvia. The Pound Burn and a goodly number of open ditches are no less offensive and injurious to health.

Many of the lanes and streets are narrow; some of the former not four feet wide. Ill-ventilated courts and cul-de-sacs abound All the slaughtering required by a population of 120,000 persons is carried on in the heart of the town, chiefly in the rere of Hercules-street, where the poorest population and the greatest crowding exist. Not one of the trades obnoxious to health—such as starch-makers, soap-boilers, bone-grinders, &c.—have yet been banished from the neighbourhood of human habitations.

The town council themselves create no inconsiderable amount of nuisance in several quarters of the town by the huge dunghill which they collect, and store up for months for sale to the farmers.

Well, notwithstanding all these untoward circumstances, natural and artificial, hear what an efficient sanitary inspector can do:—

"Health of the Town.—It is gratifying to be able to state that the health of the town contrasts very favorably with that of Belfast several years ago, or even of other towns at the present time. Contagious diseases are hardly known; fever has almost disappeared—indeed, we have reason to believe, that, leaving the Union Hospital out of the question, a dozen certified cases of fever could not be found in Belfast out of a population of 120,000. This satisfactory state of things is principally to be attributed to the excellent sanitary precautions which have been made by the appointed officer of the town council, Mr. Lavery, and his staff, who by their vigilant and unceasing exertions have made Belfast the most healthy town in Ireland."—*Northern Whig.*

This is not the first *puff direct* which we have seen in the Belfast papers touching the ability with which Mr. Sanitary Inspector Lavery discharges his duties. Was the sanitary condition of Belfast never properly looked after until the appearance of Mr. Lavery? Did Surgeon Brown, R.N., when sanitary officer of the town some years ago, not discharge his duties faithfully and efficiently?

A writer on the sanitary state of Belfast seven years ago says:—

"The chief desiderata are: improved drainage, more copious supply of water, great attention to the removal of all which gives birth to malaria and animal poisons; the entire destruction of tenements where foul air, filth, and disease cannot but dwell together and hold carnival; the throwing open of our miserable courts and entries, the majority of which are shut in, as if purposely to exclude the light and air of heaven—mere cul de-sac or blind alleys without any thoroughfare to secure ventilation; removal of slaughter-houses; the provision of parks and places of public open-air recreation for the children of toil, many of whom are doomed to spend the greater part of every day in an atmosphere wholly unsuited to the animal economy."

Now, of these desiderata how many have been effected? We believe not one; and yet we are to believe that the town is in a sanitary state superior to anything Irish, at any rate, merely by the appointment of this inspector and his staff. Will the town council be able to persuade a committee of the house of commons that they have discharged their sanitary duties simply by the appointment of inspector Lavery, whilst they have not yet provided remedies for the evils which we have enumerated. The whole district of Ballymacarrett and several others are still without public sewers. No effort has been made to erect a public abattoir; nothing has been done to remedy that monster nuisance, the Blackstaff and its tributary the Pound Burn, which might be easily done by reverting to the wise laws of our forefathers, and permitting nothing to go into an open river save pure water, sewers being provided to carry off all impure liquids. What have they done to provide public baths and wash-houses? There is no public institution more desirable than this, and yet they repudiate the responsibility of supplying them, although a rate has been levied for the purpose, and the proceeds in their treasurer's hands. Some years ago it was not only possible but pleasant to bathe adjacent to the town, in the lough; but the railway companies and the harbour commissioners have completely cut off the inhabitants from this healthful recreation, except at the risk of life. We say it is the duty of the town council to remonstrate with these selfish bodies, and cause them to provide free access to the waters of the ocean in several and suitable places, on the coast. What have the town council done in respect to the people's park? We say decidedly that they represent the people, and should take action on their behalf, and secure and prepare a place for their recreation, where a "toil-worn, sickly, miasm-breathing population" could enjoy a little of the fresh and free air of heaven. It is their duty to allure the poverty-stricken and the toil-worn artizan from those close courts and lanes and dismal abodes, into places where the air is pure, and dram-shops absent, where such have been created, and also to attribute the present health of the town more to the bounty of Providence than inspector Lavery.

T.

COMPETITION MATTERS.

It must be very evident to all who reflect on the fact that 109 architects competed for the premiums offered for designs, &c., for the Manchester Assize Courts, and that out of these 109 only three received any remuneration for the serious amount of labour and study necessary to produce those designs, that a vast amount of unproductive labour has been called forth by the competition. This fact also evinces that the members of the profession are much more numerous than the wants of the country demand. Architects find it economical, convenient, and often lucrative to take apprentices without any limit save the want of supply; hence the numbers in the profession are fast outgrowing the means of employment. Can the profession, as a body, do anything to put a stop to this? or is it the better course to allow the evil to create its own remedy? Tradesmen are similarly situated, and make vigorous efforts to prevent their own multiplication beyond the wants of the country; but they form themselves into unions, and act in concert. The architects of this country are a *disjuncta membra*, a disunited body, often meanly jealous of each other's success; still, a common danger should compel unity, unity would give strength, and more frequent intercourse consequent on unity would have a humanizing tendency. *Mais revenons a nos moutons.* Competitions, as hitherto conducted, bear in many respects a strong resemblance to a lottery—the author of the very best plan cannot predicate with any certainty that he will obtain the highest prize—all are induced to spend their time and give their labour for the chance of a prize; and in the case to which we have already alluded, 106 architects gain nothing but disappointment. Nor can it be even said that the committee have gained their object; the premiated designs are by no means faultless. No one design possesses supreme excellence in all points, and scarcely any of them which do not possess some point of excellence. If the committee had been fully qualified to instruct an architect on the subject, clearly explaining to him what in all respects they required him to produce, nine-tenths of the competitions would have exhibited designs equal, if not superior, to any of the premiated ones. It seems that when a committee want information to enlighten them as to what would best meet their requirements, they appeal to the profession at large for this information, which they not only seek, but seek at a price much below its value; some committees go so far in this direction that they offer no chance of remuneration whatever.

The guardians of the Blackburn union offered lately a bonus!! of £50 for the best approved plan, with elevations and sections, general specification and estimate in detail, for a building to cost £12,000! The charge for an estimate in detail is one per cent., and the plan &c., and specification would not be less than two per cent. In this case the guardians ask the profession to give them £360 worth of their services and they will pay them with—stop! not pay—they will give them a BONUS of £50!

But the guardians of the Blackburn union were exceeded by those of East Grimstead, who condescendingly notified that they would receive plans with specifications for a building to cost £6,000, making no mention of reward or remuneration of any sort.

We do not, however, intend that there is anything wrong in asking professional men, or any other men, to give their time and labour, and place their arduously acquired knowledge at the service of others, without offering them reasonable remuneration for their services; and if there are a number of architects who are willing to take employment on these terms, there are no means of preventing them doing so, in the present posture of affairs. But, undoubtedly, this is an evil to the profession at large. As we have already said, there is scarcely a trade the members of which have not found it absolutely necessary to unite for the common good. Let architects do the same; let them form an association, embracing all members of the profession, for their mutual protection and mutual interests; let them bind themselves not to compete, unless on conditions being offered which shall be considered by the governing committee of their body to be just and reasonable, and let one of the conditions be, that they shall be made by non-competing architects. And we would suggest that there should be only one premiated design, and that a small sum should be given to each competitor who has complied with all the regulations; that the amount of the whole should not be less than would be paid for the same plans, &c., in the ordinary way.

Of course we are aware that there exists a "Royal Institute of Architects in Ireland;" but we believe that it is a very limited body compared to the whole profession, and chiefly confined to Dublin architects. Regarding its influence and beneficial action, we cannot speak, as we confess our ignorance of anything it has ever done for the general good of the profession; locally in Dublin it may be useful, but not in the provinces. We commend this matter to the consideration of the members of the architectural profession generally.

M.

NEW FLOOR COVERING MATERIAL.—The production of a good, durable, and cheap covering for floors, embracing the advantages of softness and elasticity, has long been sought for. The London Mechanics' Magazine states that a very original material for floor covering has recently been patented by Mr. Dunn, a member of C. Goodyear's Indiarubber Company, London, which meets all these conditions. It consists of a composition of silk, flock, cotton, and other fine fibrous materials, of various colours, mixed with india-rubber. These are spread on a canvas back and embossed. The result is a material of great permanence and beauty, having all the softness of a carpet, with the elasticity and noiseless tread which constitute the beauty of a real "velvet pile Brussels."—*Scientific American.*

THE NORTHERN SUBURBS—CLONTARF!

WHILE the southern suburbs of Dublin are rapidly spreading, and becoming populous, there is if possible a retrograde movement in the northern. Why such should be we know not, unless that it *may* be a lack of encouragement by lords of the soil, which deters capitalists and others from embarking in building projects. If the southern side has its advantages over the northern, the latter has its likewise in return; and it is much to be regretted, therefore, that, at a period when progress marks the way in our city and immediate vicinity, that one portion should be so palpably backward while others go a-head.

Our remarks are peculiarly applicable to Clontarf, a locality replete with historic and natural interest, combining proximity to and easy access from the metropolis with the beautiful scenery contributed by our noble bay and mountains; an expansive shore offering facility for the healthy luxury of sea-bathing—so eagerly and vainly desired by the inhabitants of other cities—and a succession of beautiful avenues thoroughly sheltered from every unkind blast, and forming a continuous shady grove.

Some of the habitations—along the line of road especially—are in a most dilapidated state, others roofless, and again, others patched up each spring, and exhibiting a painful shift to make them commonly tenantable as "*lodgings*" for those who are compelled during the summer months to seek fresh air even in these tottering structures.

We hope soon to see a reaction in this locality, and that certain restrictions in leases may be removed, which will have the effect of substituting comfortable, substantial dwellings for dilapidated tenements, perhaps coeval, for aught we know, with Brian Boroihme, whose history is identified with this place, but certainly not offering any features of interest to the antiquarian or archæologist. A little is being done, but not a tithe of what might be, and we gladly notice that Sir John Bradstreet has built a mansion near the intersection of "the green lanes"—Mr. Carson, architect; as also Mr. Tisdall, in same neighbourhood; likewise that Mr. F. Byrne is about building four houses in Castle-avenue—Messrs. Isaac and William Farrell, architects. Amongst the first and most desirable improvement to be effected is the reclamation of the waste space between Annesley and Ballybough bridges. Surely it might be turned to some better account, if thoroughly drained and neatly enclosed; but at present it is palpably objectionable, both to the optical and nasal organs. We, like many others, had hoped that the abolition of the old turnpike would have effected a perfect revolution; but it has resulted otherwise.

ROYAL DUBLIN SOCIETY.

A scientific meeting of the Royal Dublin Society was held on Friday evening, June 24th.

Communications—1. Dr. Carte on a new portion of the bony covering of a species of Glyptoden, presented to the museum by W. R. Wilde, Esq , M.R.I.A. 2. Edward Brennan, Esq.—Notice of the discovery of extinct elephant and other animal remains occurring under limestone at Shandon, near Dungarvan. 3. Dr. Carte on the identification of the bones discovered by Mr. Brennan. 4. Dr. Kinahan on the laws which regulate the distribution of species in space and time.

AGRICULTURAL SECTION.

Communications—1. Robert Galloway, Esq., on the valuation of soils. 2. Dr. Edward Haughton on some consequences which would result from the adoption of Liebig's theory of the application of the sewerage of towns as manures. The author maintained that guano was inferior to sewage in fertilizing power, and in the extent to which it was obtainable, the cost of the latter manure being now nearly double its original price. Further, that could an efficient system of collecting the former waste substances be carried out, there is no doubt that it would render us quite independent of the supply of guano, and the health of the public would be greatly promoted. Ireland might also increase the quantity of land under tillage, in place of allowing so many thousand acres to be either devoted to rearing live stock, or totally unemployed. The advantages expected from the new system are: 1, larger crops; 2, greater immunity from pestilence; and 3, the purification of all our rivers and seacoasts. These advantages are worth striving for, although the subject may not be a very attractive one, except to the practical agriculturist or sanitary reformer.

THE ENTITY OF THE IONIC ORDER.[*]

BY S. HUGGINS.

AMONG the most remarkable achievements of the genius of form in the ages that are past is the Ionic order; I refer more particularly to its characteristic feature, the voluted capital. By whom it was invented, if individual inventor it had, or by what fortunate circumstance it was first hinted to the architect, it boots us little to inquire; though there is sufficient of the scroll form in nature to lead us to attribute it to her direct suggestion, it is perhaps more reasonable to consider the volute of the Ionians as the joint and gradual offspring of geometrical skill and art genius—as a creation of science refined and applied by art. The volute, afterwards so finely developed by the Greeks, not only in the Ionic capital, but as the main charm of the Corinthian, was in requisition at a very early period of art, into which it seems to have grown imperceptibly from the human mind like a plant out of the earth. It was in some way used in Nineveh, in Egypt, in India; and, in its classic adaptions, was clung to and retained by the Arabians and other Oriental nations, as well as by every people of modern Europe down to this day; and thus furnished evidence of an instinctive affection for it—of the existence of a chord in the human heart to which such forms appeal. Its noblest development, however, and the perfection of application, it received on the banks of the Ilissus, and in the triple temple of the Acropolis, where it assumes a form on which a hundred generations of men have gazed with pleasing wonder, and one wherein all whose hearts could thrill to beauty have recognised a natural grace and genuine artistic feeling. I refer to these examples, because they may be looked upon as the beau ideal of the order, by which, as the nearest approximation to perfection of form, its æsthetic value should be judged, and not by any degenerate example of subsequent times; for, strange to say, no form has, in succeeding specimens of it, more degenerated than the voluted capital of the second Greek order. In nothing did the Roman and Renaissance architects show their inferiority of taste to the Greeks than in the non-appreciation of these forms, shown by their mean treatment and diminution of the volute, and the singular omission of the festoon-shaped hem in their Ionic works; between their insipid and lifeless volute (a small curl at each end of a straight fillet, so small sometimes as to seem a mere accident,) and the flowing and graceful curves of the Erectheum, the distance in artistic rank—in evidence of taste and imaginative power—is, indeed, infinite.

Those who suspect anything meretricious in conception of the Ionic capital should be reminded that it was the chief, and sometimes the sole, ornament of the fairest gems of Attic taste; the temples in which it was employed being amongst the most beautiful in composition and design of that remarkable people, whose profound æsthetic science has engaged the research of ages, and works which have been extolled for their surpassing loveliness by the uniform voices of succeeding times. The Ionic was chosen for the great Temple of Diana, at Ephesus, and the sumptuous tomb of Mausolus and other celebrated monuments of Asia Minor were of the same order. It was a favourite of Palladio, Inigo Jones, and others, acknowledged the greatest among modern masters; and by them and their successors down to the present day it has been extensively used, as it would probably have been yet more but for the supposed necessity for Corinthian richness and luxuriance, or rather, display of costliness on important works, to which too many eminent men have succumbed.

The Ionic is unable to vie with the luxuriance of nature, like the Corinthian; and it is inferior in expression of columnar purpose, *i.e.* capability of support, to the Doric; but it has artistic qualities that amply redeem these shortcomings; it is the most harmonious link between shaft and architrave that could be conceived—the circular line of shaft differently applied, and a most homogeneous termination to a cylindrical form. There is something naturally pleasing in a curve of ever-varying motion, wherever seen, or however relatively situated, whether in the capital, the console, or the modillion; but in the capitals that grace the Erectheum we have an assemblage of curves that, from whatever point viewed, is altogether unique, and which for harmony has perhaps never been equalled. The delightful combination of unity and variety in the geometrical or logarithmic spiral if its volutes, diversity of curvature and increment, regulated by unity of law, joined to the motion and play of curves generally, constitute a total of linear and formal grace that no unprejudiced eye can behold without at least a pleasing interest. Like its eldest sister, the Ionic disdains "the foreign aid of ornament;" in other words, it is independent of all imitation of natural organization, whether of leaf or flower, and trusts to the beauty that is born of pure form; and as a harmony of form only, its capital is more purely a creation, and therefore a greater triumph of art-power than that of the Corinthian itself. Than this feature, indeed, there is, perhaps, nothing more interesting to the cultivated eye in the whole range of architecture. There is motion and flow of lines,—but motion so gentle and flow so peaceful, or ordered and regulated by such beautiful and serene law, as to combine the graces of action with the softness of repose. Qualities these, by the way, which render it a happy metaphor in the architectural poem it illustrates, and gives it a high value as a material exponent or type of certain moral perfections. While the Corinthian belongs to the passions and the senses, the Ionic may be said to express their silence, and shadow forth the tranquillity of Contemplation and Philosophy; and this suggests its suitablenes as a feature of colleges and educational establishments, as well as in public libraries. It was the sepulchral order of the Ionians; and, as Le Clerk observes, is suitable for all places dedicated to peace and tranquillity; an opinion evidently coincident with that of the ancients, who significantly applied it in the Temple of Concord, as they did also in shrines consecrated to females; and among the Egyptians it is remarkable that traces of it are particularly observable in those temples dedicated to Isis. But the Ionic expresses another important quality, viz. purity; it is the very soul of chasteness, and is to the Corinthian (adapting Sir Henry Wotton's simile,) as the sedate matron to the courtezan.

Some have supposed the Ionic capital to be a representation of elasticity, and as such have charged it with being obscure and inconsistent in constructive meaning; but I do not believe its inventors would have made so great a mistake as the attempt to express in stone a quality which it is adverse to the nature of stone to exhibit. I believe it was not intended to have any constructive meaning—that the volutes were merely a beautiful accessory, and that the abacus, which was always distinctly marked, and had a natural and obvious use, was the real capital of utility. The Greeks probably wished the Ionic to be a relief from the strong energetic expression of the Doric, and aimed, in its design, at abstract beauty of form,—a meekly aspiring nobleness and purity.

It is true that the want of facial uniformity in the Ionic capital subjects its application to some limitation; it being compulsory on the architect either to avoid using it in situations, as in prostyle porticoes, where a returning face is required, or to make the capital of the angular column an artistic monstrosity, by turning one of its volutes diagonally, and bringing two voluted faces into conjunction. But the condition of using the Ionic order only in situations requiring no returning face, may be very cheerfully submitted to, as, fortunately, such situations are tolerably frequent; for, besides monoprostyle porticoes, it is applicable to cyrto-style, or semicircular porticoes; to cyclostylar compositions, or circular peristyles generally; and to porticoes in antis, or recessed loggias, which latter suggest the expediency of introducing square pilasters, with anta-caps, in lieu of columns, to the angles of prostyle porticoes exceeding one inter-column in projection from the building.

The difficulty in question is solved in interiors by the possibility of always in such situations resorting, with strict propriety, to the antæ accompaniment. To interiors the Ionic order is particularly adapted; and there it was frequently used by the ancients in Doric structures. Moreover, it must be granted that the European Greeks acted with their usual wisdom in restricting, as they did, the employment of the Ionic order to their small edifices, a gem-like brilliancy and elegance of line being its most striking attribute.

And this recession of the Ionic column between antæ, in enclosed loggias or propylean entrances, while it supersedes the necessity for generating the mutilated form that disfigures the Temple of Fortuna Virilis, gives new beauties to the order, beauties it could not otherwise receive; to such treatment it seems peculiarly adapted; the dissimilarity between its front and side faces pointing to that situation as its fitting and legitimate home, wherein it receives a heightened effect by the contrast with the antæ-caps, the rectilinear plainness of which communicates to the volutes a more brilliant and gem-like glow than they could otherwise exhibit. In fact, the beauty of the Ionic capital is but half revealed till thus brought into harmonious contrast with the antæ caps, which should, therefore, be employed to all pilasters placed in connection with Ionic columns, whose effect they enhance, while they secure to the composition generally the fullest variety of intonation.

The one-horned capital, though not without its advocates among judicious writers, is, it cannot be denied, an artistic abortion that must ever be painful to the eye of taste; but there is no necessity for its existence in the world of art, nor even, in order to avoid it, for the injurious modification of a design, or abandonment of any necessary arrangement or felicitous idea in respect of plan, the Ionic not being the sole order of architecture.

I have all along, in treating of the Ionic order, regarded its capital as consisting of the two voluted and parallel faces with baluster returns, which make up the celebrated Greek examples. I do so, not that I consider this form as alone defensible; I regard the Scammozian and other four-faced Ionics as valuable inventions possessing a species of beauty; but these being more closely allied to the Corinthian and to the class called Composite than to the Erectheum and Ilissus Ionic, in which the dissimilarity of front and side is the chief and distinguishing characteristic, I consider the advocate of Ionicism has little or nothing to do with them. I think it important that this distinction should be made; for, though the uniform capitals are beautiful as varieties, especially the concave-sided example of the inner order of the temple of Apollo at Bassæ, which has a classic chasteness and simplicity that the others so much lack, and useful in meeting the angular difficulty before referred to, yet in them you cannot have that full development of the volute, nor that general simplicity and placid grandeur—that unaffected dignity and grace which gives the surpassing beauty and expressional value to the Athenian examples. Besides, it is to this facial diversity, as the trait most divergent from the other orders, it is mainly indebted for its place as a distinct order.

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[*] Read before, and published in Transactions of Liverpool Architectural and Archæological Society.

My first object in this essay is the vindication of the right of the Ionic to rank among the orders of architecture. I have pleaded only its beauty; but he who lifts any corner of the veil of mistrust from its beauty proportionally forwards this aim, since

> "Beauty is its own excuse for being."

I say to rank among the orders; but it really matters not whether we regard Ionicism as inhering on a distinct order, style, or system, or as merely forming a variety of an order or system. That what we call the Ionic order is beautiful architecture, or a beautiful element of architecture, is all we need in reality to prove. Perhaps, strictly speaking, there is but one real order,[*] and the rest are variations in proportions of height to diameter, in which graceful ornaments in the shape of volutes or foliage, or both, are added to the forms of necessity. If so, the Grecian Doric, whose general form is that dictated by utility, the form with which an engineer would prop a warehouse or support a railway bridge, is the column or order in its nude essential grandeur, or, if conceived of as dressed, in its working dress; and the other two are its more elegant æsthetic offspring, the Corinthian capital being only an elongation and foliation of the Doric echinus,—the Ionic its conversion into the convolutions of the volute; while the abacus, the Doric form of which is too essential to all columns to admit of much modification, is preserved in both. Perhaps the Ionians had no idea of inventing a new order, or supposed they had done more than reproduced the old one in a gayer dress.

But supposing this to be the true theory, and that what we call orders are to be regarded only as variations—not genera, but species, they are not less valuable, and we can suffer none to be extinguished that are really beautiful, though increase among the varieties of the orders may be had beyond three or five or any number or degree now dreamt of. Premiums have been offered for a new order, as if that were the great desideratum; but a man may open a fresh vein in British architecture, and strike a new chord in the human heart by the combined beauty and originality of his conceptions, without inventing what is generally understood by a new order. Besides producing new and original general designs and compositions, he may be constantly delighting the world with new varieties of capitals and other features of his ordinance; his mind, like the vital principle in nature, may be constantly and everywhere breaking out into new forms, and need not run into old channels. But so far as capital is concerned, many distinct varieties have been already introduced: the Gothic and Byzantine builders invented a host of them, many of which are very beautiful. This inventiveness of the Gothic builders, and which we must regret had not to a greater extent characterized the Renaissance architects, we may, in recovering lost ground for the art in the first place, avail ourselves of, by taking possession of their inventions; for I believe that much of the variety, and beauty, and life we admire in the Lombardic and Byzantine capitals, and that attached to those of the Gothic, might have been retained in classic architecture. I have frequently been charmed with the classic chasteness of many of these capitals, the immense variety of which show the vitality and plasticity of the architecture of the ancients, and what it might and would have been, had the same singleness of aim, enthusiasm, and natural freedom of mind been applied to it. Few of them are essentially or exclusively Gothic; in many the classic chasteness of character is scarcely touched; and so little is the departure from antique purity of form, that they might be adopted at once into the Greek and Roman families; and if, instead of labouring at the production of a new order on the one hand, or reducing what we have to stereotyped formulæ on the other, our architects had been employed in seeking hints for varieties from existing works in other styles—in ungothicizing Gothic, and bringing back Romanesque to its original simplicity, much better would have been the result. The very worst of these may at least touch the imprisoned springs of inventive power, and furnish the imagination of the designer, who would scorn no source for motives of thought, with materials for new images. But the architect who is a true magician of the beautiful, would take a still wider range in search of inspiration: he would evoke new orders from among the "dark red colonnades of the Nile," and even avail himself of the fanciful vigour of Indians and other Orientals, however wayward in feeling, or humble in artistic skill, till every ancient and modern style contributed something of grace or of energy to the visions of beauty he would eternize in stone. In Egyptian remains, which present infinite variety of capitals, many of them elegant in design and rich in decoration, is a grand suggestive source, in which sleep the germs of many beautiful classic varieties. It has often forcibly struck me how slight the modification that would render some Egyptian capitals beautiful classic ones, worthy and fit associates of the chastest Greek or Roman examples: there are some foliaged capitals so beautiful in their composition, that by only changing the character of the leaves, would harmonize with those of the Lysicrates monument itself; and with respect to many another, simplify—slightly rectify its proportions—suppress some overgrown member, and what classic beauty would stand revealed?—beauty that but for the stern symbolism of their overlaying superstitions, its designers never could have missed as they did. If in this spirit the Greco-Romano architecture had been practised,—if in its pursuit we had yielded to our instincts, which have been resisted in architecture more than in any other human pursuit, we should have had no complaints of architecture being behind the age—a laggard in the march of intellect. By the dictum of Wren, which has not been taken with sufficient qualification and reserve, that the pursuit of architecture is now rather the study of classic antiquity than the exercise of fancy, classic antiquity has been somewhat slandered: the three orders are not to be considered as patterns, mere stereotyped formulæ, or ready made members to be incorporated in our designs, as the Constantinal builders used the executed columns and other fragments in their erections. Their use is to inspire: the best of them are but so many methods from which we may learn much by analogy; from which by imitating different of their qualities according to the idea to be expressed, new designs may be engendered. There is no model for each order. I view the orders not as forms of definite shape, but as spirits of design, which by transmigration, as it were, into a thousand different bodies, hereafter to be organised by art, becomes incentives of thought and emotion to the latest times.

We talk of established forms, but many forms we have regarded as such are not established, nor were ever intended to be established. They are simply designs—illustrations of art—and we are to look upon them only as individual impressions, interpretations, and utterings of the truths of nature. So that the practice of literally copying the Parthenon Doric or Jupiter Stator Corinthian even into compositions otherwise original is not a necessity caused by any limitation in the architecture itself, but is simply an exhibition of dulness or idleness on the part of the architect, for which the practice of the ancients furnishes no precedent; for all their buildings are dissimilar, no two being alike either in proportions or details. The immense variety of capitals and other members found among their edifices, ruins, and preserved fragments, shows that they did not consider any preceding examples in the light of patterns, but that, by throwing themselves on their own mental resources, they were enabled to make new designs for every building they erected; designs in the full sense of the word new, in which no lifeless parts had place, but where all, to the smallest detail, glowed with the pure light of thought. If this was once done, it can be done now, and we may follow the ancients as they followed each other, and breathe into the elements they have left us a second life of truth and beauty.

THE DWELLINGS OF IRISH LABOURERS.

Under the title of "*Reasons for extending the Land Improvement Act to improve the Irish Labourers' Dwellings*," Mr. W. J. Levinge, of the county of Westmeath, has published a very useful and interesting pamphlet, which we would gladly see in the hands of every member of the legislature. We must not attempt to give within the compass of a notice a just estimate of the arguments used by Mr. Levinge for extending the operation of the law. The object of the pamphlet is, however, so clearly expressed in the title that there is no necessity for an analysis. The law at present provides for the good and comfortable accommodation of cattle, by enabling owners and occupiers to raise money for the erection of farm buildings. Mr. Levinge thinks the same care might with advantage be extended to the housing of the people and the improved physical condition of the labourer; and the improved moral and intellectual conditions of their families would more than compensate owners for the risk, while the additional rent paid for the better cottages would, in fact, pay all the cost within a very short time. The subject is one of importance, and we are glad to see Mr. Levinge apply himself to it with such zeal.—*Freeman.*

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[*] Mr. Ruskin tells us that all capitals might be divided into concave and convex, and thus arranged into *two* orders. It is true that their constituent curves could be so divided; but if from the collected capitals of the world we were to separate the convex, would not other than concave ones remain—a kind more beautiful than either, viz. the ogee? This figure many of the Egyptian capitals are in actual or general contour.—S. H.

TELEGRAPHIC PROGRESS—OVER-HOUSE WIRES.

It may safely be predicted that the electro-telegraphic system will yet be rendered available for many useful purposes, at present hardly thought of. The powers of this marvellous agent cannot fail of further development. Time and space, two of the great difficulties which man is always attempting to conquer, are brought under control, by electric means, to a greater extent than by any other natural agent available for practical use; and it will be our own fault if we do not apply still further the bounteous gift placed at our disposal.

These minor applications of electric power may be classed into *time-balls, electric clocks*, and *local telegraphs.*

A time-ball, such as that which Professor Airy caused to be constructed at Greenwich, is not merely a clock of wonderful accuracy; it is practically a monster clock, whose indications are visible from a very great distance. True, it tells its tale only once a day, and is used chiefly as a regulator of clocks and watches, chronometers and time-pieces elsewhere; but at this particular hour its accuracy transcends that of all ordinary clocks; while its indications are visible from a distance far greater even than those of the clock at the New Houses of Parliament. The Greenwich time-ball is so generally known, that a few words of description will suffice. On the top of the observatory is a large, hollow, coloured ball, which slides up and down a pole passing through its centre. Mechanical apparatus effects all the usual movements of the ball; but electrical contrivances cause the descent of the ball exactly at one o'clock every day. The astronomical clock belonging to the observatory, one of the most perfect ever constructed, gives a click or movement to a particular piece of mechanism, at that particular moment; and the movement is communicated through an electric wire to the ball, or rather to a lever which retains the ball in its place; this lever being affected, the ball falls through a distance of many feet. Now, the movement of a spherical body, standing out in bold projection against the sky, can be seen from a very considerable distance. Captains of ships passing down the Thames can see the descent of this ball (if at one o'clock in the day), and can regulate their chronometers by this signal.

When once the usefulness of the Greenwich time-ball became apparent, an extension of the same system was naturally to be expected. The Electric Telegraph Company erected a time ball on the summit of their establishment in the Strand. At the very instant when the Greenwich time-ball falls, an electric current is sent through a wire from the observatory to the Strand—which wire passes under roads and streets, and over the Thames; the time of transmission is shorter than human means can measure; for all practical purposes, the two balls descend at the same instant, although the source of power is close to the one, and several miles distant from the other. An example of great public spirit was given by a London tradesman, as a means of serving his neighbours. Mr. French, the chronometer-maker of Cornhill, erected a time-ball at the top of his premises. The ball is visible from many parts of the river, for it stands at a height of a hundred and fifty feet above the mean water-level; and it can also easily be seen from many of the streets in the city. The ball is made of zinc, and is five feet and a-half in diameter. In Edinburgh, on the top of Nelson's Monument, and in Glasgow, on the tower of the Sailors' Home, there are time-balls under precisely similar arrangements, for the use of the shipping in those ports. There is another belonging to the Admiralty at Deal; and one at Liverpool belonging to the Electric Telegraph Company; and we may reasonably anticipate that most of our great seaports will, one by one, avail themselves of this admirable contrivance; for the expense is a mere trifle compared with the amount of service rendered. Of course, so far as the principle is concerned, the ball might be made to fall at any other hour instead of one o'clock, or might do so on many different hours of the day—this is a mere matter of practical convenience.

Concerning *electric clocks*, many persons imagine that there is electrical mechanism within each clock, which "goes" independently of all other clocks; such, however, is not the case. An electrical clock is little more than a skeleton; its interior mechanism is small in quantity, and not very complex. The face (illuminated at night), the figures on the face, and the hands that travel round from figure to figure, are the chief components. There is a central clock (say at Greenwich) which gives the right time, and electric wires convey impulses from this clock to the electric clocks, wherever and how many soever they may be; there is mechanism which causes this impulse to be given to the hands. Theoretically, the number of clocks thus set going from one centre might be almost unlimited; it is simply a question of practical convenience. In front of the Electric Telegraph Company's Office in the Strand is an electric clock for the use of the public; while within that and other offices of the same company, clocks of analogous action are very numerous. Most of the railway companies have facilities for correcting their station-clocks by electric agency. Time signals are sent hour by hour from Greenwich, and are transmitted through the Electric Company's wires to various stations and towns in the United Kingdom—an achievement truly wonderful, were it not that we have almost ceased to wonder at such things.

Let us now proceed to the subject of *local telegraphs*—those which do not travel to great distances.

It needs hardly a word of explanation to show that a copper wire, connected with the proper electric apparatus, might convey a signal from room to room, as well as from city to city. Some of the monster hotels of America have already adopted the system; and it is, we believe, adopted in the Houses of Parliament, to ring all the bells in the several committee rooms at four o'clock, to denote that "the speaker is at prayers," and that the committees must close their labours for the day. Few manufacturing establishments are large enough to render such a contrivance necessary, seeing that a gutta-percha speaking-tube suffices; yet there are breweries which cover several acres each, and a few other large establishments fitted to profit by an electric telegraph. One London firm, however, Messrs. Waterlow, have adopted the system under a singular form. They have formed a *house-top* telegraph between two factories situated in different parts of the metropolis. Having obtained permission so to do, they arranged their posts on certain house-tops, stretched their wires high up across the streets, and established the requisite galvanic or magnetic batteries at the two terminal stations. Of course, in an arrangement of this kind, nothing can be done except with the consent—either by kindness or by purchase—of the owners of the houses thus so singularly over-topped.

The "over-house" telegraph system has been adopted in Paris, Brussels, and New York, for local purposes; and the success of those attempts, coupled with that of Messrs. Waterlow, has suggested the establishment of a company for applying the system on a very large scale in the metropolis. Without offering any opinion on the speculation, in a Stock Exchange point of view, we may briefly notice it in its topographical and mechanical features.

The proposal embraces, in the first instance, the means of electric communication between any place, within a radius of four miles from Charing Cross—an extension of the radius being easily practicable afterwards, if success should attend the opening enterprise. Within this circle of four miles' radius, or eight miles' diameter, the metropolis has been hypothetically divided into eleven districts, each containing, on an average, nine stations, or about a hundred stations in all. The stations are so selected as to locality, that the delivery of a message may be made within a few minutes after its receipt. In a map, lithographed to illustrate the intentions of the projectors, about a hundred stations are marked down. One, a great central station, is near that great centre of the world's commerce—the Bank of England; ten others are district stations, each the principal station in a particular district; while all the rest are local stations, subordinate to the chief ones in the respective districts. All the local stations are to be connected with the chief stations of the same districts; and all the district stations are to be directly connected by the nearest practicable routes; but wires will only be laid down from one minor station to another, according as they form parts of a main route.

Wherever practicable, it is proposed that the wires should be stretched up aloft on the "over house" method. This would be preferred, on the score of cheapness in the erection, of facility in the repairs of injuries, and of the avoidance of interruption to public streets by any underground arrangements. To what extent, however, such a plan would be practically avoidable, is one of many problems which would have to be solved. Two or three existing companies have telegraphic wires underlying the streets of the metropolis; and these might, possibly, under amicable arrangements, be made in part available for the local telegraph.

Now, as to the kinds and varieties of purposes for which this metropolitan net-work would be serviceable. The scheme of the projectors may possibly not be altogether reliable, as to the sources and amount of profit; but it will, at any rate, serve to indicate the views entertained as to the requirements of the public. The one hundred stations, and the many scores of miles of wire, would, it is estimated, contribute to the following end:—To convey government messages, military and civil, in connection with all public offices; to summon witnesses in the country to the law-courts in London, and to facilitate the proceedings of barristers and solicitors in relation to those courts; to convey messages and announcements pertaining to the important events of births, marriages, and deaths, of which there are no fewer than 160,000 annually in the metropolis; to summon medical practitioners at times and places where there is pressing need; to give notice to the several firebrigade stations of the breaking out of a fire; to aid the police authorities in the various matters where promptness in police duties is important; to announce departure from, or arrival at, any of the metropolitan railway stations, on the thousand-and-one commercial and domestic matters which now so much affect men in this travelling age; to ascertain, before making a visit of business or pleasure, whether the person to be visited is "at home;" to make or postpone appointments for meeting;

to maintain communications between the business-houses and the suburban residences of "city men;" to arrange with the existing telegraph companies for the collection of such of their messages as start from different parts of London, and for the delivery of such as are directed to London, in such manner that the general and the local telegraphs may mutually assist each other; to provide wires and instruments, which may extend from any one of the company's stations to any establishment belonging to government-offices, police-offices, fire-brigade stations, carriers, manufacturers, wholesale dealers, wharfingers, dock and canal companies, railway companies, bankers, hotel-keepers, &c.; such wires to be used solely by and for the particular establishment paying for the accommodation.

The commercial question, as one of profit and loss, we have already decided not to notice here. We stop not to inquire whether they could send 10,000 messages a day from the central office alone? whether they could fit up all the stations, and provide all the wires and apparatus, for so low a sum as £35,000? whether we might or might not reasonably expect that one person in each family would use the telegraph, on an average, once in three months? whether the three million of souls in the metropolis would, even at this low average, bring £40,000 per annum to the company's coffers? whether the system would open a field for useful woman's work, as telegraphic clerks at the various stations?—these are questions to be decided on their own merits, by persons best fitted to estimate them; but we cannot hesitate to express a conviction that a system of local or street telegraphs, whether "over-house" or otherwise, are among the things which we are destined to see ere long. But *cheapness* will be an indispensable feature of the plan. to insure success; the penny-post has spoiled us for any forms of transmission—whether of persons, messages, letters, or commodities—which involve the high charges of former days.—*Chambers's Journal.*

Correspondence.

STEAM FIRE ENGINES.

TO THE EDITOR OF THE DUBLIN BUILDER.

Sir,—From a letter dated Boston, 26th May, written by Mr. Wilton, and published in the *Era*, I extract the following:—

"In Cincinnatti I observed a great improvement in the fire department, by the introduction of very ingenious steam fire-engines. There are thirteen in the city, in as many districts. Each has four horses attached, which are kept in constant readiness, and four men. A still greater piece of useful ingenuity is displayed in the fire department telegraph. In every district is a small box, in a wall, containing communicating wires to each engine station, and when a fire breaks out the policeman nearest goes to the telegraph-box, opens it, touches the indicator, which instantaneously informs all the engine stations the locality of the fire; and in two minutes from this the fire is made known, horses in, steam up, and on the road to the spot. The toy engines play their four and six-inch hose, throwing an overwhelming stream, which soon extinguishes the most desperate looking fire; in fact, since the introduction of these such a thing as a great fire is now scarcely known."

Allow me to suggest to the numerous fire-insurance offices in London and Dublin the propriety of calling a meeting to adopt a similar plan to the above. By a moderate contribution from each office two or three small steam fire-engines could be purchased to throw the water in an "*overwhelming stream*," and thus much valuable property would be saved. At present the fire-engines of Dublin are absolutely useless, and do little or no good when a fire takes place. The Lord Mayor and corporation would, I am sure, join in any plan which would be the means of rendering them efficient.—I am, sir, your most obedient servant,

June 20, 1859. George Mason.

OBITUARY NOTICE.

We regret to have to announce the death, after a short illness, of a young and promising member of the architectural profession in Dublin, Charles Owens Carroll, Esq. Mr. Carroll was a pupil of one of our most eminent architects, E. P. Gribbon, Esq. and had but some two years since entered on his own professional career, during which—although so suddenly terminated—he had, from his ability, made much progress, and from his uniform amiable and courteous demeanour acquired a large circle of friends.

Home made Gas.—Lord Cloncurry has determined to light up his beautiful seat, Lyons, Celbridge, with gas made on the premises, and for this purpose has employed Messrs Edmundson and Co., gas engineers, of Capel-street, in this city, to erect one of their gas apparatus.

Notes of New Works.

A monumental oratory is to be built at Glasnevin Cemetery, according to designs by J. J. Lyons, Architect. It will be placed within a planted enclosure, 14 feet by 8 feet, defined by a granite base course, rounded at the angles, and surmounted by a plain iron railing. At one end will be a gateway for admission to enclosure, and for transmitting the remains through a moveable trap to a vaulted chamber underneath; and at the other the oratory will be placed at a distance of two feet within the boundary, and approached from without through a segmental area formed by the junction of the base course with the entrance doorway. The oratory will be circular on plan, 4 feet diameter in clear; fitted internally with a small altar and marble pannelling—having scriptural quotations engraved thereon—round the walls; and lighted from above. Externally, the elevation will be vertical to a height of 7ft. 6in. surrounded by a granite base course 18in. high, and having continuous French rustics, impost and astragal mouldings, and surmounted by semicircular stone dome, terminated by a cross, and perforated at top to receive a flush light of very thick glass. The superstructure of the oratory will be of Scotch stone with brick lining, and plastered internally with Portland cement. The door will be of iron, massive, and perforated, and constructed to open in the centre and slide on iron rollers into the wall. The total height to top of dome, will be 10ft. 6in.

Alterations and additions are to be made to the guard house and cells at the old barracks, Fermoy; new kitchens and water-closets, &c., are to be added to the officers' houses at Newbridge barracks (where a chapel school is at present building); additional hospital accommodation is to be given at Tralee barracks, and a breakwater formed round Magilligan tower at Lough Foyle, all under the Board of Ordnance.

The church of Drumconrath, county Meath, is to be refitted by the Ecclesiastical Commissioners.

The county courthouse at Longford is to be altered and enlarged, and a new entrance formed to county gaol.

Messrs. Turner and Gibson are the contractors for iron roofing, &c. at Kilmainham gaol; Mr. J. M'Curdy, architect.

It is proposed to erect a complete Turkish bath in the Cork Union workhouse.

The committee of the Goldsmith Testimonial have received £600 in subscriptions. We trust that this and the subsequent receipts may be more judiciously applied than in the recent case of a national testimonial.

We notice that the Committee No. 1 of the Dublin Corporation have declined to accept *any* of the contractor's tenders for recently advertised sewerage works in Harrington, Grantham, Heytesbury, Clanbrassil, Lower Sherrard, and Eccles streets, and Belvidere and Grand Canal places, and seek for new tenders, to be sent in this day.

Additions are to be made to the Victoria House. Clonmel (Messrs. M'Swiney and Reidy, proprietors), according to designs by Mr J. S. Butler, architect.

The church of Derryloran, Cookstown, Co. Tyrone, is to be enlarged according to drawings by the architect to Ecclesiastical Commissioners.

Amongst the new works for which tenders are sought by the War Department are: the enlargement of hospital at Beggar's-bush Barracks; the erection of a serjeants' mess-room and kitchen at infantry barracks, Clonmel; the building of a master-gunners' store, shifting room, and boundary wall, &c., at Tara Hill, No. 6 Tower, Dublin Bay south, &c., £c.

A new tower and spire are to be added to the Catholic church, Dunleer, Co. Louth.

Mr. J. Quin, of Upper Stephen-street, is the contractor for the new premises now erecting for Mr. Gatchell in Dawson-street, and noticed in a previous number.

The attention of agriculturists is directed to the extensive range of farm offices just completed at Castlekncck; they enclose a yard 90 x 40 feet, and have been finished in 6 months, under the directions of Mr. Sloane, at a cost of less than 8d. per cubic foot.

Review.

The Carpenters' and Joiners' Assistant. Blackie and Son, Glasgow, and 17, Eustace-street, Dublin.

We would direct the attention of practical men and mechanics to this work which is now publishing in parts 20 in number at 2s. each, and contains a complete course of geometrical instruction necessary for the trade of a carpenter and joiner; and is embellished with some beautiful illustrative engravings. With such publications as this, obtainable at a moderate price, a tradesman has no excuse for not becoming proficient in his handicraft; and those of the present time have a decided advantage over their predecessors who lived in an age of darkness, when they were without precedents to work from, and were entirely thrown on their own ingenuity.

Miscellaneous.

Execution of Sculpture by Machinery.—A very ingenious machine for the execution of sculpture has recently been introduced in an improved form from the Continent. It consists of a large frame, which, though traversed in several directions by lathe bands to give motion to the tools, is so perfectly balanced on a ball and socket joint that it can be moved in any direction with the slightest touch. The *modus operandi* of working it consists in placing the block of marble or stone to be operated on and the model to be copied side by side, a certain distance apart, opposite the frame, from which project two arms, one of which is surmounted by a circular steel drill, and the other by a simple stump of wood. When the machine is set in motion the arm which rests upon the model, in passing over the inequalities of its surface, regulates the position of the steel drill, which, though attached to the same frame, is traversing the block of marble. As the drill clears away the marble with great rapidity, and as it is raised and depressed exactly as its fellow arm is raised and depressed by traversing the irregularities of the statue, it follows that in an incredibly short space of time an exact *fac simile* of it must be produced. There is no art which entails upon its professors so great an amount of manual labour and toil as sculpture does. More than half the time occupied by an artist in the execution of a bust or group is taken up either in directing or executing the reduction of the block of marble into the rough figure, and yet the real work of the artist only commences after this labour has been gone through. Thus to the present imperfect method of performing the rough part of the sculpture may be attributed in a great measure the enormous prices obtained for good statuary. The invention has been looked upon rather coldly by sculptors in England, who regard it as an instrument rather calculated to lower the character and reduce the emoluments of the profession. But it should be remembered that artists can never flourish till art becomes popular. The great cost of producing statuary at the present day entirely prevents there being a popular taste for it. But no one can doubt, if small-sized marble statuettes from the first models could be produced at little greater cost than the Parian figures now so much in vogue, that the public patronage of sculpture would be found such as to be more profitable than the scanty encouragement now accorded to the profession by a few private individuals. A company has been formed to work the invention in England.

Instantaneous Photography.—A few days since, Mr. Skaife delivered a lecture to several gentlemen who are interested in photography on his process of obtaining instantaneous impressions in the camera. After some general observations on the nature of light and on the rapidity of its action, Mr. Skaife proceeded to explain his plan of operating instantaneously, and showed some of its results. Instead of having a cumbersome camera, with a stand to support it, Mr. Skaife's apparatus is so small that it may be carried in the breast pocket. The camera-box is little more than an inch square, and the front of the small lens is covered by a lid to exclude the light. The collodionised glass on which the image is focussed is correspondingly small, and the miniature pictures thus taken are subsequently copied with a larger camera. By thus concentrating the rays on a small field, the intensity of the light produces the effect in a shorter time than with a lens of the ordinary size, taking larger pictures, and the instantaneous uncovering of the lens is sufficient to produce the effect. By this means a photographic sportsman may carry his camera like a pistol in his hand, and on seeing any object either stationary or flying, that he wants to have, he has only to present his pistol at it and pull the trigger, which momentarily opens the lid, and the game is bagged; every hair or leaf of it being depicted in the miniature, which may be afterwards enlarged to one hundred times the size. Among the specimens shown were steamboats in rapid motion, and even bombshells in their flight through the air. The smoke caused by firing a mortar was represented clearly in several photographs, which exhibited what Mr. Skaife calls the "mortar phantom," for in the convolutions of the smoke there were clearly depicted a human face. The constant appearance of a man's face in the smoke of the explosion, Mr. Skaife considers something more than a fortuitous occurrence, and he has given it the name of the "mortar phantom." The features of a human face are, indeed, clearly discernible in the photographs, but they are not alike in the different specimens. Mr. Skaife pointed out several applications of this ready and instantaneous means of taking photographs, one of which is to the determination of the true course of projectiles when fired through the air. Beautiful photographs of large size were exhibited, which had been magnified from miniature images that were placed underneath them.

A breakwater is to be built in Table Bay, Cape of Good Hope, where such a protection has long been needed; and as it will be constructed under the direction of Mr. Coode, the engineer of the Portland Breakwater, mariners may count on seeing a safe harbour created on that southern end of Africa.

Hydraulic Ram.—At the request of the Mercers' Company, the Messrs. Gardner, of Armagh, have recently erected a hydraulic ram at Kilrea, by means of which the town is supplied with spring water. The machine is at a distance of about 700 yards from the village; and the spring—a celebrated one, called Tubberdoney—is 134 feet lower than the point at which the water is delivered. Through this distance (700 yards) and up this elevation (134 feet) twelve gallons of water have been driven every minute during the last fortnight; and by an increased opening of the valve—from three-sixteenths of an inch, as at present, to six-sixteenths, which is possible, as much more could be supplied. The size of the ram, though unusual, if not unprecedented, is not, however, its greatest peculiarity. The driving water and the driven are different in their sources, and more so in their quality, and by modification of the ram, never attempted before, but designed and carried out by Edward Gardner, Esq., are kept separate, while they pass through it. So complete is the separation, that, after the mill-pond, from which the driving power is derived had been used for steeping flax, not the slightest taint of flax water was perceived in that drawn at the various fountains in the different streets of the town. The work was inaugurated on Monday, the 6th ult., by J. R. Dolling, Esq., J.P., the lately-appointed agent of the company, who could scarcely have begun his administration more auspiciously, as all the town was anxiously waiting for a year or more for the opening of the fountains.

Railway Breaks.—The directors of the Lancashire and Yorkshire and of the East Lancashire Railway Companies are bringing to a close a series of experiments with railway breaks, which have been made under the superintendence of Mr. W. Fairbairn, C.E. Mr. Newhall, of the East Lancashire Company, is the inventor of one of these breaks, and Mr. Fay, of the Lancashire and Yorkshire Company, is the inventor of the other. The trials made have taken place upon various parts of the companies' lines, the first series at Oldham on the 4th of February, down a gradient of 1 in 27, and at subsequent intervals near Southport, on a straight and level portion of the line. At the last experiment, made on the 19th instant, near Southport, the trains consisted of three carriages, loaded to weigh nine tons each, making a total of twenty-seven tons, independent of the engine and tender. Upwards of a mile was allowed to the engine-driver to get up speed, and then the train was run over a measured half-mile, marked by fog signals. On the explosion of the fog signal at the end of the half-mile the engine was detached and ran ahead, leaving the trains to be brought up by the breaks. It appears that in one of these trials with Mr. Fay's break, at sixty miles per hour, the train was brought to a stand in 204 yards. Mr. Newhall's break brought up a train running at the speed of sixty-three miles per hour in 278 yards. In a previous trial it was reported that Mr. Newhall had brought up a train at thirty-two miles per hour in fifty-six yards, and that Mr. Fay had brought to stand a train at forty-four miles per hour in ninety-eight yards. At the experiments on the 19th instant a trial was made with the same trains, without the application of the breaks, the engine shooting a-head from Mr. Fay's train after attaining a speed of forty-five miles an hour. With the impetus thus given to it the train ran two miles and three-quarters before stopping. Mr Newhall's train, with the engine detached at a somewhat slower speed, ran nearly three miles and a-half before sopping. One result of these experiments has been to show that stopping the action of the wheels, so as to allow them to slide, or "skid," is less effective than such a pressure only as will break the rapidity of their revolution to the utmost without stopping them altogether. At most of these experiments directors belonging to both companies were present.—*Times.*

Some experiments were lately made on the Eastern Railway of France for lighting the carriages by means of portable gas. It was found that a single supply would suffice for the double journey from Paris to Strasbourg and back.

Limerick and Ennis Railway.—The remaining portion of this line from Clare to Ennis, including the bridge across the Fergus, has been examined, and approved of by the government inspector.

Heights of Water Troughs.—Water-troughs for horses should always be countersunk in the earth or stable floor, on a level with the horse's feet. The natural mode of an animal's drinking is on a level with the stream; anatomists will agree that the throat of a horse is so formed, that this position is necessary in order that the water should lave those parts of the throat which particularly need such refreshment. It may be urged that it is more convenient for a horse in harness to have the water brought up to him, instead of his having to lower his head to the water; but such is not the case. When the bearing rein (that painful relic of barbarism) is unloosed, a horse has no difficulty in putting his head to the ground; witness horses taking their bait as a proof, and the heat and pressure of the collar in drawing render the thorough washing and cooling of the throat more than ever acceptable. Besides the benefit conferred on horses and cattle by cutting down the cisterns to a reasonable proportion, they would be made available for the lesser animals.

The Viceroy of Egypt has ordered that henceforth the historical monuments which exist in Egypt shall be preserved, and that a museum shall be established for the reception of the moveable antiquities which may be discovered. Already has the clearing away of the rubbish which surrounds certain monuments commenced, and amongst those monuments is a temple at Edfou. As to the museum, M. Mariatte proposes to establish it in a large temple discovered by himself in the vicinity of the great pyramid.

Air and Ventilation.—There is always a draught through key-boles and window crevices, because the external air being colder than the air in the room we occupy, rushes through the window crevices to supply the deficiency caused by the escape of warm air up the chimney. If you open the lower sash of a window, there is more draft than if you open the upper sash. The reason of this is because if the lower sash be open, cold air will rush into the room and cause a great draft inward; but if the upper sash be open the heated air of the room will rush out, and of course there will be less draft inward. A room is best ventilated by opening the upper sash, because the hot vitiated air, which always ascends towards the ceiling, can escape more easily. The hottest place in a church or chapel is the gallery, because the heated air of a building ascends, and all the cold air which can enter through the doors and windows keeps to the floor till it has become heated.

To Correspondents.

J. M'G., Crossmolina (The depth and thickness must necessarily vary according to the dimensions of the window, but those you gave are unprecedented for *any* open, if your query be rightly placed before us. It may be a splayed *jamb* or *pier* between double or triplet lancet lights; not a "mullion" in a single open, if so, the case would be different, and the stated proportion not be inconsistent); L. F., Halifax (Direct from the office, per post); Subscriber (We best consult the general interest by scrupulously adhering to our professed principles, however a solitary individual may consider himself disregarded); Architectural Student (If suitable); W. B., Skerries (Thanks for suggestion, but one day too late to provide requisite space).

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OR

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ESTABLISHED JANUARY 1, 1859.

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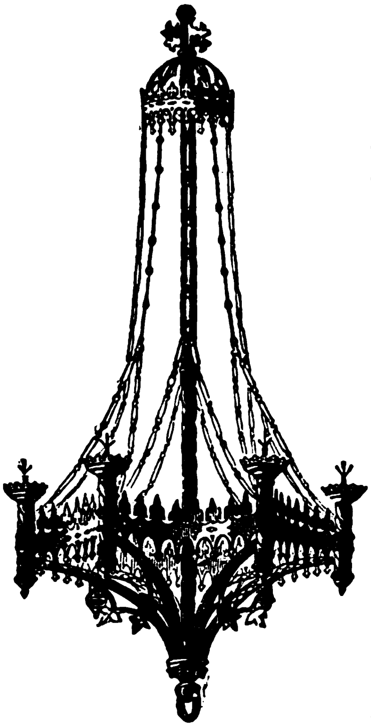

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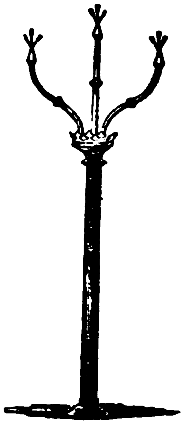

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The Dublin Builder.

Vol. I.—No. 8.

PARTY WALLS.—CONTRACTORS' LIABILITIES.

TWO cases of uncommon interest, and involving points of considerable importance in the general practice of a builder's business, have been recently brought in a prominent manner before public notice in this country. One especially, in our own city, the issue of which remains yet to be told,—and whatever our private opinions may be, we must not, in its present stage, prejudge,—but which, considering the pecuniary considerations involved, is by far the more important of the two, and will establish, when decided, a serious precedent on similar future occasions. The other in which, though we may feel less locally interested, nevertheless in principle is equally important, and the verdict of the jury must be regarded as so far settling the question of a contractor's personal liability, while acting even on behalf of others.

The particulars of the latter, which came before Baron Hughes and a special jury, at the late assizes at Enniskillen, are briefly as follows:—A Mr. Collum, solicitor, the proprietor of two houses, erected some forty years ago in the town of Enniskillen, and one of which was devoted to banking purposes by the Provincial Bank, was the plaintiff; and a Mr. M'Clelland, a local builder, under contract for the erection of a new structure for said Banking Company, on portion of the site, was the defendant. Damages were laid at £2,000 for the injury sustained by plaintiff by reason of the alleged neglect of defendant in not properly shoring up the adjoining (plaintiff's) premises while erecting the new building. The chief count in the summons and plaint was, that the house of the plaintiff was undermined and injured; to which allegation the defendant pleaded it was done by leave of plaintiff, who, being solicitor to the bank, had inspected the drawings and specifications, was fully aware of both the intended and actual proceedings from the commencement, and had veritably given leave to the defendant to proceed as he did. It is unnecessary for us to wade through the various ramifications of legal documents, but suffice it to say, that the questions for the judge and jury were simply—Was the plaintiff's house injured by defendant's negligence or incompetence? and if so, to what extent?

Passing over the able and emphatic statements of counsel on both sides, in laying the claims for consideration of the jury of their respective clients, we come to the evidence. The first witness was Mr. James Creaden, also a local builder, who deposed as follows:

"That he made a record of the state of plaintiff's house before the work of the new bank began, and found *the house and return perfect;* subsequently observed, when excavations were commenced for the new building, that the hall door would not open; had to saw a piece off the bottom; the other doors got jammed at junction of walls; cracks arose; floors had lost their level; walls of drawing-rooms were very damp, though nothing of the kind occurred before the bank was taken down; and at once knew the cause of these and other matters occurring, that it was from *the negligence of the person doing the work*; visited the premises during progress of the bank at least twenty times; as the building went on, cracks increased, and believed the cause was the way in which *underpinning was done;* knew the original gutter between the two houses; the present gutter insufficient to carry off the ordinary rain; the new building raised about fifteen feet above the plaintiff's, and the cornice projects about eighteen inches over plaintiff's house; and if plaintiff wanted to rebuild it would be a dangerous experiment, as the party wall rests on an insecure foundation; the bank carried up half a brick against the party wall; and when they got to the top of the whole, they occupy the whole fourteen inches; thinks, on the whole, it was not a scientific way of building; to remedy the defects would involve building a new house, with separate party wall; estimated plaintiff's house at £1,800 or £1,900 before the building began."

In the course of cross-examination, however, the witness admitted that—

"He saw large pieces of timber employed to support plaintiff's house, and that the bridging *was done as well as possible;* partition wall must have been taken down about three or four years ago; observed no damp when he examined the house first; the houses were built in 1818, by a man *notorious for using bad materials*"!!!

We would specially direct the attention of our readers to the admission on cross-examination, viz., that the bridging or shoring (we presume) of plaintiff's house *was done as well as possible,* and that the original builder of the premises in question was *notorious for using bad materials.* To our minds, significant facts; perhaps the most important elicited during the trial! However, *nous verrons!* The next witness, William Frith, corroborated the last in many respects; but made the *amende honorable* in favour of defendant, by admitting that he had lately heard Dean Boylan swear he (witness) was *not worthy of credit on his oath!*

So much for the evidence so far adduced! But further, we find another builder, Mr. Clegg, a witness on behalf of plaintiff, aver that "Smith, the builder of the houses in question, was in the habit of building for the purpose of selling." Of course of rubbish — mere rubbish, as sworn to by Mr. Creaden, and verified by this witness; yet, strange to say, the house, when separated from its companion, which was to be rebuilt with proper materials and in a permanent manner, exhibited symptoms of insecurity. Curious fact, is it not?—yet facts are disputable!

The evidence of Mr. George Wilkinson, late architect to the Poor Law Commissioners, and an eminent member of the profession—and as respected as eminent—went to show that the underpinning was defective, being only half under the party wall, and not thorough; that the settlements appeared to be of recent growth; and that to the insecurity of the foundation is attributable an incline in the superstructure of two inches towards the bank — the former resting partly on masonry and partly on earth. Would not swear that some of the *cracks were not old!*

Mr. Robert Armstrong, whose name is familiar to many of our readers as the son of an old and respected local builder, although, until recently, for many years practising in London, corroborated the evidence of Mr. Wilkinson, and testified that the underpinning of the entire width of the wall was practicable from one side, without interference with the neighbours; and that, by reason of the sinkings above alluded to, the property had deteriorated one-half in value.

The plaintiff proved that he had expended about £800 in building and repairs. Formerly there were no cracks, the door did not drag, or the wet come in. Heard a noise during the rebuilding of the bank, and immediately a crack appeared in the drawing-room. But on cross-examination pleaded ignorance of the intentions *proposed by plans or specifications,* "and they did not tell him they *were going to excavate or underpin.*"

Here closed the plaintiff's case; and well had it been for the sake of common sense, at least in our minds, that it had never been opened. With the exception of Mr. Wilkinson's evidence, that "the party wall was insufficiently underpinned, being partly resting on masonry and partly on earth," there is not a tittle of evidence worthy the attention of either a practical man or the consideration of a jury.

Now let us hear for the defence. The old bank was alleged to be in a ruinous and dangerous state, and its rebuilding indispensable for the actual safety of the community at large. This was done, with all due caution and regard for the security of the adjoining premises. The cracks in question were attributed to the insecure manner in which the new return was built on the old wall, and not to the reerection of the bank. Further, that the plaintiff gave full leave and licence to the proceedings, and never objected until the work was in a forward state.

The architect, Mr. Roderick Gray, deposed that the underpinning of the party wall was done with greatest care, in portions of two feet at a time, with stones, flags, and Roman cement; did not know if it was the whole way under the wall; specified underpinning, but not *how*; and the foreman, Mr. David Gresham, admitted that from fifteen to eighteen inches was the general thickness of the underpinning; never *saw more care taken in laying a foundation.* Before the work commenced, he plumbed the party wall, and found it overhung, and is in *the same state still.* If the bank had not been taken down, it might have fallen into the lane, and taken plaintiff's house with it.

The other professional gentlemen engaged were Messrs. S. Butler, W. G. Murray, and J. M'Curdy, architects, and Mr. Campbell, builder, who severally deposed in favour of defendant's precaution in the workmanlike prosecution of the work.

After some deliberation, the jury found on 1st, 2nd, 3rd, 7th, 8th, 9th, and 10th counts damages £125 and costs; on the 5th, 6th, 12th, and 13th counts for defendant; and on the 4th count, that £5 lodged in court was enough for the damage. Assuming that a proprietor does sustain damages by reason of the rebuilding of adjoining premises, is it consistent or fair that a builder against whom culpable negligence is *not* proved, should suffer for an unforeseen circumstance, and while acting only as the paid *employeé* of others? *We should say not!* And again, if one man's house be in a tottering state, must his neighbour, having separate title, and keeping on his own territory, be precluded from improvement or rebuilding, because of that fact? It is unconstitutional and unjust! If responsibility exist, why not saddle it on the proprietor, not the builder?

DEVELOPMENT OF RAILWAY SYSTEM.

The railway system, in its almost endless ramifications, and the construction and management of railways, from their importance as instruments of civilization and commerce, no less than the magnitude of the interests at stake, have become not unworthy to occupy the active and practical attention of many of the leading minds of the day. These interests now contribute a large quota of Members to the Legislature; the proportion of Members of the House of Commons who are chairmen, directors, engineers, or contractors of railways, being nearly *one-fifth* of the whole house, and in the Lords nearly *one-tenth*, without taking into account the far larger proportion who, without being office-holders, are proprietors or shareholders, and otherwise interested in railways. More than 130,000 persons are employed as paid officers and servants on railways in the United Kingdom, not including directors and auditors; and these numbers are wholly irrespective of the vast numbers of persons besides, to whom these undertakings furnish habitual employment in private establishments in iron works and factories, in the construction and building of engines, carriages of various kinds, in the supply of coals, coke, oil, clothing, printing and stationery, and in the various other trades and manufactures engaged in supplying the multifarious requirements of railways. The first completed railway in the United Kingdom for general traffic may be taken to be the Liverpool and Manchester, constructed by a company incorporated in 1826, and since, as well as the Grand Junction, amalgated with the London and North Western Company's line. Its opening, in September, 1830, is memorable, no less as the earliest developed example of British enterprise in this direction, than from its attendant fatality in the loss of one of our most distinguished statesmen, whose official position as Vice-President of the Board of Trade brought him in contact with the means of his destruction. The second in the United Kingdom, and the first in Ireland, was the Dublin and Kingstown line, opened in 1834, and now in the hands and under the management of the Dublin and Wicklow Railway Company, in conjunction with their own more recent line. From the year 1821 the extent of railway communication in the United Kingdom has increased from about 32 miles—the length of the Liverpool and Manchester line—to 9,116 miles open for traffic at the end of 1857, besides nearly one-fourth of the latter number in course of construction or authorized. More than 130 millions of passengers travel over these railways in a year: or in other words, so many individual journeys are made. The railways in the United Kingdom had been constructed of different guages in the earlier years, before the passing of the Act of 1846, for regulating the guage of future railways. The general guage is now the narrow guage of 4-8½, prescribed for Great Britain by that Act. The Irish guage of 5-3, now universal in Ireland, is next in extent. The extent of the broad guage of 7 feet is much smaller; and that of lines of mixed guage, or of the narrow and broad guage combined, is the smallest—this double guage existing only on a few lines in England used by different companies, whose own lines are of different guages, and whose carriages, therefore, could not run interchangeably without the double guage. The following table shows the extent of each kind of guage on railways open to 31st December, 1857, and also the extent of railways laid down as single lines:—

Miles of	England.	Scotland.	Ireland.	Total.
Narrow Guage	5,776	1,269	—	7,045
Broad Guage............	740	—	—	740
Mixed Guage......	261	—	—	261
Irish Guage.............	—	—	1,070	1,070
Total..........	6,777	1,269	1.070	9,116
Of which are single lines..	1,715	409	651	2,775

The Dublin and Kingstown (the late Dalkey Atmospheric) and the Ulster lines were constructed originally with the 4-8½ and the 6-2 guages respectively, but have since been altered to the Irish guage of 5-8 inches, and the Atmospheric has been altered to a locomotive line.—*Moore's Handbook of Railway Law.*

THE CRYSTAL PALACE COLLECTION OF BRITISH AND FOREIGN WOODS.

If the Directors of the Crystal Palace at Sydenham have been most active and diligent in catering for the amusement and pleasure of the visitors in concerts, lectures, pictures, &c., they have at the same time been equally thoughtful to provide the more lasting and useful information connected with horticulture, scientific progress, and commercial products

The beautiful collections of growing plants, flowers, and trees, within and without the building, convey a fund of information and pleasure to thousands. And these are made subsidiary to the acquisition of useful knowledge connected with the everyday business of life, and to their relation in the several branches of art, manufactures, and commerce. The details connected with such a vast undertaking require patient assiduity, great watchfulness, and a large outlay of time and money to render them anything like complete.

In view of the growing taste on the part of the public for economic museums, the Directors have for a considerable time past paid great attention to the formation of an Industrial Museum, embracing a collection of commercial products, illustrative of the economic uses of animal, vegetable, and mineral substances. The progress of this collection, which is placed in one of the galleries, we have watched for some time past. Under the able supervision of Mr. David Price, it has now attained to very important dimensions, and will compete creditably with any of the metropolitan collections, surpassing, in some of its branches, many of the special and even more favoured museums, which have Government grants and official prestige in their favour.

The visitor, whether he be of the purely studious or inquiring character, or one satiated with the multifarious amusements, and food for the eye and ear so liberally provided for him at Sydenham, will find he may spend most pleasantly and usefully an hour or two in the Crystal Trade Museum. Is he interested in agriculture or arboriculture? Here he will find a most extensive and valuable collection of all the principal seeds of grasses, cereals, culinary plants, &c., and specimens of the leaves, cones, or seeds of the principal trees. Does he wish to become conversant with drugs, oils, dye-stuffs, tanning substances, or fibrous materials, here is abundant scope for his investigation; all popularly named, scientifically labelled, and fitly described. If he prefer to examine animal substances, here will be seen not only the stuffed animals of the wool-bearing tribes, but a very large and varied collection of wolls, furs, and hair.

In chemical products the Crystal Palace Museum is extremely rich, and no illustration calculated to be useful to the public escapes Dr. Price's watchful and experienced eye. From a long and close attention to these subjects, few are better able to appreciate the arrangement, extent, and practical utility of this collection, which, if it advances as rapidly as it has done of late, will soon become a most important and highly valuable technological museum. Much as we admire the collection in its entirety, we are necessarily constrained to devote our present notice to those materials which fall most within the scope of the objects of this journal, the building materials, and those fitted for constructive purposes in general.

The collection of woods, British and Foreign, is numerous, and what is more, they are all scientifically named and described, and an arboretum is in the course of formation in the Palace grounds, where the living trees may be studied in their fair proportions, at least all those which are suitable to our climate.—*Building News.*

MACHINERY AT THE ROYAL AGRICULTURAL SOCIETY'S SHOW, DUNDALK.

AMONGST the many mechanical appliances exhibited at the recent show at Dundalk, may have been noticed the following:—Portable steam engines for threshing, sowing, and other purposes, of various powers; portable machines (not worked by steam) for threshing, sowing, grinding, &c.; improved oat and bean bruisers, for steam, horse, and water power; improved machines for cutting chaff, for sowing turnips (in double or single drills), for reaping and mowing, for making hay, and for broadcast sowing. Then there are improved ploughs, of every possible kind, and for all descriptions of work; improved harrows, drill grubbers, subsoil pulverizers, rollers, and rakes; improved churning machines, kneading machines, weighing machines, grinding machines, and washing machines. In short, there is exhibited every article ingenuity could devise to lessen the labour and facilitate the operations of husbandry in all its stages, besides farm requisites of various descriptions, such as wrought-iron gates, fences, rick-stands, wire-proof netting, round barred hurdles, revolving pig troughs, dog troughs, and poultry troughs, improved stall ventilators and mangers, hay racks, &c., and all agricultural requirements of this country. Amongst the leading English and Scotch exhibitors in this department were—John Gray & Co., Uddingston; Barrett, Exall, and Andrews, Reading; Richard Garrett and Sons, Saxmundham, Suffolk; Ransomes and Sons, Ipswich; Smith and Ashby, Stamford; B. Samnelson, Banbury; Clayton, Shuttleworth, and Co., Lincoln; E. R. & F. Turner, Ipswich; Thomas Bradford, Manchester; James Haywood, jun., Derby; Williamson, Brothers, Kendal; Woods and Son, Stowmarket; T. & F. Howard, Bedford; Picksley, Sims and Co., Bedford: R Hornsby and Son, Grantham; Richmond and Chandler, Salford; R. Forshaw and Co., Liverpool; W. M. Cranston, London; and Robert Law, Glasgow. The Irish exhibitors were:—James Shekleton, Dundalk; W. & J. Ritchie, Ardee; Thomas Kennan and Son, Dublin; Musgrave, Brothers, Belfast; William O'Neill, Athy; David Boucher, Belfast; A. MacDonald, Belfast; A. W. Russell, Wilson, and Mann, Belfast; Miller & Co., Dunleer; J. M'Connell, Dunleer; J. M'Kenna, Louth; Robert Law, Belfast; Matthew Kearney, Dublin; James J. Mitchell, Dublin; — Brook, Dublin; Riddell and Co., Belfast; John B. Mitchell, Dublin; Patrick Crolly, Dundalk; John M'Grath, Chancery-place, Dublin; and John Farquharson, Dundalk. The Earl of Enniskillen and Sir John Macneil exhibited a collection of drainage tiles, &c. It will be observed that several Dublin manufacturers who have obtained a high reputation for the excellence of their workmanship are not represented at the present exhibition.—*Freeman.*

The town of Balbriggan, Co. Dublin, is much indebted for improvement to the kind philanthropy of George Woods, Esq., of Milverton Hall, who has just completed a schoolhouse, with accommodation for teacher, the whole enclosed by neat surrounding walls. The building is of Italian character, in coursed rubble of Milverton stone, having wrought dressings and chimneys of brick, forming pleasing contrast and exhibiting an excellent specimen of masonry. There are two schoolrooms, for accommodation of 40 children each, together with yards, garden, &c. The plans were prepared by Mr. S. Symes, architect, and the work has been ably carried out by Mr. James Caffry, of Balbriggan. We understand the total cost will exceed £600.

ARCHITECTURAL IMPROVEMENTS IN THE VICINITY OF BALLYMENA.

ON a recent visit to Ballymena, we were gratified by an opportunity of inspecting a handsome and spacious mansion which has lately been erected at Mount Pleasant, in the vicinity of that town, for William Dunseath, Esq., one of its most respectable and extensive linen manufacturers. The house is conspicuous from the railway, at a short distance to the left of the line, after leaving the Ballymena station to proceed towards Ballymoney. The new entrance to the demesne is from the Galgorm Road, at which ornamental stone pillars, with iron gates and railing, have been erected, as also a handsome lodge, for a porter's residence, in style to correspond with the house. The house is situated on an eminence, and commands a rich and varied prospect. It is approached by an avenue, recently formed, and having very graceful curves, resembling the letter S, and affording an easy incline up to the house. The exterior of the edifice presents an imposing appearance, elevated towards the south and east on a terrace, covered with fine grass. The door and window openings, with the quoins and chimney shafts, are furnished with ornamental carved stone dressings. A bold, projecting cornice, highly ornamented, conceals the lower portion of slated roof, the plain surfaces of the walls being finished in Portland cement, producing so close a resemblance to cut stone as to require a practised eye to detect the difference. The style of architecture is Italian in character. The sashes of the principal fronts are each filled with a single pane of plate glass, and produce a fine effect, as they reflect the beautiful foliage of the stately trees which beautify the lawn and pleasure-grounds. On arriving at the hall door, you enter a porch which is screened from the hall by spacious sash door and side lights, filled with large panels of plate-glass. The hall is spacious, having ornamental columns with suitable decorations between it and the grand staircase, which latter, from its large window with carved dressings, filled with stained-glass, and its enriched stucco-panelled ceiling, is very effective. The suite of spacious reception-rooms are to the right of the hall as you enter, and communicate with each other by means of double doors, to exclude sound and draft. These are fitted up in a chaste and elegant style, without being too elaborate. To the left of the hall we observed a very convenient coat and hat-room, having marble wash-basin, with water-closet beyond, entered from coat-room. The culinary offices are replete with all the modern improvements. The chambers and dressing-closets are numerous and spacious, having hot, cold, and shower baths, with water-closets, all conveniently situated. The stable and farm-offices, whilst they are judiciously placed at a short distance from the house, are concealed from being too prominent a feature by the natural position of the site, and by suitable planting. The whole forms a most convenient and comfortable abode for a gentleman of taste, and having means to gratify it. We noticed in the hall one of Messrs. Musgraves' very ornamental patent slow-combustion stoves, which must in winter contribute materially to the comfort of the inmates. Arrangements have been made to afford a constant supply of fresh air, to ascend from under, and pass around the stove, so as to become heated and diffused through the house—air flues, with Looker's patent ventilators, being introduced in the chimney breasts of the several rooms to convey away the vitiated or used-up air of the apartments. We learned that the designs had been procured from, and the work executed under the direction and superintendence of Mr. Jackson, architect.—*Belfast Paper.*

PREMIUMS AWARDED BY INSTITUTION OF CIVIL ENGINEERS, LONDON.—The council of the Institution of Civil Engineers have awarded the following premiums for papers read during the session recently concluded:—

1. A Telford Medal to M. Scott, for his paper "Description of a Breakwater at the Port of Blyth, and of Improvements in Breakwaters, applicable to Harbours of Refuge."

2. A Telford Medal to R. Mallet, for his paper "On the Co-efficients of Elasticity, and of Rupture in Wrought Iron, in relation to the Volume of the Metallic Mass, its Metallurgic Treatment, and the Axial Direction of its constituent Crystals."

3. A Telford Medal to H. Bessemer, for his paper "On the Manufacture of Malleable Iron and Steel."

4. A Telford Medal, and the Manby Premium in Books, to W. J. Kingsbury, for his paper "Description of the Entrance, Entrance-lock, and Jetty Walls of the Victoria (London) Docks; with Remarks on the Form adopted in the Construction of the Wrought-iron Gates and Caisson."

5. A Watt Medal to J W. Jameson, for his paper "On the Performances of the Screw Steam-ship 'Sahel,' fitted with Du Tremblay's Combined Vapour Engine, and of the sister Ship 'Oasis,' with Steam-engines worked expansively, and provided with partial surface Condensation."

6. A Council Premium of Books to T. S Isaac, for his paper "On the Successful Working, by Locomotive Power, over Gradients of 1 in 17 and Curves of 300 feet radius, on Inclines in America."

7. A Council Premium of Books to M. B. Jackson, for his paper "Description of the Gravitation Water Works at Melbourne, South Australia."

THE NEW NATIONAL GALLERY.

During a recent visit to the works at the new National Gallery on Leinster Lawn, we found them progressing with rapidity, the level of first floor being now nearly reached, and all the principal floor windows, with the rusticated stone-work, fully formed. Externally, the building will be similar to the corresponding wing, viz., the new Museum; and it is to be connected with the Royal Dublin Society's house by means of an open Corinthian colonnade, of quadrant form. Internally, the building will be divided by a main wall into two compartments; but as yet the proposed arrangements are involved in obscurity. The granite stone used for the plinth course, the rustic work and the ashler facings, &c., is from Ballyknockin quarrys (Reilly's), and the ornamental cornice, pediments, dressings, &c., are of Portland stone. The building is being executed according to directions of Sir Richard Griffith, Bart. Messrs. Cockburn & Son are executing the works in their usual excellent style; Mr. Mellon, C.W.

THE DESIGNS FOR THE NEW FOREIGN OFFICE.

In the House of Commons, on the 15th ult., Mr. Tite asked the First Commissioner of Works whether he had any objection to place the drawings for the New Foreign Office, together with the designs to which the two first premiums were formerly awarded, in the Library of the House, with as little delay as possible, and without waiting for the tenders from the builders for the actual construction of the Gothic design. Mr. Fitzroy said, as it was the wish of hon. members to have another opportunity of inspecting these plans, he went yesterday to select a place which would be convenient for their exhibition. He thought the Library would not be a convenient place for the purpose, as reference was being continually made to the books. He had, therefore, ordered them to be placed in the Reading-room, on the right hand side of the House; when the estimates and tenders were sent in they would also be shown in the same room.

STEEL ELECTROTYPES.

Messrs. Salmon and Garnier place the newly-engraved copperplate in the bath, where, by their recently-discovered process, it is duly coated with steel, without the least hurt to the engraving. In this way is produced a steel plate for a copper plate, and steel being much harder than copper, a much greater number of impressions can be printed from the improved surface than from the simple plate. As soon as it shows signs of wear the surface of steel is dissolved, and a new surface formed by the means previously employed. This process will tend to reduce the price of really fine engravings, and if carefully followed up the last impression will be scarcely less beautiful than the first.

KELLS ABBEY, KILKENNY.

There are several places in Ireland of the name of Kells, one of which is situated about six miles from the town of Kilkenny. A priory was established here in 1183, by Geoffrey FitzRobert, one of the followers of Strongbow. The first monks were brought over from Bodmin, in Cornwall. The neighbourhood was the scene of many historical events. It was occupied by Edward Bruce in 1316. At the dissolution of the monasteries in the reign of Henry VIII. of England, the priory was granted to the Earl of Ormonde. The prior of Kells had been a lord of parliament. Several towers and part of the walls remain.—*The Lamp.*

Capability of Ericsson's Caloric Engine.—A small engine, 6 feet by 2, which drives one of Hoe's double cylinder presses, on which the *Cincinnati Daily Press* is printed, is thus described:—

Size (diameter) of cylinder	24 inches.
Power of engine	5 horse.
Motive Power	hot air.
Weight of engine	1¼ tons.
Composed entirely of	iron and brass.
Space engine occupies	6 feet by 2.
Fuel	coal, coke, or wood.
Use of engine	To drive Hoe's double-cylinder press.
Usual number (per hour) of impressions of *Daily Press*	3,500
Often run off per hour	4,000
Cost of fuel per hour	ONE CENT.

We employ only the complement of hands necessary for the press. Nominally "the engine takes care of itself!" The saving to our pocket of "Caloric" over steam, is three dollars per day. We believe the day is fast approaching when locomotives on our railroads, and boats on our rivers, will be propelled by "Ericsson's Caloric Engines." What a blessing to the world! No more explosions!!

MONUMENTAL.

We have had an opportunity of personally inspecting at the establishment of Mr. Alexander Ballantine, in this city, a monument to be erected in Kilbrogan church, diocese of Cork, to the memory of the Rev. Henry Gilman, curate of the parish, and in point of design and execution, it is very excellent. The style is gothic, and the material statuary marble with black marble ground. Angular pilasters or buttresses supported on brackets, terminated at top with Gothic pinnacles, and connected by a handsomely carved arch above the inscription table, are the chief features. Over the inscription is a Gothic shield, with the crest and garter underneath, and the motto "*Non cantu sed actu,*" and above is an octagon tablet, an open Bible, and an elaborate canopy.

In a recent thunderstorm the newly-erected Cole Testimonial at Enniskillen was struck by lightning, and some of the stones torn to atoms. We believe, however, the damage done does not affect the stability of the structure, and that the requisite repairs may be made by a trifling expenditure.

THE CARPENTER.

You know our friend the Carpenter;
We hear him all day long:
No lark is ever merrier,
No blither is her song.
Sharp falls his hammer,
Swift slides the plane,
Then the awl, and then the chisel,
Then he sings again.

Within his little attic
What little comforts lurk:
He sleepeth there throughout the night,
But at dawn he's up at work.
Then he plies the screw-driver,
Then he drives the plane;
Then he sings thro' his merry meal,
And then he works again.

All the week he is a carpenter,
As busy as the bees;
But on Sunday he's a gentleman,
And then he takes his ease.
Then his tools are laid aside,
And he has welcome rest;
Or he takes the air with her he loves,
With her that loves him best.

And so, long live the Carpenter!
Long live his rosy wife!
May children come and lengthen out
Their happy span of life.
May health and strength ne'er fail him,
From sorrow or from pain;
May he sing and work, with all his heart,
And work and sing again.

—*All the Year Round.*

Mediæval open Timber Roofs may be classed in four main divisions, namely, tie beam, trussed rafter, or single framed—framed with hammer beams and braces; and with collars and braces, or with the latter only. The first were never entirely discarded by the Mediæval architects, they are to be met with in Norman, early English, decorated and perpendicular buildings. The tie beam was sometimes used in roofs of the middle ages quite independently of the other timbers, being simply laid across the walls, and in all likelihood pinned down to the wall plates. The trussed rafter roof was probably chosen originally for the purpose of gaining headway, and having been once had recourse to, its superiority both as regards construction and general appearance over the tie beam could not but lead to its being preferred and substituted for the latter. In roofs of a wide space, each pair of rafters had a collar, and was also further stiffened by braces crossing at times above the collar, and at others tenoned into its underside. Hammer beam roofs have hitherto been usually represented as backing a portion of the tie beam, as if it had partly been cut away, but there appears to be no reason assigned for the supposition. The architects of the middle ages cast off the restrictions imposed on them by the unsightly tie beam, and acquired greater freedom in designing. In this peculiar feature England may be pronounced unrivalled. Of collar braced roofs there are some very beautiful specimens extant displaying a variety in construction as well with collar beams as of braces simply connecting the wall pieces and principals together.

WATER SUPPLY AND SEWERAGE OF CITIES.

HAVING recently concluded a series of articles on the Sewerage question, we now pause to give an open for the views of others, *pro* or *con*, which, although our space may not allow us to insert *in extenso*, we shall faithfully record in substance, should they reach us.

There are no subjects connected with the health and welfare of the general community of greater importance than those with which we head this article. Pure air and pure water are the paramount essentials to health, and health the paramount essential to the successes and happinesses of life. Without it, what is our existence? A never-ceasing labour, a never-ending effort to stand up, whilst, if we dare, we would lie down — would succumb to the lassitude with which want of health envelopes us; and which in nine cases out of ten is the offspring of the foul air and foul water which the large majority of the inhabitants of all large towns are obliged to inhale and imbibe.

It is idle—worse than idle—for the sticklers for the old regime to hope that *sneers* will longer stifle general intelligence. *The public*, happily, begin to think for themselves. For ages the professions, trades, and callings of life were deemed to be well and honorably upheld and represented if the representatives of each well performed his part in it alone. A lawyer was expected to be a lawyer only—a physician, to be a physician only — an engineer only an engineer — a merchant merely a merchant—a tailor simply a tailor. Happily those days have passed; general education has produced general intelligence, and the tailor (as well as the lawyer and the physician and the engineer) is no longer chained to his shopboard. The errors and fallacies of *professors* can now be understood by the general community, because it is taught and seeks for general information. Every day gives us proof that great evils have arisen from past professional narrow-mindedness and prejudice, by which the most glorious discoveries have been ignored and held back. And as we have before said, it is now idle for the old school to sneer at changes which must take place, because general intelligence will force the change; and amongst the foremost of those essential to humanity are proper appliances for the supply of pure air and pure water to cities and towns.

We look forward, then, with anxiety, not feigned, for the views of others upon the *sewerage question*; we feel not a little national jealousy in the matter; we cannot doubt that others of our profession and of our fellow-countrymen begin to think there *is* a necessity for a radical change, and it would delight us that the problem were solved *in Ireland*; whilst, on the other hand, we feel that a stain and degradation will hang upon us, if we supinely follow what appears to us to be so fallacious. Have we no professional knowledge in this country capable of thoroughly investigating the question, and showing the existing sewerage system to be right, or that the suggested remedy is wrong? Waiting this hoped-for advent, we now turn to

THE WATER SUPPLY!

On this question, London, Dublin, Liverpool, Edinburgh, Glasgow, and Belfast—the leading cities of the United Kingdom—have already paid the penalties of public jobbing and mistaken engineering. We would hope better for Dublin at present; but we have our fears, and should like that others might form judgments upon the subject as well as ourselves. Hence the course which we purpose following.

We shall endeavour to point out what has been done and left undone in the public water supply, and perhaps the experiences of London, Dublin, Liverpool, and Glasgow, may be sufficient to guide us to a better *water-course*. The history of the past supply of London and Dublin is scarcely possible to believe, it is so thoroughly an exemplification of "*company humbug*" and dishonesty, in contravention of communal rights; for it is as much the right of every inhabitant of a town to be supplied by the constituted authorities with pure water at first cost, as it is his right to "protection of life and limb," from the same source. The congregation of mankind in towns, is designed for mutual and general good, not for individual aggrandizement and public wrong. London and Dublin, however, exhibit so contrary a picture, that one would wish, if possible, not to look at it; but we must, as a warning for the future.

The water supply of London has been, from first to last, the work of *companies*, formed for different districts. The water is drawn from the Thames, except that supplied by "The New River Company," the projector of which was said to be mad, and having expended the whole of his means, he was driven to destitution whilst laying the foundation for one of the most paying undertakings on record. Alas! for projectors! For the company, however, he established rights which could not be overset, and the public has since been mulcted to an extent perhaps unprecedented. The other companies, following in their wake as to charges, pumped up the water in some instances from the very sewer mouths—literally supplying the inhabitants of the districts with the seeds of disease, till fever and cholera burst out and carried off hundreds.

The statistics of disease in London tell a tale on this score that disgraces humanity;—men, women, and children were supplied with water to drink containing a mass of festering life—a body of living animalculæ, gloating on the foulest essences of the foulest human matter. The poor could get nothing else to assuage their thirst, and they drank of it to die; whilst those who had the means to save themselves from death in that way, were driven perhaps to death by gin, as their *dernier resort*. All the while the water companies filled their coffers and the coffins of the wretched beings that thus supplied the gold, the authorities of London looking on until the public press, in its honesty, disclosed such facts, that even stolid cupidity was made ashamed; and the wrong so far set right that with wondrous liberality the water was at last filtered, and the companies lauded! It will scarcely be credited that so powerful was the grasp of these companies on their ill-gotten gains, so great their influence, that a public effort made to establish a water supply from a comparatively pure stream — the river Wandle—was ousted, by the bill for the establishment of the company being thrown out; and the public of London is still supplied from the Thames as before, with this difference, that the water is said to be filtered. It is right to add that in one locality the decrease of deaths, since filtration has been effected, was above 15 per cent.—a fact plainly indicative of the foulness of the water.

Happily, the press and the public of London were so intent on exposing the facts of the water supply, that the companies were driven to bestir themselves, and within the last five years a great improvement has taken place, but by no means what it should. London is not supplied as it ought to be, as to purity or quantity; and in place of the inhabitants paying *only what the supply costs*, they are mulcted in a large profit to the shareholders of the companies.

Let us take warning by this and by what has taken place in Dublin in past times, and buy our water in the cheapest market.

It is not so long since the mysteries of the *metal main corporation* of Dublin were partially unravelled, that many of its inhabitants do not recollect the *exposure* of one of the most extraordinary and disgraceful frauds that can well be conceived.

With a wondrous flourish of trumpets, the Corporation of Dublin announced their determination to save the inhabitants from the degradation and misery of being supplied with water conveyed to them through *wooden* mains. Meetings were convened to enlighten the townsfolk as to the damage they were sustaining by drinking water flowing through wood. The most satisfactory proofs were given, to those who did not think that water should never be allowed to pass through anything but metal, and the population at large were perfectly convinced; not one of them apparently recollecting that nine-tenths of the pumps in the country were wood, and that not one but the metal main projectors ever made war against the water that came through them. But so it was; various reasons were given and believed, and eventually the citizens generally became so satisfied of the necessity for change, that a unanimous voice declared for metal! just in the same way as the inhabitants are now being talked into the belief that canal water is bad, and that the water to be caught in the mountains of Dublin, flowing over the bogs and manured lands of the locality is good. An act of parliament was obtained—metal mains became a popular necessity, and a body of corporators were nominated to carry out the measure. It was to be all completed in some wondrously short time, and for so moderate an amount, that nobody would care about the tax; whilst one of the commissioners, a philanthropist who lent his name and his guinea to every charity in Dublin, declared his belief the water would be so pure that it would be drunk in preference to whiskey punch, which, in those days, was about as great a necessity as water itself. In short, a more popular undertaking never was commenced in Dublin. The whole proceeding was very much of a piece with the meetings and reports and analyses of the water which the citizens are now using, and what—according to the projectors of the present water scheme—they ought to use—these gentlemen evidently feeling the most intense anxiety for the health of the citizens, and having nothing else in the world in view!

But, alas! for the after-facts. The Corporation began their labours—the metal mains began to be laid down—the tax began to come in—and the whole operation was found to be so agreeable *to the Corporation*, that they apparently determined to continue it *ad infinitum*. It went on so long, in fact, that the people at last saw it would never end unless they took vigorous means to stop it; to the honor of one individual, now the respected secretary of a public body in Dublin, one of the most scandalous jobs that ever disgraced a city was unveiled, after years of legal contest; when the citizens were at last relieved by act of parliament from the tax. But about one hundred and fifty thousand pounds were gone—deficient—*non est inventus*—and, from that time to the present, no one except the Corporation can tell into whose pockets the money went; although the citizens of that day were perfectly aware that it came *out* of theirs.

So far as to the water supplies of London and Dublin. Let us be awake, then, to take care that popular excitement shall not again lead us astray under clever guidance, and that according to the principles of political economy, we shall buy the water we may want at the cheapest market, and not let it be sold to us again at the dearest.

In our next article we shall point out how Liverpool and Glasgow have fared in their water supplies.

ART-UNION OF IRELAND.

WE would specially direct public attention to the following circular addressed to agents by the secretary of this body :—

"I have the pleasure to transmit copies of the Report of the Art-Union of Ireland for the past year, for presentation to the Members who have subscribed through your agency, and for such further extended circulation as you may be able to effect, with a view to making the objects and working of our Association widely known, and securing for it the support of all interested in the progress and prosperity of the Fine Arts.

The Committee, re-elected for the present year, desire me to thank you for your past exertions, and to invite your continued zealous co-operation. They do so with the greater confidence because the result of their first year's operations may be fairly pointed to as successfully establishing the soundness of the principles on which their plan is based. Those principles are mainly two: the allocation of their entire fund, less expenses, to a prize fund; and the right of selection in all cases by prize-holders. Under this system, with even the small sum available for their first year, they have been enabled so to divide the prize fund as to bring the chances of success nearly to one in every six subscribers. The successful working of the right of selection is best exemplified by the list of selection by prize-holders, published in the Report; which, though many selections remain yet to be made, exhibits the variety, the class, and the value of works of art which have been obtained for even the lowest prize of One Guinea. From this list also it will be perceived how promptly prize-holders have availed themselves of the power of adding to the amount of their several prizes, and it is a gratifying result that twenty per cent. has been added on the average, and the small prize fund of £580 will have been thus increased to about £700. It is needless to point to the immense importance of such a system in developing talent and promoting the taste for art, if adequately supported by public patronage.

It remains, further, only to point to the beneficial influence of the Art-Union in regard to Public Exhibitions in Ireland as already experienced. That of the Royal Hibernian Academy for the current season has been pronounced the best held within its walls for many years, and the agreeable result has been, that by private, in conjunction with Art-Union, purchases, nearly £1,000 have been already expended in the Exhibition, while last season the entire purchases did not exceed £150. Some selections have also been made by prize-holders in the Belfast Exhibition, satisfactorily illustrating, even on a small scale, the advantages of the system of our Association, which seeks to be an Art-Union for Ireland at large, and to advance the interests of art by promoting local Exhibitions.

In the interests of these Exhibtions, on the extension and improvement of which the vitality of the Art-Union will much depend, the Committee desire me to request that you will kindly use your best exertions to induce early subscriptions, as it will be most important that the Committee shall be in a position within a few months to announce with certainty, as they trust they will be enabled to do, a largely increased fund for distribution in April, 1860, an announcement which they are confident must insure good Exhibitions in Ireland."

ADDRESS OF COMMITTEE.—This NEW ART-UNION has already obtained very important support. It has been established under the auspices of the Committee of the Irish Institution in connection with the National Gallery of Ireland, and it is hoped that the list of its Trustees and Managers will afford the most satisfactory assurance that their duties to the Subscribers and the Artists will be zealously and faithfully discharged.

But it is not merely on these grounds that this attempt to add another to the already numerous Institutions of this character invites public attention. If there was nothing more in its claims to distinguish it from existing Art-Union Societies, it could hardly expect to attain to any permanent or useful position, nor would its founders have suggested its formation. It aims at the attainment of the true ends of such Associations, and seeks to advance them by the most effective means.

Art-Unions may be considered in relation, first, to the Artist; secondly, to the public. The complaint of Artists, more especially in Ireland, has long been, that they suffer from the decline of patronage. Whatever may have been the causes, the fact of this decline is too patent and undeniable. Without encouragement the Artist's struggle becomes hopeless. Year after year his works are displayed in vain, and he either abandons his studies in despair, or seeks in a wealthier land, and from a more generous public, the patronage he has failed to secure at home. The Art itself languishes; and perhaps ungenerous criticism will not scruple to justify, in this decay, the cold neglect whose chilling influence has produced or accelerated the blight.

To supply, by the combined aid of general but moderate subscriptions, this absence of individual patronage, is, as it ought to be, the first object of an Art-Union; and that Association best fulfils the purpose of its existence, which the most fully and largely secures to the Artist the purchase of his works. It is so far, and in proportion as their funds have been thus devoted, that the Art-Unions which have been, or are now, in existence, have improved the condition of Artists as a body, and advanced the general character of Art Exhibitions in England and Scotland. Let us hope that it may yet be possible, by like means, to produce similar results in Ireland.

As regards the public, the influence of Art-Unions, if well directed, cannot fail to be of considerable importance, apart from, and above, the mere gratification of success in the chances of distribution, or even the higher enjoyment every generous mind must feel in the assistance thus given to struggling talent. They ought to be made the means of improving public taste, advancing the knowledge of the principles of Art, and teaching an enlightened judgment and a well-founded power of discrimination.

It is to the best mode of attaining these advantages, to the Artist and to the public, that the promoters of the Art-Union of Ireland have directed their attention, and upon this basis they have framed their prospectus. Accordingly, with the view of devoting the greatest part of their available funds to the purchase of works of Art, and so to the most extensive patronage of the Artists that it may be in their power to bestow, they have excluded from their arrangements the expenditure of any portion of those funds in the preparation or purchase of engravings for general distribution among the subscribers. This distinguishing feature of their plan may at first sight diminish its attractiveness, and has caused some dissatisfaction; a few considerations, even of mere economy, will probably reconcile the Subscribers and the public to the omission; to the general body of Artists it is one of direct and paramount advantage.

Few, perhaps, look into the published accounts of Art-Unions; but those who have any curiosity to do so will be no little surprised at finding what an enormous proportion of the subscriptions is expended on these engravings. A glance at the accounts of the London Art-Union, for the year 1857-8, will exhibit enough of this kind of disbursement to illustrate the subject. The total amount of subscriptions for the year was 11,658*l.* 3*s.* Of this the sum of 3,350*l.* 5*s.* 7*d.* appears to have been expended in the working management of the Institution, for salaries, agencies, printing, and reserved fund; 2,998*l.* 17*s.* 5*d.* devoted to the expenditure on engraving; 2,249*l.* in the preparation of certain statuettes and similar objects for the smaller prizes; and about 3,060*l.* in all, allotted to the legitimate purposes of the union, the purchase of works of Art. Thus it may be said, that about one-fourth of the amount subscribed was made available to the benefit of the general purpose of the patronage of Artists. By the published report of the Glasgow Art-Union for 1854-55, the latest that could be referred to, the total receipts are given at 20,336*l.* 17*s.* 8*d.* The expenditure on bronzes, statuettes, and chromo-lithographs, appears to have been 1,500*l.*; on engraving, about 6,000*l.*; 6,000*l.* for general expenses, reserved fund, &c.; leaving but 6,869*l*, about one-third of the entire, for the purchase of paintings. An examination of the accounts of all the other Art-Unions adopting the same practice will exhibit similar results.

Can such expenditure as this, out of such large funds, truly represent the fit destination of them in the genuine interests of Art? The Committee of the Art-Union of Ireland does not so regard it; and whatever may be the amount of the public subscription to their funds, they have resolved, that after all necessary expenditure in the management of their trust, those funds shall be legitimately dedicated to the patronage of the general body of Artists, through the successful holders of their shares.

Every expenditure which encroaches on the funds destined to prizes must necessarily diminish their number; and accordingly it is found that, in the existing Art-Unions, the prizes are in number very disproportionate to the numbers of the Shareholders. In the London Art-Unions, from this cause, the number of prizes, including those consisting of objects expressly manufactured for the Committee of that body, and so in a scarcely appreciable degree beneficial to Artists in general, amounted in last year to only 980, being about the rate of one prize to every twelve shareholders; and of these, 870 were minor prizes of statuettes, medals, and other low-priced objects, and but 110 were of sums which might properly be designated as high-class prizes. In the Glasgow Art-Union for the year 1854-5, the proportion appears to have been about one prize for every fifteen shareholders; in later years it would seem to be somewhat higher. Like proportions will be found in every other of these Associations; whereas by allotting the entire fund to prizes, as proposed by the Art-Union of Ireland, it is calculated that the proportion of all the prizes, making large provision for those of the higher class, may be justly estimated at about one in every six. The shareholders will thus have, in consequence, almost double the chances of success that other Art-Unions propose, and of course a far more assured prospect of becoming prizeholders in a short series of years.

To the general body of Artists, then, the proposed arrangement promises the largest results from the subscribed fund. Every prize, from the highest to the lowest, must be devoted by the holder of it to the purchase of some work of Art, all above £5 to be selected from Paintings or Sculpture exhibited in Ireland. Prizes of lower amount may also be so expended, or, at the option of the winner, employed in the purchase of a statuette, high class engraving, or other object of the like artistic character which may at the time be on sale in Ireland; the Committee, even in this last branch of their arrangements, endeavouring to diffuse the benefit of their funds as widely as possible among the producers of such work, while they leave to the prizeholder, within these limits, the absolute choice of that which he may prefer.

It is in this absolute power of choice, on the part of the prizeholders, that Art-Unions best provide for the attainment of the further purpose of their establishment — the improvement of public taste, knowledge, and judgment in matters of Art. The selection of one among many objects, as the best, involves the whole subject of artistic criticism, from its lowest to its highest principles—from the investigation of mere technical detail to the apprehension of the most elevated expressions of natural beauty or poetic feeling. Every man who proceeds to make choice of a picture must, in a greater or less degree, exercise the power of discrimination and, in the very act of exercising it, the most untutored eye cannot fail to make some advance; and even its mistakes will probably lead to some correction of an erroneous judgment or deficient taste—of a false appreciation of colour or form, or of an inadequate estimate of artistic power in drawing or composition. Nothing of this knowledge can be gained by the distribution of prizes, in the selection of which the successful holder has had no choice; he but gains the possession of a work, perhaps the very last he would have chosen if left free to judge for himself, and which, for all purposes of value or interest to him, will rarely reach beyond the acquisition of a piece of ordinary furniture.

To the Artist, then, and to the public, the Prospectus of the Art-Union of Ireland offers all the advantages which these modern Institutions are capable of affording, and promises the fulfilment of their true design, in a manner the best and most comprehensive; and the Association, if crowned with success, cannot fail to present great inducements to the general body of those engaged professionally in their production, to place their works in the Annual Exhibitions of the Royal Hibernian Academy, from which, or other Exhibitions in Ireland, all the chief prizes must be selected.

Signed on the part of the Committee,

MAZIERE BRADY, *Chairman.*
G. F. MULVANY, *Secretary.*

STRENGTH AND DURABILITY OF THE OAK.—As a familiar instance, we may mention the carved oaken shrine of Edward the Confessor, in Westminister Abbey, executed some 800 years since. At Winchester, in St. Stephen's Chapel, is preserved, as one of the chief curiosities of the place, a circular table of oak, eighteen feet across, and all in one centre piece; being, in fact, a transverse slice from the trunk of an immense tree. There is abundant and direct evidence that it has been in the place where it now is for 700 years. At Greenstead, near Ongar, in Essex, there is a very curious old wooden church, the walls of which are framed of oak trunks split through the centre, and roughly pegged together. This church is believed to have been hastily put up, more than 900 years ago, as a temporary *sanctum* for the body of St. Edmund (slain A.D. 946), and afterwards converted into a parish church, with some slight additions and alterations. The original timbers, after this immense lapse of time, are still sound internally, and may probably last yet as long a time as they have done already.

THE SOUTHERN SUBURBS—RATHMINES, RATHGAR, &c.

THE township of Rathmines is the most important, and one of the most delightful outlets about Dublin, and, within the last few years, it has progressed with unprecedented rapidity, both in extent and population. To the admirable and energetic arrangements of the Commissioners appointed under the act 10 and 11, Vic. cap. 253, is this fact mainly attributable, and, unlike many other bodies, they seem never to rest on their oars, but continually are directing their steps in a progressive direction. Green fields have speedily given way to continous roads and handsomely laid out squares; the dwellings being in many instances of a first-class character, and those of modern construction especially seldom degenerating beyond what are professionally known as third-rate structures. Moreover, they are in every variety of plan—detached, semi-detached, and in terraces; and in every variety of design externally likewise, from the "cozy" cottage to the "lordly mansion," with all the appendages that the landscape gardening art can contribute; and, we may add, in every variety of material, from simple pebble-dashing to smooth-faced cementing with decorative cornices, mouldings, &c., &c. We must, however, notice that occasionally the latter material furnishes an inducement to building proprietors to be somewhat lavish of their ornamentation, and not always judiciously treated, as a very mongrel and fillagree character has crept into a few recently erected dwellings, evidencing the absence of a professional hand. The new church and the proposed road improvements (as already noticed in the "DUBLIN BUILDER"), will prove acquisitions, and supply a decided want long felt in the locality.

To speak of this township as a suburb, is probably a misnomer; it is as *de facto* part and parcel of Dublin, as any of the many districts connected by endless lines of streets with the modern Babylon, and enjoying collectively the title of London. At the junction of Rathmines with Rathgar and Rathmines upper, a "business town" has sprung up within the last few years, wherein all the requirements of the outward man may be satisfied; and nothing is wanting to minister both to the necessities and the luxuries of the neighbouring inhabitants.

In sanitary matters the arrangements of the Commissioners are creditable, and we hear nought of defective sewerage, stagnant drains, insufficiency of water, &c., &c., so frequently a cause for complaint in other localities, and moreover the township is well lighted, the roads preserved in good order, and regularly watered &c., &c. Various private dwellings are in course of erection, including those for Thomas Dunnill, Fletcher, and William Acheson, Esqrs., Grosvenor-road—Mr. Bolton, builder and two semi-detached for C.E. Draper, Esq.—Mr. John Butler, builder. On the Rathgar road, for John Wilson, Esq —Mr. Hugh Kelly, builder; and two are about being erected for Mr. Sherry in Frankfort-avenue, all under the directions of Mr. E. H. Carson, architect; as well as a number of others from designs by various local architects.

OUR BRIDGES.

WE Dubliners may and do point with some pride to our public buildings; to our quays for extent and beauty unsurpassed in the world; to Sackville-street as the widest, if *not* the noblest thoroughfare in the United Kingdom; to our squares for their simple, uniform, and *rus in urbe* character; and to our Phœnix Park as the most salubrious, picturesquely situated, and extensive sojourn in the neighbourhood of any metroplis, but in regard to the bridges that span our rivers and canals we must acknowledge a palpable deficiency, even with towns of much less commercial importance. Carlisle-bridge, over which passes three-fourths of the traffic of the city from north to south, and *vice versa*, is totally unsuited for its purpose. Much as its architectural beauty must be admitted, we cannot refrain from condemning it in common with the public in point of utility, as unworthy the position it occupies in the heart of this great metropolis. Practically there is no impediment to a bridge at this point being level with the connecting roadways, and still affording ample headway underneath, nor to its being at least double the present width; but the proposed or any modifications would be at least but "cobbling up" the old structure without attaining the desired ends in their entirety, and better that it remain as it is until the citizens are prepared to take it down and rebuild it *in toto*, to meet in a suitable manner growing requirements. We trust the day may not be far distant when the traffic will be relieved by a suspension bridge, with swivel opening, spanning the river at the Custom-house, and connecting the extreme north with the extreme south of the city by a few minutes' journey. Portobello and Charlemont-bridges at one side, and Newcomen and Annesley at the other, are objects of ridicule for visitors to the city, and productive of much inconvenience to the inhabitants generally. For the two former might, with facility, and at comparatively trifling cost, be substituted permanent iron structures, affording better headway than the present, and necessitating but a very slight altitude (if any) above the road levels. At Newcomen-bridge an important modification must take place immediately, owing to the construction of the Liffey branch railway, in which matter we trust that the corporate and railway authorities will work hand in hand in producing a result offering additional facility to public traffic, and thereby enhancing the value of property so much deteriorated of late years at the north side. Let us in the name of common sense ask the meaning and utility of Annesley-bridge? An ordinary culvert of a few feet in width would be ample to convey the stream that now flows at any time underneath; but even without removal, the roadway may easily be lowered from three to four feet—a consummation devoutly to be wished for—and in the ardent desire for speedy accomplishment we are sure to be joined by the proprietors of various vehicles plying on the Clontarf road. At Sheriff-street an important alteration for the better will now take place. The railroad above alluded to, was originally intended to cross that street five feet below the level of roadway, which latter was to be carried over the former by a new stone bridge, and a steep incline (1 in 25), commencing near St. Laurence O'Toole's Roman Catholic church, and equidistant at the other side. However, a level crossing and swivel or pontoon bridge are now decided to be substituted, although the matter was a *quæstio vexata*, and evoked much argument before the preamble was proved.

If our sanitary arrangements require to be remodelled, our pavements more permanently and economically constucted, our water supply more efficiently provided for (subjects already treated of in the DUBLIN BUILDER), our bridges demand the immediate attention of the well-wishers for the progress of the second city in her Majesty's kingdom.

PROGRESS OF ECCLESIASTICAL ARCHITECTURE.

FEW countries in the wide circle of European civilization were more deficient in the character of their edifices for the worship of THE MOST HIGH than Ireland until very recently. We are proud, however, to notice that not only is there a marked improvement, but that before the lapse of many years she will stand pre-eminent amongst the nations of Europe in the grandeur of her Ecclesiastical buildings for every sect and persuasion. In the metropolis and neighbourhood the works of this class now either actually in progress or about to be commenced are of an important character, and will form, when completed, valuable addenda to her many beautiful buildings. *Par example*, the Church of St. Saviour in Lower Dominick-street, is, perhaps, one of the most elaborate Gothic edifices of modern times erected either here or elsewhere, whether we regard it exteriorly with its deeply splayed and moulded doorway, its highly decorated canopied and niched screen work, its great east and west windows, with rich tracery, its crocketed pinnacles and buttresses, and lastly, its noble tower and spire to be elevated to a height of some 200 feet, and adding one to the few landmarks our city can boast of; or internally, with its gracefully proportioned vaulted nave and aisles, its decorative ceiling and tiers of clerestory windows diffusing a subdued and hallowed light, and guiding, as it were, the aspirations of its inmates.

The Roman Catholic church of St. Catherine's, Meath-street, and both the Roman Catholic and Protestant churches (the latter recently commenced) of St. James in James's-street, are likewise architectural acquisitions, and it is to be hoped that the incomplete portions will be speedily finished. At the south side the new Molyneux church to be built in Leeson-street, will be an important structure with towers and spire, and will cost some £12,000 or more, and at Rathgar the Zion

Church, now about to be commenced, will be an interesting feature in that rising and populous neighbourhood. All through Ireland, for at least three years, it is a noticeable fact that the majority of buildings, either projected or commenced, have been of an Ecclesias- or Conventual character, and the operations of the Ecclesiastical Commissioners have been unusually active.

Perhaps one of the most conclusive evidences of the growing prosperity of Ireland is the progress of her Ecclesiastical architecture, for in times when famine and pestilence prevailed there were numerous districts in which the devout were gathered together in structures, ruinous, mean, and unsuitable for the worship of the Most High, in some instances in barns and cow-houses, and in others in what bore the name of churches, where the congregation was huddled together, and possibly one-third remained under the open canopy of heaven, in all seasons, and left to draw upon their imagination for the proceedings interiorly. This state of things, however, is being gradually remedied—former buildings are being improved and enlarged to suit growing requirements; new edifices of a permanent and substantial character are being erected throughout the length and breadth of the land in neighbourhoods where an officiating clergyman was only to be found in a circumference of some ten or twelve miles, and "for a paltry pittance of some few pounds a-year" had to travel long distances from place to place to preach the Holy Gospel and minister to his flock. Our old and venerable Cathedrals are being saved from threatened ruin, and new ones are being raised to vie in beauty and grandeur with their predecessors. Gothic architecture especially takes the lead, and though under that title a few very "Gothic" structures may be found—and will serve as lasting memorials of the folly of not securing *ab initio* proper professional skill—yet, in the total, improvement is manifest, and the proceedings thus far augur PROGRESS.

ARCHITECTURAL NOTES IN BELFAST.

THE NEW BANK OF IRELAND.

FEW places can boast of more rapid improvement than the town of Belfast, which possesses many splendid structures of an official, commercial, and domestic class, notwithstanding the serious impediments offered to building enterprises by the difficulty of procuring suitable foundations. In some of the towns of Holland, artificial foundations, by piling especially, are to such an extent necessary that the inhabitants are said "to live like crows upon the tops of trees, and the remark is peculiarly applicable to the subject of this notice. In previous Nos. of "THE DUBLIN BUILDER," we had occasion to comment specially on the sanitary state of the town, arising chiefly from defective sewerage; and when we repeat that "the greater part of the streets are only raised a few feet above high water level, some on the *same level*, and others even *below that level*," a peculiar feature in the construction of buildings there, or the almost total absence of basement storeys is easily accounted for, as also is the difficulty of providing sufficiently secure footings in a naturally wet and swampy soil. Some of the houses have sunk to such an extent that in those originally approached from the street level by four or five steps, only two or three are now visible, and in other instances light return buildings attached to heavier structures still maintain their position while the latter have separated themselves from their companions, and sought more intimate acquaintance with "mother earth." The provision of artificial foundation for any new work, therefore, occupies the special attention of the architect, as also does the requisite outlay form a very important item in the builder's estimate. Some large stores have of late been erected wherein the ordinary system of piling was dispensed with, and a heavy cradling of baulk timber substituted, and designedly constructed to allow the main building to sink regularly, while the light work of yard walls, iron railing, steps, &c., are made good from time to time, in the hope of all ultimately maintaining a fixed position at a desired level. Nevertheless these difficulties have been to a certain extent overcome, and Belfast does not, in an architectural point of view, suffer by comparison with any other town of equal magnitude in the kingdom.

Amongst the many buildings now in course of erection in Belfast, the new Bank of Ireland in Donegal-place is one of the most important, and has already attained a height exceeding 20 feet over the street line. Although fully a quarter of a mile's distance from the water side, it was found necessary to employ in the foundations 420 piles of home-grown larch, each 40 feet long, and 14 inches diameter at the head, tapering to 6 inches at the foot, set in two rows under the walls, and having a cradling of cross and longitudinal pieces of memel, with a course of Portland cement concrete, averaging 8 feet 6 inches width, and 2 feet 6 inches height, thereon to receive the first course of the footings. Forty feet piles are then driven by a ram of 16 cwt., requiring the aid of seven men who, in less than three hours, set up the pile and send it to its destiny by about 60 strokes, it at first entering the ground on an average of three feet each below; and when near the full depth three inches.

The superstructure is of Paladian character, extending sixty feet in front, and having three storeys of an excellent specimen of Newry granite, with porch, corni e, ballustrade and architraves in Portland stone, the remainder being wholly of brick, and having yard and return building, containing porters' apartments. The cash office is in the form of a blunt cross, about 40 feet each way with a lantern at the intersection; and all the fittings are of mahogany. A fireproof safe of brick and cement is provided for the books, as also for the cash, the latter, having in addition a thorough lining of ⅜ inch boiler plate iron, with detached lockers inside. Apartments are provided for the sub-agent in the second and third story, where are also placed the kitchen and larder, &c., owing to the distance from the rere and the impracticality of a basement story. The work is being executed by Messrs. D. and J. Fulton, from the designs of Mr. S. Symes, architect to the Bank of Ireland; Mr. R. O'Brien, being the clerk of works. We understand that the total outlay will be upwards of £7,500.

AMONG THE TOMBS—GANDON'S GRAVE.

IF there be one thing more suggestive than another of varied thoughts, feelings, and emotions, it is a visit to an old church-yard. There they lie, as we too shall, in their last resting-place, the once stout of heart and strong of limb, the loved, and the beloved, the village bravo, and the village belle, of whom no mementos now exist, save what the crumbling slab above them tells, and for whom no tears now fall, save betimes the "drip of the wetted trees." Oh, Drumcondra! turn we then to thy hallowed shade, thou dear custodian of those whom our fathers loved. Time may moulder into dust what the worm could not fatten on, but thy memories she can never obliterate. Many generations have ebbed and flowed since the first sent thither "shuffled off his mortal coil." Many a palesman found a grave neath your cypress and sycamore ere the Dutchman came and the wild geese flew; the Boyne was an unfought field, and Sarsfield's expatriation undreamt of, when a citizen widow knelt here o'er a husband's grave. The city sent its merchants and mechanics, and they slumber here side by side in suburban quietude.

A century and a-half later, loyalist leader and rebel chief mingled in the one clay. Here, too, after many vicissitudes and hair-breadth escapes, the Royalist, who stood by the fortunes of the Bourbon till hope seemed hopeless, found a grave, after first finding an asylum far from the land he loved. Alas! too, lying low amidst the names of later days, are the tombs of two worthies—Grose and Gandon—the antiquary and the architect. Tombs! did I say? The one suffices for both. "Friends through life, in death undivided." "O tempora, O mores!" and is it not painful to witness to-day, nearly forty years after the great architect's death, him who designed, enriched, and embellished our public buildings should remain unmonumented in a rural churchyard close by the city. The stranger in search of Gandon's grave will be doomed to disappointment, unless previously informed of his whereabouts; he may give up a painful search. The flat slab above the antiquary has had ample space wherein to notify that James Gandon's remains, likewise, lay below; but this public duty—lack of public spirit, even in the city of his triumphs—has failed to do for him. Shall it be so? Pass we on—a few paces further to the right of the above graves is the monument of the poet Furlong, the translator of Carolan's Remains; the "Misanthrope," and the "Doom of Derinzy"—a somewhat tasteful granite structure erected by his friend Hardiman, the historian, of Galway, who had a public spirit; peace be to spirit, and to all like him who can appreciate deserving genius!

C. C. H—Y.

OLD CONNAUGHT, BRAY.

We notice that in this locality a mansion of considerable architectural beauty and importance is now nearly completed for Phineas Ryall, Esq., from designs by Messrs. Lanyon and Lynn, architects, Belfast. Considering the general character of our recently erected suburban domestic dwellings, a view of this recalls to our minds "the good old times," when Irish gentlemen built palaces and *made them their homes*, and when architectural skill was called into requisition beyond mere stereotyped brick and mortar forms. The professional gentlemen engaged here have availed themselves largely of the opportunity afforded, and produced a design which in picturesqueness of effect, pleasing variety of light and shade, gracefulness of contour, and all the other requisites for a good architectural work, fairly entitle it to rank with the most successful productions of a Morrison, a Gandon, or a Johnston. The mansion occupies an area of about 88 feet by 64 feet, and is of early English character, built externally of irregular granite rubble, with Portland stone dressings, string and barge courses, water tables, &c. The principal front presents an irregular elevation, broken by a wide projecting gable, beyond whose face the entrance porch still further advances, by a handsome bay window, with ornamental parapet; by gablets, oriel windows, and two towers, one of octagonal form—situated internally, communicating with principal staircase, and terminated by a deeply weathered conical top, rising to a height of 80 feet—and another of square form, and 50 feet high, externally placed, and forming a junction between the main and minor buildings. The windows throughout are generally many light bays, with mullions and transom heads, and are finished with label mouldings, dressings, &c. Internally the house comprises all the apartments requisite for a building of its class, including grand hall, morning, drawing, dining, and ante-rooms, own and housekeeper's apartments on principal story; comprehensive culinary offices, servants rooms, storeys, &c., in the basement; and bed-rooms of various sizes, bath and dressing-rooms, &c., &c., in the first floor. The principal hall is a very handsome apartment, 28 feet by 20 feet, with an ornamental frieze course, and open panelled and decorated timber ceiling, stained and varnished; and a highly enriched moveable screen work carried up, as also is the wainscotting all round to a height of 9 feet. The works throughout reflect great credit on the builders, Messrs. Cockburn and Son.

PUBLIC FOUNTAINS IN DUBLIN IN 1785 AND 1859.

We find that during the Viceroyalty of the late Duke of Rutland there were many public fountains placed in the metropolis, by which the wants of the humbler classes, and the taste and refinement of the more educated were benevolently and felicitously consulted, some of them very beautiful, surmounted in most instances with casts from the best statues of the antique. There are but two now remaining, and both much dilapidated, one in Merrion-square, the other in Barrack-street; this latter one is dated 1785.

Do our recent structures of this class stand the test of comparison with those of our forefathers? Compare the "slab" on Carlisle-bridge with the above-named, and what a degeneracy both in taste and regard for utility! *O Tempora! O Mores!*

SANITARY REGULATIONS FOR LODGING-HOUSES IN BELFAST.

Apropos to our remarks at page 84 of the "Dublin Builder," and which have elicited much comment (though *no denial* as to the accuracy of the statements) we are requested to mention in justice to the authorities that the sanitary regulations to be observed by the keepers of lodging-houses are peculiarly stringent. We do so with pleasure, and while it is our duty to expose defects, it is equally our desire to chronicle any advancing steps to ensure general cleanliness and purity of dwellings, and which, however partial, must ultimately tend to the health and well being of the community. During this year, 184 common lodging-house keepers within the town have been licensed, and the powers for the regulation of that class of dwellings are derived from the Belfast Towns Improvement Act, sections 207, 8, and 9. We extract the following from the printed regulations:—

The licence shall set forth the number of persons, beyond the members of the family, which can be properly received into such house, and the owners shall not take any beyond that number under a penalty of 40s. for every breach of this regulation. 2. In every room, of every lodging-house, a card shall be hung up, shewing the number of individuals such room can legally accommodate, and none beyond that number shall, on any account, be put therein. 3. Every day, the windows in the sleeping apartments of all lodging-houses shall be opened to admit fresh air, and the beds and bedding therein shall be, for some hours, spread out; and every such room shall have proper means for due ventilation, which shall be observed night and day. 4. Twice in each week the floors of every lodging-house shall be properly scrubbed and cleansed, and the strictest attention to cleanliness, at all times, shall be observed, the beds and bedding to be kept clean, dry, and wholesome. 5. Once in every quarter, in the months of January, April, July, and October, in each year, all lodging-houses shall be duly cleansed and whitewashed inside, by the person keeping such; and the beds and bedding therein shall be, at the same periods, thoroughly cleansed and purified. 6. In case of sickness occurring in any lodging-house, the keeper thereof shall immediately give notice to the inspector of lodging-houses, that prompt steps may be taken, and precautions used, to prevent the spread of infectious or contagious disease; and in every case, when disease of an infectious or contagious character has appeared in any lodging-house, the apartments where the disease has appeared shall be cleansed, and the bedding therein shall be duly purified, before any other person shall be permitted to sleep therein.

PHILANTHROPY AND DRINKING FOUNTAINS.

It will scarcely be believed by some what we now record as a fact—viz., that the proprietor of a dram and beer-shop in this city has, at his own expense, and immediately adjoining his establishment, erected a public drinking-fountain—equal, in point of utility at least, to any other as yet fixed here—thereby contributing gratuitously *aqua pura* to those who would seek *alcohol* for payment, and thereby, at least partially, intercepting their progress to his counter, and inflicting a voluntary penalty on himself. This is practising self-denial without preaching it!

ARCHITECTS' LIABILITIES IN ORDERING MATERIALS.

A case was tried at recent assizes in Limerick, wherein the plaintiff, Mr. Nagle, a local architect and civil engineer, sought to recover from Mr. Dalzell, a farmer in the county, for whom he was superintending some building works, a sum of £31, paid by plaintiff for timber for defendant's use. The party who supplied the timber did so at the order of the architect, and when he sought for payment from the defendant, defendant pleaded "no order," refused to pay, and contended successfully; whereupon the architect was compelled to pay, and proceeded against his client, the jury giving him a verdict for full amount and costs. There is a salutary lesson to be derived from this transaction.

THE MASTER OF THE ROLLS AND PHOTOGRAPHERS.

In the case of Ernest Gambail against Messrs. Bewley and Evans, an injunction was granted to the petitioner, who carries on business at 25, Berner-street, Oxford-street, London, and in Paris, as a purchaser of pictures, and publisher of engravings, to restrain the respondents, who are chemists in Dublin, from taking and selling photographs of petitioner's copyright pictures of "The Departure, second-class." "The Return, first-class;" "The Horse Fair" (Rosa Bonheur); "It is I, be not afraid," &c. The respondents pleaded ignorance of illegality of the act, but the Master said, "A man, who picked a gentleman's pocket, might as well say that he did not know the act was contrary to law, and that he desisted when he became convinced of the fact. Injunction granted.

MUSIC AND THE DRAMA.

It is announced that an Italian operatic troupe of considerable excellence is to appear on the 6th instant at the Theatre Royal, and comprising Mdlles. Titiens, Guarducci, and Vaneri; Signor Guiglini, Badiali, Vialetti, Castelli, Rossi, Corsi, Borchardt, and Mercuriali. We doubt not that the enterprise of the manager will be amply rewarded by the substantial appreciation of the public. At the Queen's Royal Theatre an old favourite, Mr. T. C. King, tragedian, after a long absence from indisposition, has been attracting crowded houses, and Miss H. Gordon and Mr. G. Honey have been adding to their previous popularity.

Railway Extension to Bantry.—There are now two projects in contemplation for the extension of railway communication to the west of this county. A meeting is convened for Thursday, upon requisition by Lord Fermoy, to consider a proposition to be submitted to Mr. Conybeare, C.E., for a railway to Bantry, with a branch to Skibbereen. It is said that in the absence of Lord Fermoy the Right Hon. the Earl of Bandon will preside at the meeting. A line, which was projected in 1853, is also about to be revived, the extension of the Bandon line to Bantry, with branches to Clonakilty and Skibbereen. It is, however, believed that but one of the projects, if either, will apply for parliamentary powers.—*Cork Constitution.*

Biographical Sketches.

JAMES GANDON.*

MUCH factious opposition was raised to the removal of the old Custom House from its then situation (which immediately adjoined Essex-bridge, the principal entrance being in Essex-street and Temple-bar, and a side entrance at the bridge, descending by a flight of stone steps), owing to a supposed innovation upon the commerce of the city; hence the arrival of the architect to superintend the building was necessarily kept a profound secret; and he felt very uncomfortable about his late move from London, where he enjoyed an eminent professional position, as may be inferred from the following entry in his Diary:—"I found myself in a very unpleasant state of suspense, apprehending that the abruptness of my departure from my family and establishment in London might injure my character, and, should my visit to Ireland prove unsuccessful, endanger my professional pursuits at home." At this period, it is stated that there was but *one* printshop in Dublin, and *two* others where prints were sold, but the trade of the owners was that of glaziers. There were few painters of eminence, and but two architects, professedly so called. The painters were Wheatley and Hone in portrait, Ashford and Fisher in landscape. The architects of reputation were Cooley and Ivory. Few churches showed anything like attempt at style, and only two of them had steeples, viz., St. Patrick's and St. Werburgh's (the latter since taken down); and there were no halls belonging to public companies; and, with the exception of the Duke of Leinster's, the Marquis of Waterford's, the Earl of Charlemont's, and Viscount Powerscourt's, there were scarcely any other residences of nobility. The houses of the gentry were generally inconvenient in their plans, having, in most cases, but two rooms on a floor, and these adapted for large parties; and as to architectural style in embellishment and finish, they were very imperfect. Difficulties arose respecting the terms for the ground on which the new docks and stores adjoining the Custom House were to be erected; hence the unavoidable interruption to the works, and "the kind of imprisonment," as our architect terms it, to which he was subjected. While in this predicament, Mr. Gandon received an invitation from the Right Hon. Burton Conyngham to pass some time with him at Slane, which he accepted, and regarded as a relief from his temporary embarrassment. After three months, the negotiations for the purchase of the grounds were completed, and the architect received orders to proceed with activity. On the 8th of August, 1781, the first stone was laid by the Right Hon. John Beresford, without any formality, for fear of riot. Owing to the swampy nature of the site, considerable precautions had to be taken in preparing the foundations; but the work proceeded successfully and with rapidity. After interruptions had subsided, the east wing was pushed forward; and at this stage of the works, the architect was summoned to London to attend the death-bed of his wife. On his return, the north and south fronts were commenced; and in digging the trenches for the latter, the labourers came upon a boiling spring, with sand, at about four feet below the surface, which filled up as fast as it was cast out; but ultimately, by the aid of piling, pumping, and sodding, and a constant relay of masons, a solid foundation was obtained, and the entire structure progressed rapidly. New lines of streets, squares, &c,, including Beresford-place, Gardiner-street, Mountjoy-square, the line from Carlisle-bridge to Phibsborough in one direction, and a considerable portion of the North Circular road, as far as Annesley-bridge, were commenced. Ground was at that time purchaseable by the acre, at a mere nominal rent; and was then nearly all a swamp. Mr. Gandon occupied a house in Mecklinburgh-street, since pulled down to open Mabbot-street into Gloucester-street; and it was there that the celebrated Misses Gunning were born, whom Sir Robert Walpole describes in his Anecdotes.

About this period (1783), Mr. Gandon made designs for a united court-house and gaols in Waterford; and he says that in these buildings he experienced more vexation and trouble than with any of the public works submitted to his superintendence, owing to the artificers not being regularly paid; and in his interview with the Grand Juries he found "that these gentlemen had a very erroneous idea of the profession of an architect, as it stood in England." Some of them considered him as a contractor, or, as they termed him, "a projector and undertaker," not one of those sable personages whose occupation it is to bury the dead, but to bury stones and mortar.

The models, by Banks and Carlini, for the figures for the Custom House, Dublin, arrived about 1786, and were soon after carved and sent over; and for the ornamental sculpture, the architect inquired of Mr. Henry Darley, then engaged on the works, and who employed many marble sculptors, to introduce him to a modeller, and the eminent artist Mr. Edward Smith (who executed the statue of Doctor Lucas, in the Exchange) was engaged accordingly; and his design for the royal arms on the wings was adopted in preference to Carlini's model. Thus was the humble drudge in a workshop enabled to enter his own studio, and subsequently become the Phidias of Ireland. The colossal statue of Commerce, the bas-relief in the pediment of the key-stones, representing the principal rivers in Ireland, are by this artist.

The repeal of Poyning's law, which removed the appeals from the English to the Irish House of Lords, rendered increased accommodation to the Houses of Parliament necessary; and Mr. Gandon was applied to, who suggested an eastern Corinthian portico as an entrance to the Lords, connected with south front by a circular ornamental wall, but *not*, as executed, with the three-quarter columns. The portico was approached by two steps, and the rusticated and niched wall was executed, but without any columns. The original dome was destroyed accidentally by fire, owing to the overheating of a smoke-tube. New courts of law were next projected, and Mr. Gandon furnished designs. The west and south quadrangular portions of the new Four Courts, or, as they were then termed, the "Offices of Records," were originally designed by Mr. Cooley; and, in October, 1776, the first stone of the east wing was laid by the then Lord Lieutenant, the Earl of Harcourt; but the central building and connecting gateways were from the designs of Mr. Gandon; and the first stone was laid by the Duke of Rutland, on the 3rd of March, 1786, accompanied by the Lord Chancellor Lifford and the judges in state. Serious obstacles arose here, also, and considerably retarded the progress of this beautiful work, both from the opposition raised by private interested individuals, and the slowness and pettiness of the grants of necessary funds.

In January, 1788, Mr. Gandon was summoned to appear at the bar of the House of Commons, to explain the plans and estimates, although, strange to say, at that period upwards of £12,000 had actually been expended; however, he states that "he was only called upon by the Speaker to present the papers at the bar, and no questions being asked, he withdrew." Several objections were raised in the House to the erection of this building, one of which was, "that, as the army passed by every day from the barracks to the Castle, the fifes and drums would disturb the Courts;" to which it was replied, "that in the summer, to avoid the sun, they frequently went on the opposite side of the river, which, if found necessary, they might be directed to do in future." Such, and other factious objections, so disgusted the architect, that he did not like to go near the works, and prevented him from constructing the inner dome with brick, which, for the sake of expedition, and to save expense, was done with carpentry.

In a report submitted to the Lord Chancellor and judges by the architect, in 1794, we find the following items:—

Expended on the Courts	£44,234
Wanted to complete same	15,898

It was not until 1798 that the foundations for the east wing were laid, nor until 1802 that the screen arcade and wings of offices were completed.

In 1786, Mr. Gandon made some sketches for a military hospital at Phœnix Park, and presented them gratuitously to the institution. The present elevation of the Infirmary is in most respects according to those designs. The original design submitted by Mr. Gandon for Carlisle-bridge was for a triumphal bridge, to commemorate the army and navy achievements during the reign of George III.; but the design as executed was subsequently adopted, and the first stone laid on 5th March, 1791. The key-stones are ornamented with emblematical heads, by Edward Smith. The last public building which Mr. Gandon designed and conducted was the King's Inns, the first stone of which was laid by Lord Chancellor Clare, on the 1st of August, 1795. The Caryatic figures and other ornaments are by Mr. Smith. In the year 1797, Mr. Gandon was elected a Fellow of the Antiquarian Society of London, and had previously been elected a Royal Irish Academician.

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* See page 79.

In 1798, previous to the Rebellion, a friend warned Mr. Gandon to leave Ireland, lest he should, from his liberal feelings, be implicated in impending events; and he accordingly returned to London until 1799. With his engagement as architect of the King's Inns may be regarded the close of Mr. Gandon's professional career of nearly sixty years; for we find that in 1808, considering retirement and ease necessary for his health, he tendered his resignation to the then Lord Chancellor Redesdale, and recommended the late Henry A. Baker, R.H.A., to succeed him.

The works erected under his superintendence were, the court houses and prisons of Nottingham and Waterford, Custom House, docks, stores, Four Courts, Carlisle-bridge, King's Inns, portico in Westmoreland-street, Dublin, besides a variety of buildings of a domestic character.

Mr. Gandon retired to his villa at Lucan, where even in his old age he composed designs for villas, &c., projected triumphal arches—one intended for the entrance at Barrack-street to the Phœnix Park, and another in London to commemorate the recent successes of the British army and navy, until at last his master mind was withdrawn from its earthly tenement, in the eighty-second year of his age, the immediate cause of death being gout. Mr. Gandon left one son and two daughters; and the probate of his will was proved under £14,000. His remains were interred in the churchyard at Drumcondra, in the grave with his bosom friend Grose.

DUBLIN CORPORATION WATER WORKS.

At a time when so much interest is felt respecting a supply of water to the city—which lately had proved well nigh fatally defective—and for the information of those who have not had access to the documents laid by professional referees before the Corporation Committee, we publish *in extenso* in this number the Reports of Mr. Hawksley, C.E., the Consulting Engineer, to whom the various projects had been submitted.

No. 1.

After a full examination of all the questions involved in the determination of the most feasible means of supplying the City of Dublin and its vicinity with water on the improved sytem of constant supply at high pressure, I come to the following definite conclusions, which I submit for your consideration.

1st.—That if reasonable, satisfactory, and prompt arrangements can be effected with the Canal Companies on the basis of your communications to them of the 24th August last, and on the terms of my last letter, it will be more advisable to derive the supply of water from the Canals than from any other of the many sources which have been alternatively suggested. Indeed, the majority of the gentlemen who have submitted plans to the Corporation for effecting an improved supply, appear to concur in the view I have adopted.

2nd.—That the quantity of water proposed to be afforded by the Canal Companies—viz., six million gallons per diem by the Grand Canal Company, and four million gallons per diem by the Royal Canal Company—will be ample for the domestic and sanitary purposes of a population of four hundred thousand persons, being one-half more than the existing population of Dublin and its neighbourhood. This provision is consistent with ordinary parliamentary usage.

3rd.—That the additional quantity of three million gallons obtainable from the Dodder district at the Kimmage Tongue, will be sufficient for the supply of traders and manufacturers.

4th.—That as the improved scheme ought to embrace within its capability as much as practicable of all the populous districts adjacent to the Municipality, as is the case in the instances of Liverpool, Manchester, Leeds, Glasgow, and many other corporate cities and towns, it will be necessary to obtain for the Southern districts a pressure available for day service of about 150 feet, and a commanding pressure available for night service of about 180 feet, in order to insure the filling of cisterns in the upper apartments of elevated houses, and the immediate extinction of fire by the more simple means of the hose-pipe and jet. In the districts north of the river a pressure of somewhat lower amount will meet the necessities of the case. The point upon the Grand Canal (suggested by the Chairman of the Company) near Clondalkin, and above the 11th Lock, is in all respects eligible for the derivation of the supply, and inasmuch as the ground immediately adjacent is favourable for the construction of a Service Reservoir capable of containing, with a maximum depth of about twelve feet, the quantity of sixty million gallons of water required as a provision for the wants of the community during any brobable period of stoppage for the purpose of repairing the Canal. I beg to recommend the Committee to adopt this as the source of supply for the Western districts. The top water-level of the Reservoir thus placed will be an elevation of about 210 feet above Ordnance datum, and immediately below this Reservoir filter-beds ought to be constructed, for the purpose of rendering the water perfectly bright and potable, by the removal of all extraneous and adventitious matters. These filter-beds will operate on water essentially colourless, and should, therefore, be constructed of sand and gravel only. The area of the surface of sand necessary to effect the perfect purification of the water need not exceed two and a-half statute acres, divided into five beds of half an acre each. The pure water should be received into a tank capable of containing three million of gallons, and from this tank a cast-iron main-pipe of thirty-six inches internal diameter should be laid down to convey the water to the city. For parliamentary purposes it is however, only necessary to consider this pipe as having its termination just within the parliamentary boundary at Dolphin's Barn, where the distribution would practically commence.

5th.—That for the North side of the City it appears to me that the most desirable point for obtaining the supply to be afforded by the Royal Canal Company, is the east end of the long pond above the 12th Lock, where the water of the Canal attains a level of 195 feet above the Ordnance datum. The works to be made in connection with this Canal would all be of two-thirds the capacity of those already described. Land suitable for the construction of a Reservoir capable of containing forty million gallons of water is apparently to be found between Ranelagh Bridge and Morgan's Schools, and if I am correct in my view the top water-level will be about 190 feet above datum, and the bottom water-level, which would also be the level of the filter-beds, would be about 170 feet above datum. From the pure water tank connected with these Reservoirs, a main pipe of thirty inches diameter should be carried to the municipal boundary at the top of Prussia-street.

6th.—From the foregoing description of the very simple and effective works which I have now the honour to recommend to the consideration of the Committee, it will appear evident that the expense of construction and management must be materially less than those which would be consequent upon an endeavour to utilize equal quantities of the waters of any of the montain ranges in the counties of Dublin and Wicklow, and it is quite certain that if an arrangement can be effected with the Canal Companies for the purchase of their rights in the stated quantities of water for the sum of £2.500 per annum (equal at four per cent. to an outlay of £60,000), that this amount is not more than equivalent to the cost of compensating the millowners whose interests would be effected, either in money, or in water to be accumulated from floods by means of large Reservoirs and other works to be constructed for that purpose. Apart from the consideration of mere pecuniary advantages, fewer parliamentary and municipal difficulties would have to be encountered, and there would also be less distrust as to the ultimate success of the measure, and the feeling of the public in regard to the quality of the water.

7th.—I estimate the cost of the now suggested works, including the purchase of land and contingencies, at the sum of £122,000, and I calculate the expiense of connecting the proposed thirty-six inch and thirty inch mains to the existing system of pipes, and of eventually establishing a communication of large size between the two sides of the river at the further sam of £15,000.

8th.—The improved works would necessitate an additional expenditure in payment of interest, amounting to about £6,000 per annum; but they would produce a return of certainly more than £10,000 per annum from districts not included in the present system of distribution, and from new applications of water under the improved system. It is, therefore, obvious that no considerable burden will be imposed upon the inhabitants in return for the great advantages to be derived from a constant supply at high pressure of waters, which in their future quality will not sensibly differ from the waters of Lough Owel, and the springs and other unobjectionable sources by which the channels of the Canals are daily replenished.

9th.—I am of opinion that the next most economical source from which a sufficient supply of water can be procuredis to be found at Kippure, near the head of the River Liffey. The mountain water can here be collected into capacious storage Reservoirs; but I entertain much doubt, whether the large works necessary for supply of the City, and for affording commensurate compensation to the mill-owners whose waters would in part be abstracted, could be made for a less sum than from £230,000 to £250,000. If made, these works would necessitate a larger annual expenditure than those suggested to be constructed in connection with the Canals.

10th.—In conclusion, I may remark, that as your resolution does not require me to report on the various able propositions into the respective merits of which I have carefully examined, I abstain from so doing; but I do not think I should be acting with justice to the gentlemen by whom they were originated if I did not recall to your recollection that Mr. Louch, Mr. Hassard, Mr. Neville, and Mr. Mulvany, have each separately proposed that the future supply should be obtained in an improved manner from one or other of the Canals, and some of these gentlemen from both. Mr. Hassard has also suggested as an alternative scheme the employment of the beautiful waters of the River Vartry and other adjacent districts, but at a cost which that gentleman admits to have placed these (otherwise the best sources) beyond the reach of the community. Mr. Brazill has proposed the River Liffey, near Poulaphuca Bridge, as an available source; and Mr. Mallet, who projected a scheme on the Dodder for the use of the millowners, concurs in the appropriation of the Canals.

No. 2.

I have considered the Report (dated December 3rd, 1858) of the City Engineer, in relation to a suggested scheme for acquiring the whole stream of the City Water Course, and by combining this with other water to be derived from the Grand Canal, to enable the City of Dublin and its vicinity to be adequately supplied without having recourse to the water of the Royal Canal, as had been previously proposed, and in obedience to your resolution beg to report my opinions as follow:—

1st.—I am satisfied that a quantity of water equal to from eleven to twelve million gallons per diem may be depended upon from these two sources, and that with moderately judicious management this quantity will be found to be sufficient to afford an ample and constant supply at high pressure, even to a possible future population of 400,000 persons. Liverpool, Manchester, Leeds, and many other principal towns of the United Kingdom, into which the constant supply at high pressure has been introduced, do not consume so large an amount per head of the population as I have calculated upon, in making this estimate of the future consumption of Dublin.

2nd.—The water of the River Dodder is unquestionably of very superior quality in all respects, except its liability to be occasionally coloured at its mountain source by peat, heather, fern, and other like vegetable matters. I have, however, no doubt that this water, after admixture with the limestone water of the Grand Canal, in the large Reservoir proposed by Mr. Neville, in which it would become exposed for a considerable time to the decolourizing influence of light and air, and after undergoing a subsequent slow filtration through a stratum of sand in the proposed filter-beds, would cease to be in any degree objectionable on the ground of its occasional brown tint. In every other particular, and especially in regard to softness, the supply resulting from the combination of the Dodder and Grand Canal waters would be more advantageous to the consumers than the supply derived from the Canal alone.

3rd.—The situation of the proposed Reservoir is exceedingly well adapted for the supply of the City; and its elevation is such as to enable the Reservoir to command the whole of the district. Moreover, the site is, so far as I am able to remember, free from buildings or other expensive property.

4th.—I believe no difficulty will present itself in bringing the water to the Reservoir in the manner suggested that is to say, by the action of gravity in a covered conduit laid with a uniform or nearly uniform fall, from the pond above the 11th Lock of the Grand Canal, to or near to the surface of the ground at Templeogne.

5th.—In the absence of detailed plans and sections, it is manifestly impossible to form any very satisfactory estimate of the cost of the suggested undertaking; but so far as I am enabled to judge from a somewhat exact knowledge of the locality, I come to the conclusion that Mr. Neville's estimate of the expense of works of construction cannot be very wide of the truth.

6th.—It is extremely difficult to estimate the expense of compensating the owners of water privileges by money payments. I know most, and have, I believe, seen all the mills that would be affected by the withdrawal of the water from the existing water-courses, and I am quite sure the proprietors of water power and other water rights would be fully remunerated under Mr. Neville's estimate, for any damage they would sustain; but I have known so many instances of successful exaction in cases of real and alleged injuries to mill property, that I feel indisposed to risk a decided opinion on this important subject, without looking more fully into the matter than the imperfect particulars in my possession afford me the opportunity of doing.

7th.—The abolition of Lord Meath's water-course, and the introduction of an efficient supply of pure water amongst Lord Meath's tenantry, would be eminently beneficial as a measure of social and sanitary improvement.

On the whole, I may state that I consider the suggested undertaking quite feasible in a structural point of view, and capable of effecting all it proposes; but I am, nevertheless, disposed to think it would be wise for the present to consider the outlay which would result from the adoption of this scheme at £150,000.

In conclusion, I may venture to suggest that, in the event of powers being taken to acquire the entire volume of water flowing through the water-courses, that it will be necessary to exercise a strict supervision of the channel of the River Dodder and its tributaries above the point of diversion, in order to prevent the water from becoming fouled or otherwise deteriorated in quality or appearance.

Notes of New Works.

The new coffee and smoking-rooms, baths, &c., recently added to Jury's Hotel, College-green, were under the directions of Mr. E. H. Carson, architect, and executed partly by Mr. Halston, builder, and partly by Mr. Bolton, builder. Expenditure about £1,600.

The church at Sandford, county Dublin, is to be newly fronted and re-roofed in Gothic style, according to designs by Messrs. Lanyon and Lynn, of Belfast, architects. The principal entrance will be through a handsome moulded and arched doorway, with ogee and crocketed hood moulding, and a great window with elaborate tracery over same, and between its head and apex of gable will be a handsome circular window filled with tracery. A turret and spire of peculiar and quaint design, varying in form at each stage, and springing from a buttress, will be attached to south-west angle, and attain an altitude of some eighty feet, terminating in a vane. The new roof will be of open timber-work, stained and varnished, and will, when executed, be uncommonly effective.

The Church of St. Mary at Donnybrook is to be enlarged under directions of the architect to Ecclesiastical Commissioners.

Extensive works are to be executed at the church of Upper Badony, county Tyrone, same architect.

Sundry building works are to be executed at Portobello Barracks, Dublin, as also at Cahir Barracks, Limerick District, by the War Department.

The new Cathedral of St. Patrick's, Armagh, is to be roofed, slated, ceiled, glazed, &c., under the directions of Mr. M'Carthy, architect.

A new Roman Catholic Church is to be built at Lavey, diocese of Kilmore.

The new Church of SS. Mary and Michael at Rathdrum, county Wicklow, will be dedicated on the 8th September.

A new church is to be erected at Taghadoe, near Maynooth, according to plans. &c., by Mr. J. J. M'Carthy, A.R.H.A., architect.

The Earl of Carlingford is having his estate (Belmyra) laid out in building lots, as arranged by Mr. Carson, architect. It is situated within half a-mile of the town of Drumdrana and Railway Station, and contains about 150 acres. It has a gradual fall towards Mount Merrion, commands most extensive sea and mountain views, and the new roads that are about to intersect it will be wide and convenient.

The Lord Mayor, who has built extensively in the neighbourhood of Rathmines, is about erecting two houses on the Charleston road, and also making additions to his own dwelling, Charleston house.

Messrs. Topham and White, of Grafton-street, are making extensive improvements to their establishment, also from designs by Mr. Carson, architect. Mr. Madden, the builder.

The members of the University Rowing Club, Ringsend, are about rebuilding their club-rooms, boat-house, &c., for which drawings have been furnished by Mr. Carson, architect.

Important additions are being made to Lord De Vesci's mansion at Abbeyleix, Queen's County, according to designs by Mr. Digby Wyatt, architect, of London. Messrs. Cockburn, contractors; Mr. Pratt, C.W.

A new mansion, with out-offices, &c., is about being erected at Killishea, Co. Kildare, for —— Moore, Esq. (son of the late Judge Moore). Messrs. Lanyon and Lynn, architects; Messrs. Cockburn & Son, builders. Expenditure, £12,000 Italian style. A lofty, square campanule is introduced, and will command a very extensive view.

The picture gallery at Ormond Castle is to be re-roofed with a very handsome open timber roof, stained and varnished. Messrs. Deane, Son & Woodward, architects.

Considerable additions are being made to Lord Charlemont's mansion, between Newry and Dundalk. Italian style. A lofty tower has been introduced. Messrs. Lanyon & Lynn, architects.

Additions, consisting of two aisles and a tower and spire, have been made to the Congregational Church, Kingstown. Mr. Raffles Brown, architect; Messrs. Cockburn & Son, builders.

Messrs. Todd, Burns & Co. are entering into contracts for large additions to their monster house in Mary-street. Mr. Gribbon, architect.

BUILDING MEMORANDA.

Extensive additions and alterations are to be made at Derry Cathedral, under the direction of the architect to Ecclesiastical Commissioners; as also is the rebuilding of the church of Killany, county Monaghan; the enlargement of the churches of Knocknamuckly, county Down; and Donahendry (Stewardstown), Drumnakilly, county Tyrone; and the refitting of St. Anne's, in the city of Dublin; Leixlip, in same county, and Ballymoney, county Antrim.

LAW NOTE AT RECENT ASSIZES IN TULLAMORE.

Hubert Healy v. Allan Pollock.—An action was brought to recover a sum of £327 16s. 7d. for work and labour, materials furnished, and goods sold and delivered. The plaintiff is a stone mason and builder, and the defendant a Scotch gentleman who is an extensive landed proprietor in the west of Ireland. The plaintiff made his claim on foot of building transactions, such as the construction of a farmstead at Ballyhaise, county Galway. The defendant pleaded that the plaintiff's claim amounted to £173 8s. only, and that this had been discharged. The case took the greater part of the day at trial, and ended in a verdict for the defendant. His lordship declined to certify for a special jury.

Reviews.

Monumens Funeraires. Chez D'que Avanzo and Cie, Editeurs Liege, Belgium.

Visitors from the United Kingdom who inspect the cemeteries of Paris and other French cities, are at once struck with the dissimilarity both in point of design and arrangement in the various monumental structures erected there, as compared with those at home; there being greater variety and chastity of taste externally, and greater economy of arrangement internally displayed. The work, as above named, which has just fallen into our hands, contains a series of perfect drawings for suitable memorials to the respected dead, and which in point of beauty and originality of design in the superstructures, embracing all the exquisite delicacy and versatility of artistic touch for which our "volatile neighbours" are so celebrated, and a peculiar adaptation of space internally, is unquestionably in every respect the best book of its class yet submitted to our notice. Some of the principal monuments in the world-famed cemeteries of Pere la Chaise and Mont Martre, as well as many others in provincial towns—a visit to which is fraught with pleasing reminiscences to ourselves personally—are fully illustrated in a most superior style of engraving, the whole, with accompanying descriptive matter, forming a volume of considerable interest, and one which should not be found wanting in the library of any member of the architectural profession, and which, from its very superior excellence, will speedily find its way despite the comparative absence of publicity.

Nicholson's Carpenter's Guide. George Virtue, London, New York, and Dublin.

We need offer no apology for not introducing formally to our readers the author of the work before us, or of indulging in a prefatory inquiry as to his claims for distinction. The name of "Peter Nicholson," as a *practical* author, is as familiar alike to the professional man as to the humblest mechanic, and carries an amount of weight with it which defies criticism from the most experienced reviewer. So many versions, however, of Nicholson's alleged works have, from time to time, found their way into the press, so often have the productions of his pen and compass been pirated from their own legitimate occupation as it were, and mixed up with any useless and unreadable trash merely to make a book look comprehensive to catch the eye of the vulgus, and to secure the *prestige* of tho author's name to matter in some instances of much more recent compilation, that *bona fide* editions of Nicholson have been hitherto very questionable. In the memoir attached to the work before us it is frankly stated—and we admire it for its candour—"that Mr. Nicholson was not an *architect*," and to this admission we presume we may attribute the fact of many very unartistic designs for shop fronts, &c., as illustrated in other works, being omitted in the plates, to our minds very judiciously. Nevertheless the architectural profession throughout the world justly esteems Peter Nicholson as a standard authority in practical matters, and his works indispensable acquisitions to their libraries.

The guide opens with elementary geometrical problems, diagrams of coverings and sections of solids, and thence proceeds to illustrate with accompanying descriptions the various branches of constructive carpentry, including centreings for groins in their many varieties, roofs, domes, niches, truss girders, staircases, and hand railing, columns, partition, volutes, timber bridges, &c., windows and shutters, doors and framing, joisting, &c., &c. This work has successfully achieved its declared purpose, viz., instruction for carpenters in their handicraft; it is concisely compiled; the illustrations intelligible, even to novices, and the whole creditably produced. We have no hesitation in recommending it.

Miscellaneous.

The Portobello Hotel has been taken by the Committee of management of St. Mary's Catholic Asylum for industrious blind, and will, when adapted to its intended purpose, accommodate *one hundred and fifty inmates.*

It is proposed to erect a new and enlarged Roman Catholic Church at Passage.

Zion Church and Schools, Rathgar.—This edifice, now in course of construction, will be one hundred and twenty-eight feet long, and have nave, transepts, chancel, organ, and choir at intersection of transepts, with sloping plots and terraces all round. Boys and girls' schools and teacher's residence are attached at west side. Mr. Welland, architect; Messrs. Cockburn, builders.

Cork and Kinsale Junction Railway.—The first sod has been turned by Colonel Beamish in presence of a large assembly. Messrs. Trowsdell and Co., of Stockton-on-Tees have contracted for its formation, at £4,000 per mile; a very low figure comparatively.

Street Improvements in Belfast.—We understand that, through the kindness of Mr. Joy and the Messrs. M'Clean, the wall, &c., across the entrance to St. Malachy's Chapel, in Henrietta-street, is about to be removed; that Sussex-place will be immediately opened up to Franklin-place, and that Alfred-street and Russell-street will be both continued past St. Malachy's Chapel, for the public accommodation.

A Curious Property of Cast Iron was discovered recently, and that metal has been found to undergo very material internal changes after it has been cast. A large per centage, for instance, of a batch of guns will be found occasionally to burst if tried shortly after their completion; whereas others, similar in all respects, that have been allowed to remain in store for months or years, will stand much heavier charges without injury. It would thus seem that, for a considerable period at least, the component particles of metal undergo a change analogous probably to crystallization, during which their cohesion is increased.

The new statue of Our Lady of France modelled by Mr. Bonassieux, and to be placed on the great rock of the tower of Puy, has just been successfully cast in bronze. It will be nearly as large as the famous colossus at Rhodes.

A company is projected to work on a more extended scale than at present the mineral property of Connorree, at Avoca, in the county Wicklow, and rich in sulphur ore and iron pyrites. The capital is fixed at £50,000, in shares of £1 each.

Pressure of Water.—When a flood occurs in a river the danger to be apprehended is not so much the throwing down of the bridge by the momentum of the water as its being *blown up* by a pressure from below, the resistance which it exerts arising only from the weight and cohesion of its materials. If the water reach nearly as high as the top of the battlement the arch is pressed outwards with a force equal to its surface, multiplied by the depth of its centre of gravity below the centre of the water. If a crevice is formed behind the wall of a canal lock and filled with water, the latter, when the lock is emptied, exerts an outward pressure equal to the product of the surface of that part of the wall behind which it is, and the depth of its centre of gravity below the highest part of the fluid. This may cause the wall to be forced out.

Action of the Iron in Ships on the Needle.—Besides the causes of disturbances which give rise to "dip" and "variation," there is another productive sometimes of serious inconvenienience and consequent on the nature of the material, stores &c., in the ship. To counteract the effect produced by the iron work guns, &c., of a ship, an equal and opposite action by means of a smaller mass of metal near the needle is employed, but be the adjustment ever so perfect it cannot be permanent, since particularly in ships of war the iron must constantly change its place and quantity. The derangement of the needle from this cause is one of the difficulties attending the use of iron ships in navigation.

Power's Statue of "The Greek Slave."—The original statue of "The Greek Slave," the celebrated work of Hiram Power, executed in the purest Carrara marble, has been disposed of by public auction in London. It was executed expressly for its late owner, and was exhibited at the Great Exhibition of 1851, where it gained universal admiration. It was now adjudged to his Grace the Duke of Cleveland at the price of 1,800 guineas.

A new Presbyterian church has been erected at Ballyclare, from designs by Mr. W. T. Matier, C.E., architect, of Belfast.

New Roman Catholic churches are being built at Maghera, also at Raheen, Queen's County, the foundation stone of which latter was laid recently, and that at Tyrrell's Pass is to be completed.

A new National Bank has been erected at Clonmel. It is of Italian character externally, having a rusticated basement, decorated windows, a bold projecting cornice, and surmounted by a parapet. The foundations were laid two years ago; Mr. William Caldbeck, architect; Mr. William Brash, contractor; Mr. John Higgins, clerk of works. The iron work was supplied by Mr. Jacob, Clonmel; the marble chimney-pieces by Mr. Hibson, and the gas-fittings by Mr. Daniel, of Dublin.

IMPROVEMENT IN GAS BURNERS.—Messrs. Defries & Co., the eminent chandelier manufacturers of Houndsditch, London, have just patented a most important improvement in reference to gas, which will no doubt effect a great saving in the consumption of the now universally acknowledged essential material for the production of artificial light. The new apparatus of Messrs. Defries is extremely simple in its construction, and affords great advantages over the modes by which gas is generally produced. The ordinary gas-burner consumes from 11 to 12 cubic feet per hour, at a pressure of twenty-tenths, while the burner of Messrs. Defries in its improved form will scarcely consume 7 feet per hour! The light remains uniform, under all degrees of fluctuation.

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We omitted to mention in our notice (last number) of Mr. Tisdall's house, Green-lanes, Clontarf, the names of Mr. William Murray, the architect, and Mr. John Nolan, of Meredyth-place, the builder. As a general rule, however, professional gentlemen, whose names may not reach our ears in the course of inquiry, and consequently do not appear in our descriptions of buildings, must not assume that such omission is wilful; as the columns of the "DUBLIN BUILDER" are always open for the *free* chronicling of improvements, and unexceptionally as regards all parties concerned; and if those interested would kindly take the trouble—as many valued contributors and supporters do—to furnish us with particulars they shall (when within our province) appear as a matter of course.

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The Dublin Builder.

Vol. I.—No. 9.

TRADES' COMBINATIONS.

THE DUBLIN CARPENTERS' STRIKE.

OF the events passing in the English metropolis during the last month—a memorable one to all connected with the building interests there—*we*, in common with many others, were content to remain mere spectators, though awaiting the sequel with intense interest and anxiety; but now the case becomes altered—the storm rages at our own doors—all the fearful results accruing from separation and ill-feeling between masters and their employées threaten *us* likewise, and the time has arrived for the energetic application of every faculty speedily to solve the question at issue. On the 13th ult. the operative carpenters of this city served notice on all their employers that the body had *determined* on an increased rate of wages—viz., from 4s. 8d. to 5s. per day for each man. Receiving no answer to this, they concluded that their demand had been complied with; but to their surprise, as is alleged, they were informed on the following pay day, the 20th, of the employers' determination to resist. On Monday morning, therefore, they left off work, and it must be remembered that the employers' doors *were not shut against them*—a course adopted in London as retaliation on the body.

Viewing the demand in its most impartial light, it seems to resolve itself into two considerations—viz., whether, under existing circumstances of trade, the operatives on strike place a fair marketable value on their labour; and secondly, if so, is the movement—so suddenly made—calculated to the attainment of their object to their permanent benefit, and, in fact, is it judicious and well-timed? That famine, pestilence, and emigration have thinned the trades, must be conceded by all; likewise, that where there is a scarcity of labour there must follow, *de necessitate*, a rise in the market, if the demand be disproportionate to the supply; but admitting this to be the case at present, are the circumstances such as to justify an immediate advance of wages? Does it follow because one or two contracts of some magnitude have been undertaken for commercial houses, to be executed within an unreasonably short and almost impossible period, under stringent clauses and heavy penalties, and that a few contractors have been in consequence coerced into submission, because there are not hands enough amongst an exclusive society of artizans to supply the temporary emergency, without to some extent inconveniencing the regular business of the city, that this pressure is likely to continue? A few weeks at most will decide this. The plasterers have already followed the example set by the carpenters, and have declared their intention of advancing their wages; the masons, the stonelayers, bricklayers, slaters, &c., are likely to adopt a similar course. Where will this end? or how can existing contracts afford a deduction of 7¼ per cent. on the item of labour? One thing we prophesy—this movement will affect, to an incredible extent, the speculative building of the suburban districts, which for some years has afforded a vast amount of employment to a number of hands; for speculation cannot continue in the face of an advancing labour market. If, contrary to our expectation, it still exists, the consequence will be, that this business will be thrown entirely into the hands of builders who do not employ what are called the regular men. We freely advocate the tradesman's rights to fair remuneration for his toil—we heartily wish to see him occupying a prosperous position in the world, and a respectable one in his domestic circle, to which constant employment and fair pay are essential requisites; but we abhor "combination" to effect, by undue pressure at an awkward period, an object which, legitimately and calmly pursued, might tend both to a successful result and to preferment in the social scale, rather than the reverse. A popular fable suggests a moral deducible from the event we treat of, that it may prove imprudent—nay, fatal—for members, relying too much on their numerical strength, to rebel against the main source on which they rely for subsistence; the error is discovered when too late, and the continued obstinacy of the members has so weakened the main spring, that it becomes incapacitated to act, and sinks into oblivion, drawing in its wake the perpetrators of its and their own ruin. Such might be—we sincerely trust not in this instance—the result of a protracted combination; and though we have only *now* to deal with *one* section of an extensive community, we know not where the influence may ultimately end, or how far a general principle may be affected by a partial decision. Or, again, if employers should feel chagrined at an undue advantage being seized on by their workmen, they may, from temporary pressure to perform heavy contract works, yield—*we do not assume advisedly that they will*—but it may be to reserve at a future date, biding their own time, the period for retaliation, when they shall place themselves—by a supply of labour from the provinces or elsewhere, and by calling in a potent aid, which in carpentry work especially is rapidly superseding manual labour—beyond the reach of *further* combination.

This doctrine of probabilities we would emphatically impress on the minds of all concerned, that in calm reason each point may be weighed, and mature judgment induce to a course which will ultimately secure mutual benefit.

The Cathedral of Notre Dame.—The *Ami de la Religion* publishes the following details on the subject of the central spire which is now being reconstructed on the Cathedral of Notre Dame. The steeple in wood covered with lead which formerly crowned the centre of the old cathedral dated as far back as the 13th century. It was demolished in 1797, either because, being in want of repairs, it was more easily removed than restored, or because the quantity of lead with which it was covered was required for casting musket balls. A project for repairing the cathedral was first taken into consideration by the government in 1845, but nothing was then decided on; the plan was again examined in 1853 by the imperial government, but the erection of the spire was postponed in consequence of the necessity which the architect felt for first repairing the central arched roof of the building, over which the proposed erection was to stand. The preparation of the wood-work for the spire was commenced in August last, and the first pieces were in their places in February last. The spire, which will be 135 feet above the top of the roof, and 280 feet above the floor of the church, does not start suddenly from the roof like those of the cathedrals of Amiens and Orleans, but stands on open arches, thus giving it a much lighter effect. These arches are surmounted by statues of the Twelve Apostles and the four emblems of the Evangelists, and it is from above that range of figures that the steeple starts. The iron cross at the summit will be about 24 feet high, and is surmounted by a gilt weathercock. The woodwork will be covered with lead, weighing not less than 120,000 kilogrammes. The whole construction will be finished in the early part of next year.

THE PROGRESS OF ARCHITECTURE IN IRELAND:

BY (THE LATE) JAMES GANDON, ARCHITECT.

It was the taste of the Augustan age to mingle an agreeable and varied erudition with scientific works; this we may perceive in Cicero's moral and theological tracts, in Strabo's geography and Vitrivius' architecture. Works thus constructed were more likely to become popular and useful, than treated abstractedly; they amused while they instructed, and, what is of infinite value to us at this day, they preserved much interesting information, sometimes closely, often remotely, connected with the subject. This practice Vitruvius expressly defends in the beginning of his seventh book: "Our ancestors," says he, "did wisely in recording the improvements of every age, by which was gained a vast accession of knowledge. Itaque non mediocres, sed infinitæ, sunt his agendæ gratiæ, quod non invidiosi silentes prætermiserunt, sed omnium generum sensus conscriptionibus memoriæ tradendos curavement." Vitruvius has adopted this conduct in almost every part of his admirable performance; to pursue, therefore, a line sanctioned by such high authority will require but little apology. The profound investigation of a very learned friend* has saved me some labour, nor was it possible to add much to his accurate researches.

It might have been inferred, from the state of society in the northern parts of Europe, in the age of Vitruvius, that mankind then lived in the meanest extemporaneous dwellings, yet it is desirable to know from so accurate an inquirer, what was the mode of construction, and what the material used, because it proves the bardic tales, the historic romances of modern Irish writers, respecting their list of Kings, the splendour of their courts, and their magnificent structures could not, in that or any anterior period, have had existence beyond the imagination of their authors.

A dark cloud envelopes the primæval inhabitants of Ireland, and the transactions of its early colonists are buried in impenetrable darkness, so that if it were not for their language, which, happily, survives at this day, to which may be added customs and manners which distinguish them in every age, it could not with certainty be affirmed that the Celts were the first possessors of Ireland. These Celts, as their name indicates, were woodlanders; in the forests they found dwellings sufficient to support a savage life; the oak was the object of their adoration, and from this oaken worship was denominated Druidic; they practised those arts which necessity suggests in the dawning of society—"Some," says Vitruvius, sheltered themselves in caves from the inclemency of seasons, or formed a covering with the branches and leaves of trees; others, imitating the swallows, erecting round cabins, 'non nulli hirundinum nidos et ædificationes earum imitantes.'" "Experience," continues he, "taught them new improvements; they set up forked sticks, laced the intervals with twigs; on this, at first, they made a flat roof, but this transmitting the rain, they afterwards gave it a rise, and pointed the top, in order to give a fall to prevent the water lodging; they also formed houses of split timber, and covered them with straw." Bede, writing about 720, tells us, that Finan, an Irish bishop, built his church entirely of split oak, and covered it with reeds; and this custom prevailed in every age. Henry II., in 1172, to conciliitate the regards of his new subjects, by conforming to their customs, made a long and spacious pavilion of smoothed wattles, wherein he entertained the Irish princes. At the end of the sixteenth century, Spencer mentions the Irish boolies or wicker dwellings in which the natives and their cattle had a common lodging. At this day the mud walls, and wattled roofs covered with straw or reeds, preserve the original Celtic practice, as the churches of Derry, Kildare, and others, do, in their names, the remembrance of their having been primitive Celtic temples in oaken groves. With the arrival of the Belgic colonists, called Firbolgs (by Irish chroniclers), began the dawn of architecture in this island. Those Firbolgs were a naval and mercantile people from Belgic Gaul, who settled in Britain antecedent to the Roman invasion of it. Richard of Cirencester mentions the menapu and cauci. Belgic tribes being in Ireland at the time of Julius Cæsar, and vestiges of these foreigners may at this day be traced in the jargon of those parts where they first settled themselves. The baronies of Forth and Bargy, in the county of Wexford, though far from being polished, greatly surpassed the Celts in the knowledge of useful arts. They were acquainted with metallurgy; they formed and inhabited souterrains, and secured them by rude arches; they could raise, and convey to appropriate places, large and massy blocks of stone, erect them perpendicularly in circular or other places, and crown them with ponderous trilithons. A great number of these caves and temples exist in various parts of Ireland, and they resemble, in every minute particular, the religious structures and dwellings of the same people in the northern parts of Europe. Though the Gospel was preached in this isle in the third or fourth century, and the use of letters introduced, yet neither produced, for some ages any alteration in the manners or dwellings of the natives. Tanistry, gavelkind, and other Brehonic institutes, made them barbarous, and they continued so for a considerable period; the consequence was, that the Christian missionaries were obliged to give way to the prejudices of their new converts, they carved crosses on the upright stones, and erected their chapels in the circles which they formed, called Cloghans, thus gradually changing the object of their adoration.

In the eighth and subsequent centuries numberless swarms of piractical rovers issued from Norway, Denmark, and the shores of the Baltic, and overspread this and the other British Isles: their religion was widely different from that of the Irish primitive churches, nor did the latter adopt the superstition of the times until overborne by the iron hand of power. The relics of saints were now objects of great adoration; no church could be erected without procuring some of the bones or garments of the patron to whom the edifice was dedicated. To preserve these from conflagration to which wooden structures were liable, was a matter of serious concern—and could only be effected by a stone vault not liable to be injured by fire, or the vicissitudes of seasons.

The Ordo Romanus, compiled in the ninth century, directs the mortar for such receptacles to be made with holy water. A great number of these cryptical buildings exist, such as at Cashel, Portaferry, Saul, Killaloe, St. Doulagh's, near Dublin, and other places. A tomb was made in the centre of these chapels, the relics laid in them, and the stone that covered them served for an altar: this is exactly the case with the stone-roofed crypts at Glendalough and Cashel; the curious and uncommon sculpture decorations on the portal of the former evince the taste of the northern invaders in the arts of design and composition; and had a state of society admitted of architectural exertions, they were no way incompetent to produce structures of superior order; but wretched municipal laws, and a perpetual warfare, not only among the natives themselves, but also with foreigners, prevented any further progress in the culture of the arts at that time. Religion alone could overcome these obstacles; many stone churches were erected, and the active zeal of the Christian clergy at length constructed fabrics of greater magnitude, and more suited to the object of their professions. Their first attempt at a lofty building was the round tower, a singular and very curious structure, of which there are more remaining in perfection in this isle, than in any other part of Europe.* It is not easy to assign a reason for the prevalence of adopting the rotund figure at this time; that it was brought by the Irish missionaries from the Continent in the ninth century, whither they resorted in great numbers, it is the probable conjecture of Dr. Ledwich, who has learnedly discussed this subject, and thrown as much light on it as imperfects surviving supply. It appears to Dr. Ledwich that the archetype of these towers was the square steeple found annexed to continental churches; and that, as our religious edifices were of wood, and the sanctity and imposing effect of the bells but little inferior to that of relics, a stone belfry was the only appropriate building for such purpose. Whether the architects of these ages, who were ecclesiastics, esteemed rotundity the figure best calculated for durability, is not easy to ascertain; it is, however, evident, that much art was not required in their construction, as all the round I have seen are erected of rubble-stone, and in irregular courses, having neither external nor internal arches; and there appears no regular system observed in their arrangement in the different storeys, either as to their elevation or number. It is evident that chases are left in the walls of some to receive the joists, in others they are laid on corbels, or internal set-offs; they likewise vary as to their general heights and thickness of the walls; that remaining at Kells is ninety-nine feet high, seven feet diameter at bottom, and four feet six inches at the top; the round tower at Lusk, in the county of Dublin, is only three feet at the top. What is very remarkable is the distance of the door from the ground; in the greater number remains it is about ten feet, but in the round tower at Kilmacdhach, the height being 110 feet, the entrance from the ground is twenty-four feet. This elevation of the door has not yet been accounted for satisfactorily.

Cormac's Chapel, at Cashel, is a work of very great antiquity; it is stone-roofed, and the first attempt at a nave and chapel in Ireland; there is scarcely a monument of the tenth century in Europe, so well preserved, or so interesting to the lover of ecclesiastical architecture, except St. Kevin's tomb at Glendalough, and the round tower there.

The rude architects of this period, from the specimens of their art now enumerated, were able to construct larger edifices, and to ornament them with sculpture. Encouragement, practice, emulation, might have advanced their exertions to some degree of perfection; but at this period the nation was uncivilized, and the clergy, who were the only architects at this period, employed themselves exclusively in erecting religious buildings, and civil architecture was entirely neglected. A proof of what has been advanced may be satisfactory. Malachy, Archbishop of Armagh, in 1148, made a stone oratory at Bangor. St. Bernard, in the life of this prelate, introduces one of the natives, saying to him, "What could induce you to bring such a novelty into our country; don't you know we are Scots (Irish), not Gauls (foreigners)?" expressing thereby their resentment at such innovation, for the Irish oratories were of wood. In the year 1145, Gelasius, Archbishop of Armagh, constructed a lime-kiln seven yards in diameter; this is recorded in the Irish annals, which would not have been the case had the manufacture of lime been then a common operation. I refer to Du Cange's Glossary, and Barrington on the Welch Castles, to evince that the Irish were not inferior to the Spaniards, Welch, or French, in the practice of masonry at that time.

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* Dr. Ledwich.

* There are two remaining in Scotland; one at Brechin, another at Abernethy.

The Norman princes introduced and cultivated it in their numerous castles and ecclesiastical structures in England, and on their arrival in Ireland they soon filled the country with fortresses and abbeys. The style of buildings in Ireland could not be dissimilar from that in the sister isle, because the same architects designed and erected the different buildings in both countries; and the Saxon style, as well as the Gothic, is clearly traceable in the ancient architectural structures of the country. Dr. Ledwich, in his observations on our ancient churches in the Archæologia, has investigated the origin of these styles, as far as authentic documents enabled him to proceed; to these I shall take the liberty of adding a few remarks.

Mr. Essex, after pronouncing the eulogium of Gothic architecture in the fourth volume of the Archæologia, appears so totally possessed by its beauty, proportion, and execution, as not to hesitate in affirming that, like the Grecian, it has its orders, and every order its peculiar proportions, founded on geometrical principles, and as capable of demonstration as the Grecian or Roman architecture. In this assertion I consider Mr. Essex has suffered himself to be carried away by too much prejudice, and such opinion I consider to be altogether unfounded, as can be elucidated by an attentive inspection of the variety of Gothic buildings now in preservation.

Another writer[*] on this subject gives his opinion that the Gothic architects assimilated the proportions of their buildings to those of the human body, and that the pyramidal form exists throughout the component parts of a Gothic edifice; and that from such an ordination none other but a pointed arch could be used. It may here be asked, what model was used for regulating the distribution and symmetry of such a building, for the Greeks and Romans worked by a model taken from the diameter of the columns, divided into a certain number of parts, which served to regulate their proportions, together with that of the entablature and other parts appertaining to the order. I do not consider that any Gothic structure can admit such investigation, and the writer candidly owns that there never was a species of architecture, the properties of which could be determined from the arch alone; and I do not consider the author of these ideas on the origin of Gothic architecture, has established any satisfactory principle (if any the early architects had) to regulate their designs.

REPORT OF THE CITY ENGINEER, WATER WORKS (DUBLIN).

Gentlemen,—I have carefully read over the Report that you have received from your Consulting Engineer, Mr. Hawksley, on the subject of the improvement of the supply of water to the City of Dublin.

I find that the result that he has arrived at, after the examination of the different plans submitted to you for the improvement of the water supply, is as follows:

Under all the circumstances of the case, he is of opinion, that the best and most economical plan for you to adopt is, to continue to derive the supply of water for the use of the City from both Canals, but under a very different arrangement from that at present existing.

He proposes that you should take the supply from the Canals, provided they will undertake to give a guaranteed and preferential supply of not less than ten million gallons of water per diem, at a fixed rent, in perpetuity, of £2,500 per annum; and he proposes to retain the supply at present drawn from the Dodder into James's-street Basin, for the use of certain large consumers, such as manufacturers, distillers, &c.

If this arrangement can be carried out by the Corporation, with the Canal Companies, Mr Hawksley recommends that the water be taken from the Grand Canal Company, from the pond or level at the head of the 11th Lock, near Clondalkin; and that on the land adjoining this a service reservoir, filter beds, and pure water tank should be constructed, from which the water should be conveyed to join the present mains, distributing the water through the City by a 36-inch main; and that the water should be taken from the Royal Canal at the eastern end of the pond or level above the 12th Lock, at Blanchardstown; and that a service reservoir, filter beds, and pure water tank should be constructed on the adjacent lands, from which the water is to be conveyed, to join the City mains, by a 30-inch main.

The cost of those works, including the necessary alterations of the pipeage of the City, in connecting new works with old, &c., he estimates at £137,000. . . . .

I am not sufficiently acquainted with the size of the works that Mr. Hawksley proposes to construct, to be able to form any estimate of their probable cost; but, from his high character and long and extensive practice in works of this character, the Committee may safely adopt his estimate as correct: and, taking this to be the case, I believe that the improved supply of water can be got for the City, from the Canals, at a less cost than from any other source.

From the experience I have had in connection with your works, now for ten years, I believe that neither Canal can of itself, under existing circumstances, give you the quantity of water you require, therefore, that you must deal with both.

With regard to the quality of the water for domestic use, although it is not as soft as that which could be got from the granite districts of the Dublin aud Wicklow Mountains, and consequently not so good for brewing, washing, and culinary purposes, yet it is a good water, colourless, and not above the average hardness of the water supplied to London and many other large cities and towns: and when taken at the distance from the City proposed, and properly filtered, will be of a very superior quality to what it is at present, delivered from the City Basins.

Under all the circumstances of the case, and after giving the subject my best consideration, I feel bound to state, that I believe that if the Canal Companies agree to give the water, as mentioned, for the sum of £2,500 per annum, that it will be best for the Corporation to carry out the plans of their Consulting Engineer, and adopt the Canals as the source for the improved water supply to the City.

But in any contract entered into with the Canals, I suggest that there should be some arrangement as to the price at which they would supply any additional quantity which may be hereafter required.

In conclusion, I have to submit for the consideration of the Committee, suggestions as to how the funds required for carrying out the proposed works can be procured. . . . .

Mr. Hawksley estimates the cost of the works he proposes at £137,000. This sum I consider should, if possible, be borrowed from the Government on the same terms as they have lent money to carry out drainage works, namely, to be advanced as a rent-charge on the rates for twenty-two years, paying six and a-half per cent. per annum, so that at the end of this period both principal and interest would be paid.

Six and a-half per cent. on £137,000 amounts to £8,905, therefore, the present surplus income is only about one-third of the amount which would be required to pay this interest. . . . .

From experience as to the amount realised from the Improvement Rate and Sewer Rate on the present valuation of the City, I calculate that a rate of 8½d. in the pound will produce an income of about £16,270, and if to this be added the probable revenue to be derived from supplying distilleries, breweries, manufacturers, public and government buildings, &c , say £2,000 per annum, this rate of 8½d. in the pound will be sufficient to enable you to raise money upon the sinking fund principle to construct your proposed works, in which case the charge of £8,905 would cease at the end of twenty-two years, when a rate of about 4½d. in the pound would be sufficient to meet the remaining engagements and maintenance of the works. On the other hand, supposing the £137,000 borrowed in the ordinary manner at four per cent., a rate of about 6½d. in the pound would be sufficient, but in this case the charge would remain permanent on your works. . . . .

In the new Bill powers should be obtained to enable you to supply, when called on, water to the Township of Rathmines, aud the districts of Ranelagh, Baggotrath, Ringsend, Irishtown, and Sandymount, and also to Clontarf, Richmond, &c., on north side of the City.

In 1854, I estimated the probable cost for laying down mains to to supply Rathmines, Ranelagh, Ringsend, Irishtown, and Sandymount with water at £30,000, but this calculation was made when iron was very much higher in price than at present, and I think the necessary works could now be done for £25,000. The income I then calculated to be derived from this outlay was about £1,250 per annum, but from the rapid increase of building since this, I should expect that now a considerable larger sum would be received, with the prospect of a steady annual increase—supposing that a charge at the rate of 6d in the pound on the Poor Law Valuation, was levied, which would be very moderate.

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[*] See Murphy's Batalka.

With regard to the present valuation of the districts here alluded to, I would suggest that the Committee ought to procure correct copies of Mr. Griffith's Valuation, with the view of ascertaining the probable income that would be derived from their supplying those districts.

PARKE NEVILLE,
City Engineer.

The following has appeared as an *advertisement* in the local papers, and we reprint it as a matter of courtesy to the operatives, that all particulars, and the views of both masters and men may be *impartially* put forward in our columns:—

THE CARPENTERS OF DUBLIN TO THE PUBLIC.

"There is too much suffering and too much perplexity in the condition of the working classes; it is a disgrace as well as a danger to our civilization; it is absolutely necessary to render their condition less hard and less precarious."—*The late Sir Robert Peel to M. Guizot.*

"It was not correct to say that no strike had ever been successful; but those only had been successful which had taken place during a rising market. No doubt a workman was entitled to ask for an increase of his wages if the produce of his labour was rising."—*Sir A. Alison in a Lecture delivered in the City hall, Glasgow, March* 15, 1859.

A more lengthened statement of our affairs having been promised, we would have kept our word but we were prevented by many of our employers having, in the early part of the week, acceded to our demands. We fondly hoped that before this all of them would have done so, but such not being the case we are bound to make the following statements:—As there is an impression abroad, not alone in Dublin, but in London, that there is a strike for wages by the Carpenters in this city, we would wish to disabuse the public mind on that point. For many weeks previous to the circular being issued informing the employers that our wages for the future would be 5s. per day, the greater portion of the members of our trade was receiving that sum. The men who in the employments (some had left and accepted of higher wages) at the old standard of 4s. 8d. felt that they were not acting fairly to themselves by not looking for the same. What were they to do? Leave their employment and get it where it was given. That course would not be either just or prudent, No! They said to their respective employers, we are willing to remain with you, give us the same wages we will get through the city. The majority of them did so, and the men remained at their work. That the greater number did comply, the fact of 450 men, out of 530 being at work at the increased rate, fully proves the men who did not get their demand had no alternative but to leave. They have (with the advice of their trade) refused many offers during the past week—even at a rate above what they required—but expecting to be called into their old employment, refrained from accepting such. Now the question naturally arises were these men wrong in looking for an increase in their pay, when in the majority of cases it had been offered to them?—Were they wrong in taking a step to advance their social position? Were they to derive no benefit from the application of machinery to their work, or was the profits arising from such, all to flow into the pockets of the employers. We ask an impartial public to decide. Take our relative positions Look at the builders, when a few years at their vocation, they have ranges of houses, a luxurious home, private vehicles, and more than all this, the consolation that, in their old age, the comforts they enjoyed through life cannot be abridged. Then turn to the working man—What has he, or what has he to look forward to—a poor slave, subject to every whim and caprice of those over him—an unfortunate toiler, whose precarious existence depends as much upon a looked-for obsequiousness as upon the talents that God has given him? What had he to look for in his old age, brought on prematurely by anxiety and incessant toil? As it approaches, his wages is reduced, his chances of employment are lessened, his comforts, small as they were through life, disappear, and he ultimately finds himself a burthen to his friends or an inmate of a poorhouse. Are these men to be blamed for endeavouring, at a season like this, when the labour market is up, to procure for it as much as possible.

But a few words on the matter of dispute. We claim an addition of four-pence per diem to our pay on these grounds (perhaps the only ones acceptable to the superficial observer). Our labour is the only commodity we have to dispose of. Will we not be accorded the same privileges enjoyed by the corn-factor or the timber merchant. That is, to rise the price of the article when there is a scarcity of it in the market. We did not take advantage of that admitted practice—a practice endorsed by the names of all writers on political economy. No. We waited till the purchaser raised the price, and it would be very foolish in us not to accept it.

We would, in conclusion, wish to contradict a report prevalent through the city, that we intend to look for a diminution of the hours of labour, and other advantages, which would be injurious to the master builders. Such is not the fact. The only demand we made or intend to make, is the increase of four-pence per diem in our wages, and by that we are determined to stand. Signed on behalf of the trade, THOMAS PARKER.

IMPROVEMENT OF LABOURERS' DWELLINGS.

In the course of His Excellency's admirable speech at the banquet after the Royal Agricultural Society's recent Cattle Show, at Dundalk, he took occasion to observe that, among other improvements in our country, progress has been nowhere more remarkable than in the dwellings of the labouring classes. The subject is now under the immediate consideration of the Imperial Legislature, a bill having been brought in upon the matter by an excellent gentleman of a neighbouring county, Sir William Somerville. I know that the subject has largely engaged the attention of another gentleman from the same county, whom I have the happiness of seeing at this board, Mr. Naper; and I find with great satisfaction that the Royal Agricultural Society of Ireland, which is peculiarly qualified by its position and its objects to take the lead upon such a subject, announces it as as one of its constituent and primary objects to promote improvement in the dwellings and domestic condition of the people of Ireland, and they have founded prizes for the best cottages.

Nature and Art.—I remember that, being abroad one summer day, my companion pointed out to me a broad cloud, which might extend a quarter of a mile parallel to the horizon, quite accurately in the form of a cherub as painted over churches—a round block in the centre, which it was easy to animate with eyes and mouth, supported on either side by wide-stretched symmetrical wings. What appears once in the atmosphere may appear often, and it was undoubtedly the archetype of that familiar ornament. I have seen in the sky a chain of summer lightning, which at once revealed to me that the Greeks drew from nature when they painted the thunderbolt in the hand of Jove. I have seen a snowdrift along the sides of the stone wall, which obviously gave the idea of the common architectural scroll to abut a tower. By simply throwing ourselves into new circumstances, we do continually invent anew the orders and the ornaments of architecture, as we see how each people merely decorated its primitive abodes. The Doric temple still presents the semblance of the wooden cabin in which the Dorian dwelt. The Chinese pagoda is plainly a Tartar tent. The Indian and Egyptian temples still betray the mounds and subterranean houses of their forefathers. "The custom of making houses and tombs in the living rock," says Heeren, in his Researches on the Ethiopians, "determined very naturally the principal character of the Nubian Egyptian architecture to the colossal form which is assumed. In these caverns, already prepared by nature, the eye was accustomed to dwell on huge shapes and masses, so that when art came to the assistance of nature, it could not move on a small scale without degrading itself. What would statues of the usual size, or neat porches and wings have been, associated with those gigantic halls before which only Colossi could sit as watchman, or lean on the pillars of the interior?" The Gothic church plainly originated in a rude adaptation of the forest trees with all their boughs to a festal or solemn arcade, as the bands about the cleft pillars still indicate the green withes that tied them. No one can walk in a road cut through pine woods, without being struck with the architectural appearance of the grove, especially in winter, when the barrenness of all other trees shows the low arch of the Saxons. In the woods in a winter afternoon, one will see as readily the origin of the stained-glass window with which the Gothic cathedrals are adorned, in the colours of the western sky seen through the bare and crossing branches of the forest. Nor can any lover of nature enter the old piles of Oxford and the English cathedrals, without feeling that the forest overpowered the mind of the builder, and that his chisel, his saw, and plane, still reproduced its ferns, its spikes of flowers, its locust, its pine, its oak, its fir, its spruce. The Gothic cathedral is a blossoming in stone, subdued by the insatiable demand of harmony in man. The mountain of granite blooms into an eternal flower, with the lightness and delicate finish, as well as the aërial proportions and perspective of vegetable beauty.—*Emerson.*

Locomotive Engines on Ordinary Roads.—Many difficulties attend the application of steam to ordinary roads, and have hitherto prevented its employment for that purpose. The traction force, owing to absence of rails and inequality of surface, is vastly increased, as also is the necessary complication of machinery, and the wear and tear. Carriages *can* be drawn by steam power along common roads, even over steep ascents; but the fall from stones, and the descent into ruts on ordinary roads, must be prejudicial to economy on the one hand, and facility of conveyance on the other.

THE WATER SUPPLY OF DUBLIN.

"Two tales have we told,
Another we'll unfold,"

WHICH, perhaps, may suffice to put our fellow-citizens on their guard as to what may be done, or ought to be done, in this momentous question. We can all, perhaps, now understand the difference between the wants which existed in London and Dublin, and the means taken to supply them—can judge whether the authorities of either places could justify themselves for either joining in or permitting such monstrous abuses as took place—and form a fair opinion upon a question which is in reality belonging to the public at large, and not to a profession or a clique.

We want our general readers of Dublin to understand the real bearings of a question, which not only affects themselves, but their children and children's children. We greatly desire that they should see the breakers a-head before they trust to pilots which may run them ashore again; and we hope to gain the support of the large majority in our doctrine, that *water for the public should be supplied to the public at its lowest possible cost*, and that it is the bounden duty of the authorities, into whose hands we trust the management of our affairs, to see that it is so; just as much as it is the duty of an honest steward to buy our meat and our bread at the cheapest and best market, and no more to permit engineers to hoodwink us, than bakers or butchers. We have a very great respect for our own profession, but have as much disrespect for charlatanism and plagiarism amongst engineers as amongst any other class—perhaps more. There is no more elevated profession, nor one more calculated to elevate the community generally; but just in proportion to its properly high position should be public discredit, if it be lent to the accomplishment of public wrong.

We have told the tale of London and Dublin, let us now see what Liverpool presents. It is so near to home that it may, perhaps, come more home to us, and what has been done there is so like what is now proposed to be done here, that it is essential it should be fully known.

Some years since, when the Chadwick mania for flushing sewers seized some sixty or eighty of the principal cities and towns of England, it was discovered by some of the Corporation of Liverpool that that city could not exist in health from thenceforth unless *a high pressure* supply of water was procured, so that all the houses might be constructed with water-closets in the upper storeys, and it may be said that the upper storeys of the whole city became affected with the mania. It was estimated that the quantity of water necessary for each individual, child and adult, should be 20 gallons per diem, and it was demonstrated to the satisfaction of the whole Liverpool community, by numberless speeches and reports, that no other means could possibly be discovered to save the city from the consequences of its own filth, than that every inhabitant should be supplied with the greater part of the said 20 gallons, to wash it away through the sewers and under the streets into enormous tanks; from which it was to be lifted by pumps, and distributed over all the farms of all the country round.

The two water companies, by which Liverpool had been supplied (and not badly either) up to that time, were called upon to make such arrangements as would meet the "*flushing*" necessities. But, unhappily, they declared it to be impossible. The Board of Public Health, however, having had *a report* made by one of Mr. Chadwick's *employées*, setting forth "that the removal of the refuse of cities through the sewers, *by means of water carriage*, was the best and cheapest," the authorities came to the conclusion that more water must be got, no matter where it came from; and the Board of Health began their labours to construct the proposed means for discharging the city filth through the Chadwick pipes—the water for which was to be supplied by a committee of the Corporation, who began their labours simultaneously to obtain the water.

Most zealously and untiringly did both those bodies work, each in its own vocation; one to devise the best means to collect the filth together—the other to get water to wash it away; and the parliamentary blue books of the two or three years which were occupied in labours to best arrive at other objects, were rivalled by the reports and blue books detailing all that was said and done at Liverpool on the water supply and glazed pipe and flushing systems.

Nothing could be more elaborate than the revelations made on the subject of the water. It was plainly proved that spring water was most unwholesome and unfit for household use—that the only water suitable for such purposes was that which fell from the clouds—and that no matter what description of soil it washed and percolated through when it came down, nor what gaseous impurities it held in itself, nothing could exceed it, both for purity and softness. The result was, that it was determined, on the report of an engineer of high reputation, to construct reservoirs in the Rivington Hills, and collect the water that fell there, bringing it by metal mains of 44 inches diameter, some 23 miles in length, to deliver to the inhabitants of Liverpool a supply of 20 gallons per head per diem. Accordingly the works were commenced and prosecuted vigorously, regardless of expense, in order that there should be nothing to prevent the supply for flushing purposes to be required by the Board of Health, so soon as their flushing works should be completed, and for which *flushing* alone not less than 10 or 15 of the 20 gallons per diem would be required.

Happily, however, for Liverpool, as regards the sewerage question, and unhappily as regards the water supply, the eminent engineers to whom the former had eventually been referred, proved that the Chadwick glazed-pipe system was a fallacy; and having reported and demonstrated that the cost, alone, of pumping up the refuse of the town would vastly outbalance all that could be obtained for the matter, even if it were possible to dispose of it at the highest estimated value, the project was totally abandoned. An act of parliament was subsequently obtained, empowering the Corporation to compel certain arrangements to be adopted in the construction of privies and ash-pits, by which the matter might be conveniently removed by and at the cost of the authorities, and from thenceforth it was, and now is, collected and sold by the Corporation, and made one source of its revenues.

Thus whilst one committee was labouring to provide the 20 gallons per head per day, the other laboured till it proved the supply was not necessary at all. But when it had arrived at this most just conclusion, the zeal of one had outrun the other—

for the water committee had irrevocably embarked in all the expenditure, and the inhabitants of Liverpool have now to pay for a supply assumed to be necessary for purposes which will never be carried into effect.

Now let us see what these zealous cross purposes produced as to the nature of the water and the cost.

The water supply of Liverpool is known as "the Rivington Water Works." They consist of several impounding reservoirs and catchment basins, so arranged as to take in the rain-water falling over a vast extent of the Rivington Hills, which, for a great part, are like the hills in the neighbourhood of Dublin, where the catchments for our water supply are proposed to be made, and equally presenting *a vast surface of peat moss or morass;* than which nothing could be more objectionable.

When the water supply of Dublin was agitated at the time the Rivington Works were in operation, this fact was brought out by some of the witnesses examined before the Sanitary Association. But it was then asserted that no evil would arise from the rainfall passing over peat bog, "*because the same class of land was used for the purpose of supplying Liverpool.*"

There were those, however, who could not subscribe to such a doctrine. The report of the Sanitary Association, framed by their engineer, Mr. Jasper Rogers, says, "Almost the whole catchment surface for supplying the proposed reservoir consists of a bed of peat, of slightly fibrous and earthy texture, from four to eight feet in depth. Your committee are of opinion that this fact alone is sufficient to prove that water *for household purposes* should not be taken from the proposed catchments. It is known to every peasant that bog-water is unfit for household use, and your committee believe that no mode of filtration at present known would divest such water of the several properties injurious to the animal system, which it contains."

Most strange to say, this simple fact, which is incontrovertible, seems to be completely ignored. It was assumed to be wrong, *because the engineer for the Rivington Works made use of peat land for catchment purposes.* The *theory* of one man was preferred to the *practice of millions,* for there are millions in Ireland to prove that water coming from bogs is unfit for household purposes. And although it is now admitted and patent in Liverpool that the water taken from a similar source is *bad, discoloured, and unwholesome,* the reality seems to have no effect upon ourselves, and we come to the decision of supplying our wives and children with water that is and must be most injurious to health. It is well known that many families have been obliged to leave Liverpool because of the impurity and unwholesomeness of the water, since the supply was made by catchments from the Rivington Hills. Present filtration does not divest it of that peculiar and special property belonging to the juices of peat, which no chemist has yet been able to define, but which is almost analogous to "*tannin matter,*" though not so in reality; and we need scarcely go farther to satisfy the most sceptical that water containing such an ingredient cannot be wholesome. Why should we, therefore, be put to a vast cost to effect the same end as has been effected in Liverpool? and what that cost will be, if the attempt be made, may be seen from the expenditure there; the items of which are taken from the paper read before the Institute of Civil Engineers shortly after the completion of the works—

"Cost of improvements to Old Works, Purchase Money, &c.	£850,000
Cost of New Works, Reservoirs, Land, &c. ...	750,000
	£1,600,000"!!!

This, it is true, includes the expense of hooping with wrought iron the main pipes conveying the water from the reservoirs to the city, which, after being laid down and the water turned on, were found to be perfectly incapable of bearing the pressure; and the only possible remedy was to re-escavate, hoop, and relay them!

So far for past experiences. In our future papers we hope to point out the need for availing ourselves of them; and it is to be recollected that the engineer to the Rivington Water Works is the same as the Corporation has selected for carrying out similar works here.

THE LONDON STRIKE.

Is there any one of ordinary experience who has not seen with his own eyes the deplorable effects of trade combinations? With hardly an exceptional instance, they have always the same result. They cripple the employer. They ruin the operative. They degrade the character of the district in which the "strikes," as they are called, take place. All the evils of the system are being produced in London just now, on a scale whose magnitude must spread wretchedness, not among a few individuals, but among hundreds and thousands. The present strike is among the builders, and its ostensible object is to shorten the day's labour by one hour. It is euphemistically called "The Nine Hours' Movement;" but it is in reality a movement whose practical end is to make the men the masters over the employers, instead of the employers being masters over their own workmen. Those who organised the strike would listen to no reason. They would not condescend to argue the question, even the employers condescended to argue it with them. It was in vain to submit the consideration that the loss of an hour a-day from each man, and a continuance of the same rate of wages for nine hours as for ten, was an obvious outrage on common sense, and a manifest injustice to the employer. Why, in some extensive establishments, the loss would amount to several thousands annually. Of course, that the master was the person who provided the wages, who planned the works which brought them employment, who encountered all the risk of markets, and debts, and unrestricted competition—this fact, comprehensive enough to ordinary minds, was entirely below the exalted notice of the few brilliant and enlightened workmen who save their fellow-labourers the trouble of thinking for themselves. The leaders advised the workmen to strike, and the latter did so. A particular firm was selected, and their workmen left in a body. They must force the masters, they said, to bow to the nine-hours' movement, and it was proposed to accomplish this by putting a stop to the business of a few establishments, and driving the owners into the *Gazette.* A mild remedy, doubtless, but by no means original.

Nor is it a remedy such as only workmen can use. When the combined published their scheme, they thought they had a copyright of it for themselves and themselves alone. But the employers played them one of their own cards. They combined also. The reasons are given in the counter manifesto issued by the employers. These gentlemen lament the step which their men have taken, but recognise the paramount duty of self-protection. They say that, inasmuch as the associated workmen have arranged that the men remaining in employment shall support those out on strike, it cannot be expected that the employers will continue indirectly to contribute the funds necessary for this laudable object. If the firm selected—Messrs. Trollope and Sons—are forced to give in, the other building-masters will be pulverised in detail. If the masters who have yet escaped the strike continue to pay wages to sympathisers, then, according to their own reasoning, they are guilty of a species of mercantile suicide. Under these circumstances, the associated employers banded together for self-defence, and closed their places of business on Saturday last. There are nearly 300 firms in this category. There are about 30,000 men thrown out of employment by the decided course into which the operative conspiracy has coerced the masters. The employers plainly admit the crying hardships of visiting the sins of the crowd or of individuals on those who may be so utterly blameless as to have no sympathy with the movement; but the masters naturally and cogently ask, what other remedy have we? For ourselves, it is one of those questions which we would like to avoid answering. The masters will re-open their establishments when Messrs. Trollope's men will return to their work ; but, even then, they will require every operative to declare that he is not connected with any society whose object is to regulate the rate of wages or business contracts between the employers and the employed, and that he will keep aloof from any such association while in the master's employment.

This is the case in its more prominent features. What is to come of the movement? It is unnecessary to argue whether ten hours' work is more than a man ought to perform daily. Very few who labour at all have shorter hours of occupation; but these are matters beside the question. Are the men to overcome the masters, or are the masters to overcome the men? The history of strikes is decidedly against the former alternative. So is the result of the strike among the London gasmen a few weeks ago. If it be possible to conceive any manufactured article, excepting bread, whose deprivation, even for a day, would be absolutely intolerable, it surely is the gas-light of the English metropolis. Yet the gas-men have succumbed. In a fair fight, the masters must prevail, unless we are to revolutionise the maxim of experience. In alluding to the course which the employers have thought fit to adopt, we frankly own that we have put the case in the light most favourable for them. There are those who condemn them, and we are not acquitting them of all blame ourselves. For instance, it would be hard to defend in them the very practice which they condemn in others—these others being less capable of forming a sound judgment. It is entirely too arbitrary in the employers to interdict all co-operation among their workmen, while they themselves are a living illustration of a counter co-operation in its most aggravated phase. They plead the necessities of their position, and proclaim their wish to recognise the independent action of each individual workman. Is it not striking at the foundation of this independence to prohibit him from all trade communication or friendly counsel with his fellows? This, we think, is a well-nigh indefensible stretch of authority on the part of the employers. But, whatever faults the masters may have committed, the men are ten times more culpable. Perhaps, instead of the "men," generally, we should say, the "leaders." Strikes are generally got up by a handful of hair-brained, half-educated workmen, drunk with enthusiasm or something more appreciable—fellows with a profuse capacity for taproom speech-making and workshop laziness—men who either enjoy a secure situation themselves, or who are merely reckless birds of passage, flitting from one town to another. and ready to leave when the place becomes too hot to hold them. The cause of strikes is really the inordinate vanity of individuals like these, who lose their head with the idea of playing the small demagogue, and who operate on men more ignorant and less dishonest than themselves, and drilled into the insane habit of looking on their employers as their natural enemies. These clever, but totally unprincipled persons —we are not now particularising the London strike—are the bane and curse of workmen. They would paralyse individual energy, make it imperative on the master to pay the good and bad workman alike, and they would sacrifice the happiness of their dupes, and the wives and children of their dupes, rather than forego a series of pothouse ovations as the eloquent denouncers of monied tyranny. If these deceived and infatuated operatives persist in their strike, they will lose their character, their self-respect will follow, they will see their wives and children struggling with starvation, they will be maddened into the commission of riotous acts, bringing them within the grasp of the law, and the law owes it inexorably to society to award them a measure of justice but little tempered with mercy.—*Derry Journal.*

SIR JOSEPH PAXTON.—Sir Joseph Paxton was born at the farm of Manderston Mains, in Berwickshire, on the 16th of April, 1804. At an early age he was apprenticed to a gardener. In 1820 we find him working in a garden, situated in the Duke of Devonshire's villa at Chiswick, the future knight receiving only twelve shillings a week for his labour. Having quarrelled with a fellow workman, he was dismissed from his humble situation. Standing one day near the duke's garden gate, his grace accosted him, and perceiving from the intelligence and smartness of young Paxton that he possessed merits superior to most of his class, he condescendingly invited him to call next day at Devonshire House. The result of his interview with the duke was his appointment at Chatsworth, his grace's seat, Derbyshire. The genius of Paxton soon made itself evident by the improvements he carried out in the Eden committed to his care. It had seemed perfect before, but his refined taste and correct judgment were needed to make it what it now is. He at once rose to the head of his profession. He wrote several treatises on horticulture, published a monthly magazine on botany, and contributed largely to the celebrated works of Mr. Loudon. Sir Joseph's fame as a horticulturist and as an author has been outshone and eclipsed by his last mental effort—the wonderful palace in Hyde Park. This has made his name known over all the earth ; and it is to be hoped that other opportunities will arise to give public employment to the great faculties he possesses.

STATE OF THE LIFFEY—SEWERAGE OF THE CITY.

AT a recent meeting of our corporation in reference to a report from Committee No. 1, for confirmation, recommending the acceptance of contracts for the building of sewers, Mr. Martin, Trinity Ward, called attention to the state of the Liffey, which was daily becoming more obnoxious, and bid fair in a short time to be as bad as the Thames. Since the Corporation came into power £8,000 had been expended by them in sewerage operations, which, in fact, made the Liffey worse and worse as they proceeded. For the last few years the Ballast Board had not sent lighters to dredge the river, and at present when a vessel came to the quay she was up to the main chains in mud. He alluded to the successful drainage of sewerage matter in Paris and other places (a subject fully treated in recent articles in "THE DUBLIN BUILDER") and directed attention to the circumstance of Mr. Neville, the borough engineer, having in 1853, given them a plan of "intercepting sewers," the system of which was admirable, and would, if carried out, remedy the disagreeable condition of the Liffey. If the sewerage of the city was conveyed to Sir John Rogerson's-quay, and swept thence out to sea, people might bathe in the Liffey instead of their having a corrupted and malarious stream. The "intercepting sewers" were, at this state of things, absolutely necessary, and feeling the importance of the matter he had handed in, as an addition to the report, the following:—"That in passing this report, the council recommends Committee No. 1 to commence as soon as possible the formation of intercepting sewers recommended by Mr. Neville, in 1853, and until these sewers were completed to postpone the formation of street sewers. What he proposed was, that the council should expend £8,000—£4,000 on each side of the city—on these intercepting sewers, before they expended any further sums on street sewers.

Mr. Whelan proposed that the standard height of three feet three inches for the sewers be enlarged to four feet, in order that the sewers might be capable of proper cleansing. Mr. Martin had attributed the merit of intercepting main trunk sewers to Mr. Neville. Now the fact was, the plan was Nimmo's, and he (Mr. Whelan) stated so four years ago.

Mr. Whelan said Nimmo's plan was to have intercepting lines of sewers discharging their contents into reservoirs at the ends of the north and south quays, there to be deodorised by Sir William Burnett's deodorising fluid, and then to be conveyed to the canals for manure. With respect to the height of the sewers—three feet three inches—it was stated before the committee that a man sent into one of the sewers to cleanse it had to be dug out. The sewer had to be broken open to enable the man to escape from it, and he (Mr. Whelan) witnessed the cleansing of a three feet three inch sewer in High-street, and he saw the man who was cleansing it nearly as paralyzed in his working as if he were in a coffin. If it were cruelty to send climbing boys into chimneys, it was just as great cruelty to send an able-bodied man into a three feet three inch sewer. The flagrant error in the height of the sewers was persisted in and carried out upon the same conservative principles which already cost the citizens so many thousands of pounds—all of which was done to maintain ascendancy in mechanical as well as political operations. The difference in cost to make the sewers of a really useful and permanent character, would be only 1s. 6d. per yard on the 4-inch wall, and 2s. 6d. per yard on the 9-inch wall sewer contracted for. Under these circumstances he begged to move that the sewers be increased in height to four feet.

Alderman Roe said that the Ballast Board dredged the river that year just the same as they did the preceding years. While recognising the importance of the subject of intercepting sewers, he could not help observing that the estimates of the costs of these sewers should be received with great caution, and, indeed, he believed that the real cost of these would far exceed £40,000 (hear, hear.) As to the health of the city, it never was in a more satisfactory state than at present. Owing to the very hot weather, the effluvium from the Liffey was greater than previous years, nevertheless, it was not considered by the citizens as a very great grievance. When the sewerage operations of the council were fully completed, the sanitary condition of the city would be all that could be desired (hear, hear).

Mr. Martin, Trinity Ward, in seconding the amendment of Mr. Whelan, said the present height of the sewer was an outrage on common sense. Messrs. Whelan, Kelly, and French, three of the most practical men in the corporation, were of that opinion.

The Lord Mayor, Mr. Redmond, and other members of the council were of opinion that Mr. Whelan's amendment, if it was carried, would stop works and necessitate new tenders and new contracts.

Mr. Whelan said the non-adoption of the amendment would show that the council preferred rather to persevere in an error than correct it.

The Lord Mayor submitted the amendment to the council, and it was negatived.

THE TURKISH BATHS IN LINCOLN-PLACE.

The Oriental system of "hot air baths" is not entirely unknown in Ireland, for there are sweating houses, as familiarly termed, at Rathlin, at Mount Keeper, in the county of Tipperary, and again on the borders of Fermanagh and Leitrim, as well as others of a recent date; but we Dubliners generally are taken by surprise at seeing the system proposed to be carried out on such an extensive scale as in the building to which we allude, and many enquiries are made as to its purpose. For some months past the west side of Lincoln-place has presented a busy scene, and in a comparatively short time a structure of important and uncommon character has risen under the auspices of a public company which proposes to carry out the Oriental system if not in its grandeur at least in its entirety as regards the principle, which is briefly this:—The bather or patient first enters the divan, which is a general apartment fitted with dressing stalls, where he denudes himself, and thence to the *tepidarium*, another apartment adjoining same, and heated to a certain temperature. Remaining there for a short time preparatory to incurring a much higher temperature, he proceeds to the vapour bath apartment until he begins to perspire copiously, where he plunges into a cold water bath immediately adjoining, and the attendants perform the shampooing or gentle kneading of the muscles to accelerate the flow of perspiration, thence he returns to the tepidarium and divan, and the bath is over. At first the operation is probably a trying one, but custom constitutes it a luxury, and we are told by Drs. Watson and Erasmus Wilson that "cases are on record of persons entering ovens sufficiently heated to cook beefsteaks and other articles of food which they took in along with them. A hot air bath is said to be not comfortably warm at ninety-eight degrees, and anything lower will be rather hurtful than otherwise. The new building, Lincoln-place, has a frontage of about 186 feet, and the main entrance to the male and female baths are centrally situated, and commuuicate with a ticket office, and the respective corridors and apartments intended for both sexes. There are four divans of various sizes with the tepidaria and vapour baths as above described off same. At the end next Leinster-street there is a spacious saloon in course of erection, which we understand will be fitted in handsome style. On the second floor in central building will be situated the board-room to which spacious staircases lead, and above which will be an ogee-shaped dome, rising to a height of some fifty feet. A large apartment, with separate entrance, is provided for the application of the system to horses and other animals. Externally the elevation presents a quaint but pleasing appearance with its many narrow pilasters, half-moon apertures, fretwork ornamental minarets, &c., &c., though not quite orthodox as regards architectural principles; and in the rere of central building rises to a height of about eighty feet, the ventilating shaft intended to carry off the heated air which passes from hypocausts horizontally under the doors of the apartments, in extent equivalent to the required temperature. Mr. Barter, of Cork, is the designer; Mr. Dwyer, the Clerk of Works; Messrs. Hogan and Son, the plasterers.

NEW CHURCH OF ST. AUGUSTINE, GALWAY.

This edifice, for some time in progress of erection, was solemnly dedicated on the 28th ultimo. The plans have been given by Mr. B. Moran, architect, Dublin. The clergymen of the order have been themselves the builders. The design is early English, and consists of nave, aisles, chancel, and side chapels. The aisles are separated from the nave by an arcade of seven arches of equilateral form, with octagon piers of highly polished marble, surmounted with moulded capitals of the same material, which form a novel and striking feature in the building. The chancel is lighted by a traceried window in three bays, the nave by a triple lancet in front, and clerestory, single lights. It is open in front, and supported by four pillars of green veined marble, with capitols of Carrara marble. The slab is of pure Carrara, 9 feet 6 inches in length by 4 feet wide. The steps and landing are of highly-polished Galway marble. The roof consists of framed principals of open timber. Inside the grand entrance of the church is placed a holy water font of black marble, designed in the Ionic order (?) and executed by a Galway artist, Mr. Clare; it is probably one of the most splendid in any church in the United Kingdom.

THERAPEUTIC ESTABLISHMENTS—THEIR PLACE AND POWER.

Although every Englishman may be prepared to make a castle of his house in time of need, yet it would be hard to persuade those experienced in military matters, that the national defences are not more to be relied upon, when properly fortified buildings are erected in suitable positions throughout the country. In like manner, we are not to suppose, that we can dispense with public establishments for the sick because ordinary dwellings can be made to supply their place on emergencies, and because in many instances domestic comforts surpass any arrangements that ingenuity can devise for the accommodation of invalids on a great scale. For when we come to consider the actual state of things, we find that in far the largest number of cases in which persons afflicted with severe diseases are treated at home, many appliances are wanting at the time when they would be most useful, and many important remedies cannot be employed, owing to local circumstances or peculiarities of the construction and arrangement of the different apartments in private houses. In other words, the physician has to consider two separate things in his private practice, first, the interest of his patient, and secondly the safety and comfort of his friends and fellow inmates. But in a public establishment all arrangements are made to tend to the one goal—the recovery of the sick. And in hospitals for the poor a multitude of conveniences are to be had which would otherwise be quite unattainable by the class of persons who now obtain the benefit of these benevolent institutions. In fact this is so obvious that any remarks in proof of it would almost seem to be superfluous. When to the advantages of diet and medicine are added the constant superintendence of experienced physicians, besides many other advantages, there is no difficulty in understanding why the poor so readily avail themselves of the benefits which are to be derived from temporary residence in our large public hospitals. The reasons why public baths and wash-houses should be well attended by the poor, are also many and convincing, more particularly as their own dwellings are so wretchedly defective in every kind of convenience for the performance of ablution, or for the frequent washing of clothes or bed-linen. The poverty of the poor may be considered by some a sufficient reason why *they* should resort to public hospitals, where they are maintained in idleness at the expense of the state. But the fact is, that there is no class of society which may not derive benefit from residence in establishments specially constructed with a view to hygienic principles; and provided with accommodations suitable to the rank and station to which they have been accustomed. There is an establishment in this city, intended to supply this want amongst the middle classes, and into which both medical, surgical, and fever cases are admitted, and there is no doubt that it supplies a great want in the community; but it must be obvious that its intra-mural position places it under great disadvantages as a health-resort for those who can afford to get into the country. If it does not meet with the most unequivocal support of the public, it must be because the majority of patients in the upper and middle classes are able to provide themselves elsewhere with as good accommodation in more salubrious localities. The watchful observer of passing events may, I think, discern symptoms of a disposition in the public to avail themselves of hygienic influences, whenever they can do so without going to a great distance, or incurring unreasonable expense; and there can be no doubt that a great public want is supplied by the construction of health homes, or "Maisons de Sante," in the vicinity of all large towns, or in such situations as may be best suited for the recovery of the sick. Such institutions are already in existence under the name of hydropathic establishments, but they are generally at a distance from cities, and difficult of access for those who are really very ill; so that those who do go to them have not the advantage of medical or surgical consultations with practitioners of eminence, and many are unable to get to them, who would be really benefited by the change of scene and judicious regimen, which are so essential in the treatment of chronic disease. At present there are few establishments in existence where a patient actually obtains the full benefit of the entire progress which has lately been made in the healing art. The true vocation of a physician being the healing of the sick, it would seem absurd to restrict him in the employment of any natural remedy which he may think advisable, or particularly suited to any individual case, but such is the perversity of the human mind, that every physician is expected to range himself under the banner of some medical sect (more or less exclusive), and to deprive his patients of all remedies which may not be considered suitable by his self-appointed judges. One party cries, "There is no principle in medicine, but 'similia similibus curantur,' and Hahnemann is the prophet thereof." Another says, if you wish to be considered a *legitimate practitioner*, you must prescribe medicine in every case which you are consulted about, or what would become of the poor apothecaries? Another has no respect for any poisonous drugs whatever, despises opium, hates epsom salts, and abominates rhubarb and colocynth. Some sober-minded persons have been known to express a wish, that the man who dares to draw blood, put on a blister, may henceforth be punished for his cruel temerity. Then again, we have Mesmer saying of his art, "Il n'y a qu'une maladie, par conséquent qu'un remède." Now, in the name of common sense, why should there be anything utopian in the idea of uniting the scattered elements of therapeutics, and ranging them all under the banner of Esculapius? Why should the valuable baths of the hydropathist be placed in opposition to "the blest infusion that dwell in vegetives?" Or why should party spirit be allowed to deprive suffering humanity of *any* means of relief which is not opposed to the laws of God, or the interests of society? Let us hope that a better day is approaching, when we shall see that physician honoured, who maintains the dignity of his profession by his diligence in the use of *all* the means which are placed in his hands by Providence, and who, while he sets a high value upon the esteem of his professional brethren, is ever willing to forego it, when it tends to lessen his usefulness, or lead him from the path of duty which he knows he ought to pursue. It is to be hoped that the day is not far distant, when we shall see splendid *buildings* devoted to the treatment of the upper classes, by many methods now unattainable in their own houses; and that by their means chronic diseases will cease to be so much the "opprobrium medicinæ," as they undoubtedly are at present. The old complaint of the house being "*turned upside down*," by the energetic physician, need then be heard no longer; as "all appliances and means of art" might be obtained in a few hours at the most, by means of those wonderful time-annihilating machines which bear us from place to place with magic speed, rendering noisy homage as they roll, to the genius of Watt and Stephenson.

COMBINATIONS AND THEIR CONSEQUENCES.

We cannot contemplate the present condition of society without coming to the conclusion that much is defective in our social arrangements, at least so far as regards the great body of our people, the working classes. A vast majority of them are left uneducated, exposed to all the dangers and evils of ignorance, to ceaseless toil and hopeless poverty. Many of all classes find it next to impossible even to find an opportunity of labouring for their sustenance. We hear daily of the countless numbers who seek appointments to every vacant office. In many of the fields of labour this superabundance of numbers or surplus of labour beyond the demand, has led to the gradual lowering of the rate of wages to a point such that the possibility of earning sufficient to procure the necessaries of life has become impracticable, and employment, even at that price, is in many instances a matter of favour. This peculiarly applies to females. Some years ago the spinning-wheel gave employment to a large number of the female portion of the community. Then it was possible to procure an article that truly deserved the name of linen, a matter which we deem completely impossible in the present day. Spinning-mills have now entirely superseded the spinning-wheel, and very many spinsters are obliged to take the miserable wages offered by the muslin manufacturers, or in many cases do worse. Competition amongst manufacturers has reduced the wages for this description of labour to the starving point, and we are informed that much injustice is often practised by the managers in fining the unfortunate workers, without sufficient cause, who are obliged to toil for whatever they can get for their labour. It is almost superfluous to repeat what has been so often said and admitted as an axiom—that labour is subjected to the same laws as any other article of commerce, and its value regulated by the same laws of supply and demand. Its value may be bolstered up by adventitious supports for a time; it must, however, ultimately find its level. The tendency, too, on every side for the substitution of machinery for manual labour should be a warning to all who have labour to sell, to be content with a fair market-price for it. In many cases, combinations and strikes have resulted in the application of machinery, which superseded, in a great measure, the re-employment of those with whom their employers had found it so difficult to deal. In all cases it is the duty of the government to provide that the labour-market be free; each to sell, and each to purchase, in the most mutually advantageous manner. Combinations either to depress or advance wages should be rigorously put down just in the same manner as combinations to raise the price of food, or inflict any other evil on the community at large. On the other hand, every individual should have perfect liberty to sell his labour to the greatest advantage, and in whatever market he pleases. Industry and excellence should meet with suitable reward, and the system of a common rate of wages for all the individuals of one trade should be abandoned, and all employers left free to pay each man the value of his labour, as agreed upon between themselves, subject to no control from others. In the present strike of the building trades in London, a very few weeks will show the folly of the attempt at dictation, and the misery and utter ruin which must inevitably fall on thousands. A delay of six months in the completion of the works now in hands by the builders will neither ruin them nor the owners of those works, but must inevitably ruin a great number of the operatives, and leave them entirely at the mercy of their employers; we warn them, then, to make all reasonable concessions to their employers, and terminate, at the very earliest possible moment, this unnatural contest. If nine hours' work be thought by any individual to be sufficient for his constitution, let him and his employer regulate the matter privately; and if others feel that they are able to work twelve hours in the day, and that the demands of their family require it, let no man or body of men be permitted to step in between this man and his employer for the purpose of dictating what their private agreement may or may not be. The tendency in man to convert every good into an evil by abusing it, is evidenced by the opportunity taken of converting benefit societies, young men's improvement societies, &c., to evil purposes, purposes not embraced in their constitution, and always kept hidden at their establishment. It cannot by any means follow, that giving up being a member of a society to regulate the hours and price of labour, also necessitates giving up membership with a society instituted for other objects—to assist each other in sickness, or to provide means for interring the dead. We cannot see any necessary connection between those objects, but we can see that the union formed for one purpose has been diverted to others by designing men, and those purposes being entirely at variance with the constitution of our country, which secures to every man the right to use his own labour in such manner as he may desire. And the right assumed by any body of tradesmen to say to a man, "You shall not work at our trade unless you have our permission." This would be an *imperium in imperio* which no government could tolerate. We call, then, on the rulers of our country to secure, as far as possible, to every man in it the free exercise of his rights; and we call on the men of the united building trades to abandon forthwith their suicidal combinations, which are only working their own ruin, and will eventually bring matters into a much worse state than when the strike was commenced. This will be effected in various ways. Individually and collectively, great pecuniary loss will be sustained, consequently, all will be in a more dependent state, because all are *pavre*. Large numbers of men will be gathered into the metropolis from country towns, in spite of all the efforts which may be made to prevent such a thing from taking place; the majority of those will remain in London when the wages is higher than in the places from whence they came, thus increasing the quantity of labour, which is stated to be already superabundant. This will lead to a fall in wages, and the necessity of overtime when it can be got to bring the wages up to the demands of the family. But even if a higher rate of wages could be maintained, it would have a tendency to lessen the amount of work by lessening the desire to build, which being able to do at a moderate price frequently induces.

Viewing the matter in whatever light we will, we feel convinced that the war which has been declared by the operatives against their employers can in no way benefit the former, but on the contrary injure them in many ways; and again we advise them, as their ardent well-wisher, to make peace at the earliest possible moment, and for the future restrict their societies to more legitimate objects than regulating the value of labour, which even the legislation of the country itself would not attempt.

M.

THE ARCHITECTURAL UNION COMPANY.

During a recent visit to the English metropolis, we had an opportunity of inspecting the beautiful collection of architectural models, materials, appliances, &c., displayed at the new and magnificent galleries of this company at Conduit-street, and we should recommend all who probably may pass that way, and who take any interest in matters of art, not to fail to enter the doors, so liberally opened gratuitously for public pleasure and instruction. Amongst the many exhibitors we may without invidiousness to others of excellence, particularise the well-known names of Messrs. Hart and Sons, Wych-street, Strand, eminent medieval iron and brass manufacturers, who exhibit some very beautiful ecclesiastical and domestic furniture, ornaments, &c.; Messrs. White and Parlby, of Great Marylebone-street, and Messrs. Jackson and Sons, of Rathbone-place, Carton Pierre and Co., papier machie manufacturers; Hobbs, Ashley and Co., and Chubbs in the lock department; George Jennings in sanitary appliances; Messrs. Arrowsmith of Bond-street, in parquetrie; F. Ransome, J. Cumberland Part, proprietor of Martin's patent cement, the Architectural Pottery Company, Poole, in artificial stones, cements, and pottery; and in the latter department, Messrs. Minton, Hollins, and Co., have contributed an excellent display of their encaustic pavements; Messrs. Hayward, Tyler, and Co., of Upper Whitecross-street, engineers, brassfounders, &c., and several others occupy prominent positions in their respective departments; and, on the whole, the exhibition is most attractive, and during its temporary existence may be fairly classed amongst the London sights.

NATIONAL SCHOOLS.

The Commissioners of National Education report, that in consequence of representations made to them of the necessity for increased accommodation at the royal schools of Enniskillen and Dungannon, they have within the past year expended considerable sums in making improvements in the buildings of those endowments, and that they have also undertaken such repairs and alterations as their funds would permit at the royal schools of Armagh, Banagher, and Cavan; and they further report that all these establishments may be considered as in a very satisfactory condition. With reference to the diocesan schools and school-houses, the commissioners report that these schools and houses continue in the same unsatisfactory state as they have from time to time felt it their duty to bring under the attention of the executive government. The estates which form the subject of the endowments of the respective royal schools are in a much more satisfactory condition than heretofore, especially that of Enniskillen, where the commissioners hope soon to be able to establish another school for the benefit of the children of the tenantry.

CHEAP MODES OF BUILDING WHERE STONE AND BRICK ARE DEAR.

At La Fayette, on the banks of the Wabush, United States, where there is abundance of sand and gravel, and no quarries or brick-clay, many of the factories, stores, and houses are built of lime, sand, and gravel, mixed together with water in a large wooden box, about five feet square and two and a-half deep. This grout or liquid mortar is carried and poured between two boards, the width of the wall, these being about twelve feet long, eighteen inches wide, and one inch thick, screwed together to the width required, and unscrewed when the grout hardens, generally in a day. By having several boards the work can be carried on by many hands; the window and door-frames are put in the work; the plummet and line must be often used. The two first courses over the ground about eighteen or twenty-four inches, are of mason work, the rest being done by laborers. Continuous walls can be built very cheaply and rapidly, the men soon getting accustomed to it.

In Staten Island several Elizabethan cottages and villas are built of flags on ends, which present a smooth front, equal to cut stone. Our Irish builders might take a hint from this.

LABOURERS' DWELLINGS.

We observe with much pleasure an article on this subject, which appears in the Transactions of the Highland and Agricultural Society of Scotland for July last, being a further account of an experiment made long since, in 1814, to provide comfortable habitations for the farm laborers and mechanics required on the extensive estate of Annandale in Dumfriesshire, the property of J. J. Hope Johnston, Esq., by the agent of the estate, C. Steward, Esq.

This estate comprises some 14,000 acres, and the cottages, 110 in number, are situated on dry land and in a cheerful situation, as separate dwellings, along some twenty miles of a turnpike road which traverses the estate, as well as the cross roads by which it is intersected. The arangements under which they were built were very peculiar. The site of a cottage was let at a rent of £5 per annum, to such, being respectable persons, as chose to build on a lease of nineteen years. Mr. Johnston supplied timber, of which the estate produces abundance, having it sawn, and also the freestone for lintels, door-sills, &c., the value of both being about £20; the outlay on the part of the tenant varying from about £20 for the smallest to £35 for the best of the cottages. The cottages are occupied subject to a proviso, that Mr. Johnston may resume them at any time on giving six months' notice, and paying the tenant for his outlay; but this clause in the agreement is merely precautionary, and has scarcely in any case been acted on. At the conclusion of the lease, the house becomes the property of the landlord, and many of them, the leases of which have expired, are relet to the original occupants, their widows or children, at rents varying from 40s. to 50s. per annum. The tenants of some seventy of these cottages have obtained the privilege of grazing a cow in the adjoining field, or of having from three to six acres of land attached to each cottage, for either of which they pay, with great punctuality and thankfulness, rather a higher rent than could be obtained for the same land if let in bulk to a solvent tenant; and nearly fifty years' experience of this mode of arrangement has only tended to prove the wisdom in which it originated. Appended to the report are some observations on the working of the plan by the Rev. Mr. Hope, the clergyman of the district, the perusal of which we feel assured will afford great satisfaction to the many excellent men who are at present using their best efforts to effect similar results in this country.—*Agricultural Review.*

THE NINE HOURS' MOVEMENT.

Sir Charles Fox addressed a letter recently to the *Times* worthy the attention of *our* employers, to the effect, that "for many years the late firm of Fox, Henderson and Co. allowed their men at the Birmingham establishment to leave off work at two o'clock on Saturdays, which, of *itself was accepted as a very great boon*, but greatly enhanced by the wages having been previously paid, so that nothing remained at that hour but to return at once to their families, with the afternoon before them for improvement and recreation." Further, "that great care was taken in paying the men so as not unnecessarily to encroach upon their time, and the operation with 1,000 men was usually performed within half-an-hour; and during the construction of the Exhibition building of 1851, 2,500 men were often paid in forty minutes." Sir Charles expressed his belief that had this system been generally adopted we should have heard nothing of the nine hours' movement.

Biographical Sketches.

THOMAS COOLEY.

Thomas Cooley, another of the celebrated architects to whom the architectural ornamentation of Dublin owes so much, was an Englishman, and served his time to Reynolds, a carpenter. He was originally brought to Dublin, in 1769, by the committee of merchants who offered premiums for designs for the Royal Exchange, when that by Cooley was selected from sixty-one sent in on that occasion. He received the premium of one hundred guineas, and was appointed to erect the building, which was opened 1st January, 1779, at a cost of £40,000. It has been usually considered as, perhaps, the most elegant structure of its kind in Europe, and for unity of design it is not surpassed by many later and more important structures, whether at home or abroad. The three fronts, of Portland stone, each nearly 100 feet in length, are enriched with columns and pilasters of the Corinthian order. The interior possesses a square saloon formed into a circular shape by twelve fluted columns of the composite order, thirty-two feet high, which is lit by a lantern having a corresponding number of circular windows; over this is a dome lighted from the centre. This saloon communicates with rooms around, appropriated to the various purposes for which the edifice was designed. It may not be generally known that this building has the advantage over many others in this city, of being founded on the rock which extends along Parliament-street, under Essex-bridge, to Liffey-street.

About 1770 he commenced, for the Primate Robinson, the central tower of Armagh Cathedral, which, after being raised 60 feet above the roof, was taken down in consequence of the yielding of the ancient piers. In the Phœnix Park he built the little chapel, and from 1768 to 1773 he was engaged in the erection of the Hibernian Marine Schools, on Sir John Rogerson's-quay, at an expense of £6,600. The design is, however, sometimes attributed to Thomas Ivory. The centre building is 72 feet by 46 feet, and the wings, which are each 30 feet in front and 60 feet in depth, recede from the quay; the whole forms a plain, but not inelegant stone structure. Some additions were made at the beginning of the present century, under the direction of Mr. Parke. The prison called Newgate also engaged his attention from 1773 to 1780; the expense was £16,000, which, for a building 170 feet in front, 127 feet in depth, and three storeys in height, is a comparatively small amount. This may account for "its insufficient extent, bad arrangement, and wretched execution, the materials and workmanship being of the worst description"—an observation applied to the building by an esteemed author. The Record Offices or Four Courts was the work in which he was interrupted by his death, at the early age of 44 years, caused by a bilious fever, in 1784; his residence at that time was in Anglesea-street. These courts of law were commenced in 1776, the western wing, with its south façade, being the only portion erected by Cooley, at a cost of £16,788; he was succeeded by Gandon, whose biography we have given in the two last numbers. Cooley's style of architecture was an imitation of that of Inigo Jones, but he did not always succeed as well as his great model. We are chiefly indebted to *Whitelaw and Walsh's History of Dublin* for these particulars.

JOHN AHERON.

"John Aheron is the signature to a manuscript, executed in imitation of type printing, now in the British Museum, London (Bib. Reg. 282-273 E), entitled *A General Treatise on Architecture, divided into Five Books, &c.* It consists of 176 folio pages, with the epigraph, 'This work was written and drawn with pen and ink, and finished the 13th of April, A.D. 1751, by John Aheron.' The author seems to have practised in Ireland, as three of the drawings relate to houses in that country, and a partially experienced eye can discern in the erasures at the end of the preface, the words 'Sir Edward O'Brien, Baronet –Dromoland.' This gentleman, apparently an early patron, was to have been highly complimented for his architectural designs, and for his improvements on that estate in the County Clare. The only other address in the work is that of Poole Crosby, Esq., attached to a design for the east front of Stradbally Hall, in Queen's County. The drawings, some of which exhibit vast buildings (one bearing the date 1743), show great superiority over the general designs of that period, and the text is well selected and arranged."

Such is the notice appended to this name in the Dictionary of Architecture, now being issued in London by the Architectural Publication Society, and we are obliged to the committee for thus rescuing the name from entire oblivion. Should any of our readers possess any information relative to Aheron, O'Brien, or Crosby, from which some clue could be derived as to the professional reputation of this Irish architect, as we may presume him to have been, we shall gladly give insertion to the observations.

Any information also respecting George Ensor, architect of the Rotundo, Dublin, will be gladly received.

THOMAS IVORY.

Thomas Ivory was self educated; the only monument of his ability in architecture is the King's Hospital, best known as the Blue Coat Hospital, on Oxmantown Green, near this city. The first stone was laid 16th June, 1773, and the building opened about 1777. It consists of a centre and wings, extending 300 feet, and connected with each other in the rear by subordinate buildings. The centre pile, 87 feet long, 58 feet wide, and 43 feet high, is of the Ionic order, and was intended to have been surmounted by a steeple or clock-tower, but was not completed. The original drawings, by Mr. Ivory, hung in the board-room, show the original intentions of the architect, which were then, as now, so often frustrated for want of means. In the account of this building, published in 1818, we may add, that "there have been lately furnished to the dormitories 75 double bedsteads of hammered iron, in place of the wooden bedsteads which were formerly used and found productive of vermin;" so that our modern iron bedsteads are not quite so new in idea as usually thought.

Up to about 1805, £21,294 appear to have been spent upon the building, which was intended to accommodate 300 boys, and it remained in the same state many years.

The Hibernian Marine Schools are sometimes attributed to Ivory, but most probably the architect of them was Thomas Cooley. For some years he held the office of master of the architectural school of the Royal Dublin Society. He died in Dublin in 1786.

Notes of New Works.

The new convent and schools at Omagh are stated to be progressing rapidly. Mr. J. Neville, architect; Mr. W. Doolin, the builder.

The first stone of the church of St. Patrick, Mayo Bridge, was laid recently. It is to be in the Gothic style, and will accommodate 1,400 persons. Expenditure, £3,000. Mr. John Murray, of Dundalk, the architect; Mr. M'Gaughy, of Armagh, the builder.

The new parish church of Killursa, Headford, was consecrated last month.

The church of SS. Peter and Paul, Cork, has been commenced from designs by Mr. Pugin. Mr. Barry M'Mullen, the contractor.

The Towns Improvement Act is about to be extended to Fermoy. We wish its powers were available in many other towns in Ireland likewise.

The works between Athboy and Trim on the Dublin and Meath Railway are in active progress, four miles of the line being brought to formation level, upwards of two miles ballasted and ready for rails, and the public and farm road-bridges, culverts, &c., in course of completion. The total cost will not exceed £7,000 per mile. Sir John M'Neill, engineer in chief.

Estimates are required for repairs to the court-house at Ballina, to be lodged on 2nd instant.

The Ecclesiastical Commissioners are about having sundry works executed at the churches of Rathcormac, Co. Cork; Killesher, Co. Fermanagh; Currin and Inniskeen, Co. Monaghan; and Longfield Lower, Co. Tyrone.

The War Department will receive estimates up to 10th instant for the construction of a rifle range with shelter shed, at Newdown, near Mullingar, and up to 9th inst. for alterations and additions to the guard-house and cells at the old barracks, Fermoy.

The church of the Immaculate Conception, Bundoran, Sligo, was dedicated on the 15th ult.

The Board of Public Works are about erecting a district model national school at Enniscorthy, for which proposals will be received up to 19th instant.

A new Catholic church is to be built ot Lixnaw, Co. Kerry, according to plans and specifications by Mr. J. J. M'Carthy, R.H.A., architect.

It is proposed to erect a monument at Mount Jerome Cemetery to the memory of the late John Mitchel Kemble, the great Saxon scholar and antiquary.

A new church to accommodate about 500 people is to be built at Raheny, on a plot of ground immediately opposite the Protestant church, very favourably situated, and gratuitously presented by Mr. Moore. Plans have been submitted to the committee by an architect for a Gothic edifice giving the required accommodation.

It is proposed to erect workrooms for the Director of the Natural History Museum, in connection with the Royal Dublin Society, at a cost not exceeding £300.

A manse is being erected in Ballinderry for the Presbyterian clergyman of that place. Mr. W. T. Matier, Belfast, architect; John Scott, builder.

The Roman Catholic church of St. Mary at Ballinrobe is to be completed. Tenders will be received up to 5th instant.

A new and handsome villa is being built at Timode, near Blessington, for W. H. F. Cogan, Esq., M.P. The area embraced is about 75 by 65 feet. The house is four storeys high, including basement, and with exception of the latter, which is in punched ashlar, is cemented externally. Mr. W. F. Caldbeck, architect; Mr. R. Farrell, builder Probable expenditure about £6,000.

At the National Gallery side of Leinster-lawn, workmen are engaged in building the flank wall of the house No. 8, Merrion-square, west (Dr. Lyons, proprietor) in which it is proposed to put two projecting timber oriels on the first floor. Mr. M'Carthy, architect; Mr. R. Farrell, builder. Expenditure about £800.

A new range of stabling of a very superior character, and in the castellated style of architecture, with embrasure parapets, lofty tower, &c., &c., is being built at Castleforbes, Longford, for the Earl of Granard. Mr. J. J. M'Carthy, architect; Mr. R. Farrell, builder. The outer walling is of punched stone in uncoursed ashlar work, and the dressings of limestone. Expenditure about £4,000.

Railway Items.

At the half-yearly meeting of the Belfast Junction Company a dividend of 4 per cent. was declared free of income tax, the same as preceding half-year—although the traffic exhibited an increase of £1,500, a higher rate of dividend could not be allowed. Progress was rapid in laying the double rails, and 39 miles were completed, 17 more nearly so; and the working expenses compared favourably, being only 36 per cent., against 49, the average of the Board of Trade returns.

The Dublin and Drogheda Railway Company have granted a dividend at the rate of 4¾ per cent., less income tax, an improvement of five shillings per cent. It is intended to aid, by subscription to preference shares as far as £20,000, the Dundalk and Enniskillen Company in the construction of their new branch from Clones to Cavan, a safe investment, as these preference shares are stated to be at a premium. This aid has been similarly extended by the Belfast Junction Company, so that this important extension will be actively prosecuted.

The Dundalk and Enniskillen held their half-yearly meeting, at which a small dividend, five shillings, was divided, leaving a balance of £400, and the traffic since the line has been extended to Enniskillen is highly assuring. A good deal of discussion arose in reference to excursion and Sunday trains, and we trust that the matter shall be duly considered. The meeting has been made special, to arrange to raise the capital required for the extension to Cavan.

The report of the Dublin and Wicklow Railway proprietors show a rapid progression in the traffic, and satisfactory agreement with the Kingstown board regarding the diversion of traffic. Several matters are at present in progress which will materially enhance the value of the property and develop the traffic of this beautiful line. There was some opposition to the mode proposed by the board for the settlement of the traffic question, but the amendment was withdrawn, and the original plan carried, whereby the directors will be relieved from restraint as to trains and fares.

The Dublin and Wicklow Railway Company have obtained the sanction of parliament for their extension to Gorey, which will, no doubt, be carried out with little delay. It will be of great advantage to several of the new mining projects, and these, whatever may be the results to the mining shareholders, will largely contribute to the revenue of the new line, which will eventually run on to Wexford, almost the only district near Dublin without a railway.

The Waterford and Limerick Company recommends a dividend of one per cent. on the original stock, and the company appears to be in a more healthy condition than it ever was before.

The construction of the Omagh and Dungannon line is being proceeded with, and the works at the Dungannon terminus are being pushed on with vigour.

Dublin and Meath Railway.—The contractors have been put into possession of a good part of the land necessary for the construction of the line between Kilmesson and Clonsilla, and made available to them through the kind and liberal interference of John Preston, Esq., of Ballinter. Every part of the line is now open to the contractors, and probably the direct communication between Meath and Dublin is in the very near prospective. The centres of the bridge at Bective are now being put up, and it will soon be finished.

Correspondence.

CORRESPONDENCE ON THE WATER SUPPLY.

Sir—In your number for this month you invite opinions upon the sewerage question, and as you go on to discuss the water supply in the same article, perhaps you will accept opinions on that also.

I incline to the opinion that an *airtight cesspool tank* for each house is the best and most useful method to get rid of night soil. But where is it to be placed? And how is it to be cleansed? Perhaps a law to compel the owner of every house to provide a receptacle in front wall or area, or in the rere of each house, in which a public company could place a tank suitable in size for the number of residents, fitted with couplings to the soil pipe or pipes, might prove effective. A company might find it profitable to provide tanks and machinery to remove them and replace them with empty tanks. Mr. Rogers's plan for separating water from night soil seems the best.

All are agreed that sewage matter should not be discharged into any part of a river as it flows through a town, whether the entire night soil be conveyed into the street sewers, or merely the water separated from night-soil. Intercepting sewers along the banks of the river to convey the entire sewage below and outside the town are essential to preserve the purity of the river. Here in Dublin we ought to have an intercepting sewer on the south bank of the Liffey from Watling-street to the mouth of the Dodder, large enough to take in the mill-stream at Watling-street and the Poddle; the proposed new water works may cut off the Poddle and so relieve the intercepting sewer from danger of an excess of water, meantime any excess could be carried off by an overplus sluice from the top of the sewer to the level of high water at the mouth of the Liffey, by which the excess of water would pass through an iron tube twenty feet broad on the face of the quay wall by two feet in depth, closed by an air-tight lid or valve which forced open by the flood in the sewer would give exit to a stream twenty feet broad by two feet in depth, which would soon bring the water in the sewer to the level of the tide outside. In the Blue Book Report of the General Board of Health of London, Appendix No. 2, page 132, will be found a diagram and evidence proving that sewage matter discharged from a sewer at ebb tide will be carried down ten miles, and that the flood tide will bring it back seven miles; if this be correct. the discharge from the intercepting sewer at the end of Sir John Rogerson's-quay will be carried out ten miles to sea, and cannot return within the Lighthouse, as that edifice is not three miles from the point of discharge.

Now, to flush this great intercepting sewer, and drive the filth effectually to sea, I propose to erect flood-gates across the river above Barrack Bridge, which shall close at top of tide and retain all the water up to Island-bridge, including the Cammack river, until half ebb, when sluices being opened into the intercepting sewers, the filth will be flushed out with such force as will, in my opinion, dredge the channel down to the Pigeon House, and save the Ballast Board the trouble and expense of dredging.

The intercepting sewer on the north side, as proposed by the city engineer, will turn from Eden quay into Beresford-place through Amiens-street, under the Drogheda Railway, under the canal by syphon, and discharge at the Gridiron Wharf, where there is a rushing ebb tide to carry the matter off. Two objections have been urged against this place of discharge—1st, the beach from Annesley-bridge to Dollymount will be spoiled. Answer.—That beach is already covered with slimy mud, which is increasing every year; if the discharge from the intercepting sewer would increase the deposit so rapidly as to justify the enclosure of the beach as profitable slob-land, so much the better, and the channel would be so narrowed, that it would afford a more rapid and effective scour. 2nd, the bathing-place at the Wharf will be spoiled. Answer—It can be replaced by safe and more convenient public floating baths in the Liffey between Barrack-bridge and Carlisle-bridge, the water of the Liffey will then be comparatively pure. as the crews of the ships discharge no more bilge-water and night-soil into the river than the canal boatmen *daily discharge into the water we drink.*

To separate night-soil from storm waters in ponds or otherwise at the mouths of intercepting sewers is utopian—the house tank is the only method to utilize it effectually. If you cannot utilize it, sweep it as far into the sea as possible.

With respect to the Water question, you seem to convey that the people of Dublin should stick to the canal water. First you state that a disagreeable fraud was practised by the Dublin Corporation in substituting metal pipes for wooden pipes. I think a great deal may be fairly said in favour of metal pipes, and against wooden pipes; but it is the malversation of the metal main tax of which I suppose you complain. The wording of your article does not convey that the present Corporation has no connexion with the old corrupt Corporation, except to pay the enormous debts which that body left to its successors; but you convey this, that as the Corporation defrauded the citizens, by praising Metal *v.* Wood, it may defraud them by praising River *v.* Canal—your words are as follows:—

"Just in the same way as the inhabitants are now being talked into the belief that canal water is bad, and that the water to be caught in the mountains of Dublin, flowing over the bogs and manured lands of the locality is good."

Now, I submit, that the present Corporation having a river partly belonging to the citizens, and which may be made to afford a full supply of better water than any in the canals, would be guilty of a dereliction of duty, if, yielding to the tactics of a wealthy body of canal stock owners, it bound the citizens to pay an enormous annual sum for canal water, when it is quite possible they can do without it altogether.

Referring to the comparison between canal water and Dodder water, the Royal canal is supplied from Lough Owel, which lake is formed by the drainage of seventy-four square miles of *manured* land with the sewage of the inhabitants thereon. Is not the summit level of the Grand Canal supplied from the *Bog* of Allen, and the *manured* lands adjacent? Where do the canal boatmen—2,000 in number—fling their slops and night-soil? They pump the bilge-water of their dung-boats into the canal. However, rich this latter may be as foods for plants, it is the quintessence of filth for human food. Finally, Doctor Ap~~john~~ tested the three waters, and proved the Dodder water superior to the other two.

Although I think it necessary to say this much in defence of the Corporation and the Dodder water, I am willing to agree to take some canal or other water, if a fair trial proves that the Dodder will not afford a sufficient supply. Urine will be urine, no matter how you filter it, but filtering may improve canal water when taken from a higher level than we get it at present.

There are 400,000 people in the county of Dublin; if all these were concentrated in the city and suburbs, twenty-five gallons of water for every adult and child in that number would require 10,000,000 gallons per diem. Now, Mr. Mallet, in his report to the Drainage Commissioners, 1844, shows clearly that nine and a-half square miles of the Dodder mountain catchment will yield 8,200,000 gallons per diem, beside which he states that the Dodder possesses altogether seventeen square miles of mountain catchment, and twenty-eight miles of plain catchment, from which I infer that at least 20,000,000 gallons per diem may be obtained from the Dodder. Mr. Neville, in his printed Report of April 3rd. 1853, states that he guaged the Poddle River at the tongue, and found that 1,500 cubic feet of water flowed through it every minute, and that he thought double that quantity flowed through it in flood-times—this gives thirteen and a-half millions of gallons per diem in ordinary, and twenty-seven millions of gallons in floods. But the Poddle water is only two-thirds of the water of the city water-course, so that the whole water is 20,250,000 gallons per diem in ordinary, or forty and a-half millions in floods. In his last printed Report of this year, he repeats his calculation that at nineteen inches rainfall the Dodder will yield more than twenty millions of gallons per diem.

With proper engineering, I believe the Dodder will more than amply supply the city, if not, then it will be time enough to try other sources.

John Martin, City Quay.

August 15, 1859.

BUILDERS' TENDERS.

Sir—Through the medium of your influential and deservedly popular journal, permit me to ask why is it when professional architects seek for tenders (probably desired information) from builders—who, to furnish same, are compelled to incur much trouble, loss of time, and occasional r.m.d. expense in purchasing quantities supplied, or in employing a measurer to take them out—that frequently a lengthened period elapses before any of the estimators, excepting the successful party, are made aware of the decision? Surely, sir, it would only be courtesy for architects, as a general practice, to notice each builder tendering of the result, and thereby relieve him from suspense, which, in the case of an expected large contract, may act detrimentally on his other business? and it is not too much to expect after the thankless business of estimating had been entered on. Or, if that course involve too much trouble, might they not furnish *you* with a list of tenders in each case, as is done without restraint to the London periodicals of a similar class, and through that channel give us the desired information. Your insertion of this will oblige

A Subscriber and One who has
Cause to Complain.

THE ATLANTIC TELEGRAPH CABLE.

TO THE EDITOR OF THE DUBLIN BUILDER.

Dear Sir—I beg leave to inform you, that I have discovered a plan by which Submarine Telegraphic Cables can be lowered to the greatest depths, or raised again, without allowing one-sixth the usual *strain* to come on the cable, but causing its weight to be supported (nearly) altogether on auxiliary cables attached to the ship, and so avoiding all danger of breaking the main cable, or the far greater danger of *overstraining* it, as was the case with the Atlantic cable, rendering it altogether useless in the course of a few weeks, as has been stated in the report of the five eminent electricians sent by the Atlantic Telegraph Company to inquire into the cause of its failure. The electricians gave as their opinion, after careful experiments and investigation, that *overstraining* in the process of submerging, by which the wires of the cable were forced through the gutta percha, thereby destroying the proper insulation of the copper wire, and allowing the water to leak through, was the cause of its ceasing to act; and this opinion was further strengthened by a report from the American side of the Atlantic describing another injury on it—about three or four hundred miles from their shore, where the water is about the same depth as where it is injured on the Irish side. Now, my plan is particularly required in the case of the Atlantic cable—for although there is a chain of mountains reaching nearly the whole way from Ireland to America, along the top of which the water is comparatively shallow, still there is a chasm of deep water at either end more than three miles in depth, and this has been found to be the place where the cable was *overstrained*, and consequently injured. Now, all that is required to restore the cable to perfect order is to splice a piece of new cable to it, across those two chasms, which is comparatively a very short distance. Lowering down the new piece of cable, of course without allowing the *strain* of its own weight to come on it in the operation—if not, no gutta percha can stand the weight of three miles of cable hanging from the ship to the bottom, and if the cable is not weighty enough to reach to the bottom, it is liable to be carried away by the ocean under-currents. Now, the particulars of my plan is as follows:—I first make an iron tube, say three feet long, of square shape, oblong, open at both ends. Into this tube I fix two iron bars of its length and two inches square; each one of the bars is securely fastened at the side, or, we may say, the bottom of the tube, when horizontal; the other bar is fixed to two strong levers, which press it firmly against the bar at the bottom, or raises it when required; if you pull the levers towards you, it forces the top bar against the bottom one, and any rope or chain that may be between them will be held fast; if you push the levers from you, they open and allow any rope or chain that may be between them to pass through freely. Now, to these levers I attach a strong rope of any required length, and also a weight; if you hold the tube now perpendicular, the weight will act on the levers so as to separate the iron bars, but if you haul on the rope you will close them, for the opposition of the weight of a few pounds is not much when there is tons, perhaps, on the rope; but if you let the rope slack, the weight acts and opens the tube; this tube I call the holdfast tube, and the rope I call the auxiliary cable. Now, if you take the shore-end of a submerged cable, and put the end of it through the holdfast tube, making the end of the cable fast to the shore again, let the holdfast tube run down to the bottom, the auxiliary cable allowed to run slack, then haul on the auxiliary cable, and it closes the bars on the submerged cable, with a force in proportion to the resistance it gives in coming to you. Suppose the ship now in deep water, say a mile deep, and that you let down three or four of these holdfast tubes in a similar way, the first one down to the bottom, the second within a quarter of a mile of the bottom, the third within half a mile, and the fourth within three quarters of a mile of the bottom, then haul on the four auxiliary cables simultaneously till the last one that went down comes to the surface, and you will have some idea of the weight or *strain* on the auxiliary cables, and consequently off the submerged cable Hold now the auxiliary cables of the three holdfast tubes nearest the ship taut, and let the one nearest the bottom slack, the weight on the lever of the holdfast tube then acts and separates the bars as before, and so allows the holdfast tube to run down again to the bottom; hold its auxiliary cable now taut, and let the second one slack, it will run down in the same way holding it taut. When it reaches within a quarter of a mile of the bottom, or some average distance, then the third, and so on, till they are lowered to their proper depths, ready to be hauled up again, and never allowing more weight to come on any part of the submerged cable, than the distance from one holdfast tube to the other, and as the holdfast tubes can be increased to any required extent, so can the weight on the submerged cable be reduced to any required extent.

I have so far shown the manner of hauling up the submerged cable without *straining*, I will now illustrate the manner of submerging it without *straining;* suppose we now haul on the four auxiliary cables that have been let down, and draw them and the submerged cable up until the last holdfast tube that went down comes to the surface, we have then one mile of the submerged cable resting on four auxiliary cables, each equal in strength to itself. Now, if we lower them gradually down together, same as they were hauled up, until the lowermost holdfast tube reaches the bottom, we have then one mile of the cable lowered one quarter of a mile without *strain.* If we hold the three auxiliary cables of the holdfast tubes nearest to the bottom taut, and let the one nearest the ship slack, the weight on the tubes' levers, as described before, separates the iron bars and allows the cable to pass through them freely. Now, if we had a small line fastened to the holdfast tube, but not to its lever, we could draw it up to the surface; then holding its auxiliary cable taut and letting slack the auxiliary cable of the holdfast tube next to it, and with the shifting line, we in the same way draw it up within a quarter of a mile of the one at the surface, the same with the next, and so on, until we have them all up to their proper place; they are then ready to be lowered another quarter of a mile or so to the bottom, then to recommence drawing them up separately to take a fresh load and go down. You now, perhaps, can understand the practicability of raising or lowering submerged cables without *straining.* Let us now suppose that there are four holdfast tubes in front of the ship, held by their auxiliary cables at equal distances from the bottom to within a quarter of a mile of the ship, and that there are four more holdfast tubes held by their auxiliary cables at equal distances from the stern of the ship to within a quarter of a mile of the bottom, if we now splice the auxiliary cable of the holdfast tube nearest to the bottom in front of the ship to the auxiliary cable of the holdfast tube nearest the ship at the stern, and also the others in the same manner, we will have the two operations, raising and lowering, performed at the same time, and with but a trifling power on the windlass; for, as the weight going down at the stern will be always equal to the weight coming up at the bow, to overcome the equilibrium is all that will be necessary, and the same will be the case in lifting one cable altogether into the ship, if we let another of equal weight out at the same time. The weight of the auxiliary cables themselves are not to be taken into account, as I propose to make them bouyant. I have thus described as clearly as I could, the practicability of repairing the Atlantic cable at a trifling cost, though in opposition to the wish and the arguments of those who make large profits by making new cables, and who therefore strive to stifle all notion of repairing old ones. I may here state, that when I made a set of models of my plan in March last, that demonstrates its utility, I wrote over to the secretary of the Atlantic Telegraph Company, and received no answer; I then wrote to the chairman, and was answered by the secretary, Mr. Saward, expressing a wish to see my plan, and promising to show it to the directors. I prepared to go to London without any other business but to show my plan to the directors; (for the securing my plan I could have done as well in Dublin), but how was I received? why, after several calls on Mr. Saward, I at last met him in his office along with Mr. Glasse, the contractor, I believe, that made the cable, and without asking to see my plan or show it to anyone, he told me in Mr. Glasse's presence that all matters concerning the cable were given over to Mr. Glasse, and referred me to him. Mr. Glasse repudiated the idea of my plan, or any other plan, he said, being of any use, and he left the office without seeing it. When he went out I opened my box and showed Mr. Saward one of my holdfast tubes in my hand, and explained to him its use; he admitted the thing looked rational, but said, as he was no engineer, his opinion was of no great value. While I was still in the office, Mr. Glasse returned; I then introduced my plan to him, and in the same manner explained the action of the holdfast tube, the weight and the auxiliary cable so clearly, that he was forced to admit that it would take the weight off the submerged cable, but denied that the Atlantic cable wanted any such assistance, as a stronger cable could not be made. I then referred to him the time that it broke; he shook his head, and said, he knew well how that was done, and left the office apparently excited, Mr. Saward having retired previously. Thus I had to return to Dublin, without seeing one director, shareholder, or other person having the slightest interest in the company, nor have I up to the present moment; so if you can give me any advice or assistance how to act, you will much oblige

Patrick M'Geale.

Review.

Wicke's Towers and Spires of England.

We have to acknowledge receipt of the third or supplementary volume of this beautiful work, and which, both in style, finish, and selections of valuable architectural morceaux, is fully equal to the two preceding. The illustrations are exquisitely executed by Messrs. Day and Son, London.

Every architect, archæologist, and lover of the beautiful in art should possess himself of the work complete.

Miscellaneous.

The Munster Model Farm.—The building of a covered farm-yard on an extensive scale, and of a school for thirty-two resident pupils, has just been completed at Cork, at a cost, for the former, of about £2,000, and for the latter, of about £5,000. The arrangements in both departments of the institution we consider very complete. The farm-steading contains both boxes and stalls for cattle, convenient and well-ventilated stables and piggeries, with compartments for calves and sheep, and covered manure pits and tanks, whereby the deterioration of manures, the bane of ordinary farming, will be completely obviated. The building devoted to the educational department contains a large and conveniently-furnished school-room, a dining-room, thirty-two sleeping apartments (one for each pupil), lavatory, kitchen, &c. There are also suitable suites of apartments for the agriculturist and the literary instructors. The farm, in the centre of which these buildings are erected, comprises 127 statute acres of good loam on a substratum of limestone gravel, resting on limestone. It has been in the occupation of the National Board since 1853. The rent is 34s. per acre, added to which the poor rates and county cess bring up the whole charge to about £2 per acre.—*Agricultural Review.*

Londonderry District Model National School. — This edifice is in progress of erection close to the County Infirmary, and is in the early English decorated style, with a frontage (looking eastward) of 208 feet, and a one-storey elevation in front, in the centre of which is a handsome porch. An oriel window in the master's apartments will also add considerably to the appearance of the building externally. The principal apartments consist of school-rooms for boys, girls, and infants, museum and library, drawing-room, class-room, maritime-school, lavatory, master's and mistress's apartments, master's office, dormitories, &c. The roof will be open. A corridor traverses the whole length of the building. The respective apartments will be lofty, well-lighted, and ventilated. The grounds comprise about three acres, and the site commands a beautiful view of the surrounding country. The grounds in the rere will be divided into gardens and play-grounds, and those in front will be laid out in walks and terraces planted with flowers and ornamental shrubs. The grounds are enclosed, and a neat gate-house will be erected at the approach. The work, it is understood, will involve an outlay of about £5.000. Messrs Boyd are the contractors, and Mr. Arthur Kent, the Clerk of Works.

Woodcuts by the Photographic Process.—This process is well adapted for copying engravings, &c, and a drawing may be transferred to wood by rendering the surface sensitive, and treating it nearly as if it were paper. Daguerreotype plates may be etched, but it is unfortunate that so delicate is the daguerreotype picture, if the etching be continued long enough to give a good impression on paper, some of the fine lines will run into each other. If, on the other hand, the etching is not continued so long, the printer, in cleaning the plate, will destroy it, and besides the particles of ink will be too large to express the details.

Whispering Galleries.—Sound, when reflected, follows the laws of perfectly elastic bodies making the angles of incadence and reflection equal. Reflected sound is called echo. The velocity of direct and reflected sound is the same. Sound may suffer reflection in such a way as to be concentrated to certain points at which it will be distinctly heard, though otherwise but slightly or not at all audible. This is the principle of whispering galleries, the most celebrated of which is in the dome of St. Paul's, at London. It is said likewise to be the principle of the hearing trumpet used by deaf persons; the sound received at the wider end is condensed and concentrated at the narrower, which is placed next the ear.

Firebricks.—The less lime in brick-clay the better for brick-making, but the less its value for agricultural purposes. When it contains only silex and alumina it forms very refractory bricks termed firebricks, such as those from Stourbridge. The Chinese are particularly careful in selecting, purifying, and intimately blending them. Defective materials may, however, to a certain extent be improved.

The Hogg Monument.—The funds for the construction of the Hogg monument are increasing with a rapidity which would seem to indicate the deep hold on the hearts of his countrymen retained by the author of "Kilmeny." Aboug £50 have been added to the fund within the last eight days. The Duke of Buccleuch has contributed a block of freestone for the colossal figure of the poet, and Mr. Currie, the sculptor, is engaged in the construction of a full size model.

The New Road at Rathgar.—The estimate of the proposed new road to approach the bridge which will span the Dodder near the entrance gate leading to the demesne of Lord Justice Blackburne, is about £11,000, which sum it is proposed to raise by subscription. The grand jury very properly refused to present for a new bridge on the site of Waldron's bridge. We trust that those in authority in the matter will, judging from the extraordinary progress of the locality during the past few years, provide a structure which, in some thirty years hence, it will not be necessary to demolish and replace by one more commodious.

The Commons of Bray.—This tract which it has been proposed to enclose, embraces an area of 57 acres, and is in the parish of Old Connaught, at the County of Dublin side. It is divided into two portions by the turnpike road leading from Dublin, one of which contains about 15 acres. About an acre and a-half was projected for a fair green, eight or ten acres for recreative purposes, and a suitable place for watering cattle. At present it seems to be of little use for any purpose, but if judiciously laid out may considerably enhance the value of property in that very rising locality.

Cholera in Belfast.—We have heard of three cases of cholera, and two of them fatal, in that neglected portion of the borough of Belfast called Ballymacarrett. As the sanitary inspector resides there, we would entreat his attention to it.

The Freemasons' Method of Building.—It has been asserted that they worked more by oral directions than by the aid of plans, and also that they carried on their works without drawings and almost without instructions. So extraordinary and intuitive a knowledge of their craft might well excite a little scepticism amongst the less gifted builders of the present day; for the more closely we examine the various details of their structures (particularly groining, window tracery, and other elaborate works), the more we must be convinced that the greatest forethought and consideration were devoted to every portion of them. This conviction is strengthened by the monument of the two architects of St. Owen Church, Rouen, in the incised slab laid down to their memory, in which they are represented holding a pair of compasses, and what we may naturally infer to be working drawings of some parts of the building.

Railway Valuation.—Mr. Rynd, government arbitrator, visited Sligo lately for the purpose of investigating disputes between the railway and the owners of property touching the value of lands to be taken. Mr. Kirwan, solicitor, with Mr. Vaughan, C.E., and Mr. St. Leger, county surveyor, attended on behalf of the railway. The town and harbour commissioners of Sligo, and Mr. O'Connor, the principal claimants, were represented by Mr. Morris, of the Connaught bar, Mr. Charles Sedley, solicitor, and Mr. Bower, C.E. Mr. Kernaghan, solicitor, appeared for several other claimants. The inquiries were of a private nature, none but the parties connected with the case under consideration and their agents being permitted to be present. When the arbitrator shall have made his draft award it will be lodged in the various public offices for inspection, after which he will attend at a time and place appointed to hear objections; and the parties dissatisfied with his final award may appeal to the jury at the assizes.—*Sligo Chronicle.*

Armagh Catholic Cathedral.—Mr. T. Byrne, builder, of Belfast, has been the successful contractor for the projected works at the Catholic Cathedral, at the sum of £9,866. This only includes the roofing, ceiling, and glazing, together with the finishing of the pinnacles, turrets, &c.; the lower tier of windows, flooring, plastering, and all interior works to be subsequently provided for. We understand he has given the committee the option of completely finishing the entire edifice and handing it over ready for the sum of £15.000.—*Armagh Gazette.*

Road Repairing in Norway.—A feature of Norwegian roads are little wooden posts painted red, and surmounted by a small gable to protect them from the weather. Each peasant in Norway is bound to keep a certain portion of the road in repair; and the inscription on each post records the name of the peasant who is charged with the maintenance of that part of the road, and the number of ells that fall to his share. So that, in point of fact, he who runs may read a record of the name of every farm-house in Norway.—*The Oxonian in Norway.*

Property of the Working Classes in America.—In the savings banks of New York and Brooklyn there are upwards of 30.000,000 dols. deposited, bearing interest at rates varying from four to six per cent., which have been made since the 1st January, 1859. On the 1st of July they paid to sewing girls and working people generally, in dividends, a million and a half of dollars.

Muckross Church, Killarney.—The Earl of Powis has presented the Right Hon. Henry Arthur Herbert with a magnificent baptismal font, to be placed in a pretty little Episcopal Chapel, for some time past in course of erection at Muckross. The font is of Caen stone, beautifully and elaborately hewn. On the bowl and pedestal are numerous devices in leaves and flowers, and on the rim of the former is the presentation inscription in large raised letters. The building is now rapidly approaching to completion, and will be of great importance to the very Protestant neighbourhood in which it stands. The walls are composed of red and white marble indigenous to the soil of Muckross, which being roughly hammered forms a pleasing contrast to the fine limestone dressings with which the structure is ornamented. The windows are all of stained glass; the walls plainly plastered a dark gray, with an open roof stained and varnished. The chancel and aisle are about to be laid with encaustic tiles, and the pewing and other fixtures and fittings for the interior, which are of polished oak and mahogany, are in so forward a state of preparation that it is expected the edifice will be ready for consecration within the ensuing month. It will afford comfortable accommodation to upwards of one hundred and twenty persons; and the works are highly creditable to Mr. Lee, under whose able superintendence they have been executed. It is, however, much to be regretted that the exterior of the building is not in character with the beauty of the interior, nor with the magnificent scenery with which it is surrounded. The walls are too low, and not in proportion to the heavy pitch of the roof. The western gable, which faces the road and is surmounted by a simple belfry about forty feet high, contains only two small lancet windows, thereby exhibiting a large mass of heavy and unsightly mason work. If one handsome ornamental window had been inserted in the gable, it would have given the building a far lighter appearance and rendered it much more attractive than it is at present. But the most unsightly object in the building remains to be noticed, viz.: the chimney shaft between the nave and chancel, which should be forthwith removed. This done, and the ample room for improvement made use of, by the erection of a neat tower and spire at the south-west angle, the Muckross Church would be a pleasing object of attraction in the midst of the gorgeous scenery with which its name is connected. We should have stated that the expense of building and endowing this chapel is defrayed jointly by the Right Hon. Colonel Herbert and his kinsman, Admiral Sir Thomas Herbert, K.C.B.—*Tralee Chronicle.*

Science and Art Department.—The results of the working of the department of Science and Art in all its divisions for the year 1858 show a great increase on the previous year in the attendance of the public on the museums, schools, and lectures. The visitors to the various museums and collections in London, Dublin, and Edinburgh, under the superintendence of the Department, have been 875,898, being an increase of 117,923 on the previous year. The principle of rendering the South Kensington Museum useful as far as practicable to institutions affiliated to it in all parts of the United Kingdom, has continued in action. Numerous objects were lent for exhibition to Aston Hall, Birmingham, and the circulating collection of objects selected from the Art Museum has been exhibited at Aberdeen, Dublin, Limerick, Clonmel, and Waterford, and visited by 58,189 persons, showing an increase of 22,165 on the numbers who visited the collection in six towns in 1857. At Dublin it was the means of stimulating the bringing together of a large number of valuable loans from private sources, and upwards of 1,072*l.* 2s. 3d. was received by voluntary payments on the occasion. The returns from the science institutions and schools (including those of navigation) with the attendance on public scientific lectures, show the number of students to have been 68,212. The returns from all the art schools give a total number of 79,473 persons learning drawing, being an increase of 83 per cent. on those of 1857. The quality of the instruction has never been so high as at present, whilst the average cost of the State assistance for each person taught drawing is being lessened year by year; for in 1858 it had decreased to 10s. 4¼d. each person; in 1857 it was 13s. 1¾d.; while in 1851, before the present system of the department was adopted, it was as high as 3*l.* 2s. 4d. each person. Great numbers continue to attend and prove the accessibility of the Central Museum at South Kensington. They also prove the eagerness of the public to avail themselves of the opportunities which it affords for instruction in its several divisions. The total number who have visited the Museum in the past year has been 456,288, of whom 219,016 persons, chiefly of the operative class, have attended in the evenings, apparently enjoying that privilege very much.—*Report of the Science and Art Department of the Committee of Council on Education*, 1859.

Effect of Moisture in Thickening and Shortening Ropes.—When the obelisk in front of St. Peter's at Rome was being erected under the direction of the architect, Fontana, with complicated machinery constructed with the greatest care, it was found impossible to raise it to its position on account of the ropes being a little too long. Some one in the crowd desired "the ropes to be wetted," and which, when done, the ropes contracted so much that the work was easily accomplished.

Malleable Glass.—A means of rendering glass malleable is said to have been found out in the reign of the Emperor Tiberius, and again in that of Louis XIII. But in both cases, punishment—in the former that of death—was the only recompense bestowed on the discoverers, and their secret, if it ever existed, died along with them. Pieces of glass taken from on old pit twelve feet deep, were indeed found by Colladon to be flexible, and so soft that they might be cut with a knife. But they became hard and brittle on being exposed to the air for a few hours.

So much for River Sewers!—The *Lancet* says that much illness, and indeed death, occurred in the neighbourhood of Westminster and Bermondsey lately owing to the putrid and disgraceful state of the river, aided as it was by the intolerable heat, whilst in the low neighbourhood of Bermondsey, amongst the wharfingers and journeymen tanners, sudden seizure whilst at work is of daily occurrence.

The Monument to Agnes Burns in Dundalk.—The monument to Agnea Burns, eldest sister to Robert Burns, the national bard of Scotland, has been erected in St. Nicholas' churchyard, Dundalk, where the mortal remains of the poet's favourite sister are interred. The monument looks streetward, and has a very chaste and characteristic effect. About £70 were contributed by the inhabitants of Dundalk and its vicinity towards the erection of the monument.

The Electric Telegraph in the 16th Century.—Strada, a writer at this period, describes a correspondence carried on between two friends by means of two magnetized needles. Each made a dial plate with alphabetical letters, and fixed his needle in the centre, turning on a pivot. Irrespective of distance the communication was effected instantaneously by wires and apparatus not dissimilar in principle to that now in use, but of course ruder in construction, each dial indicating the changes of position of the hand at the other.

Sanitary State of New York.—Notwithstanding its admirable position for drainage, and its great Croton Aqueduct, which supplies the city with sixty millions of gallons of water daily,—New York is one of the dirtiest cities in the world. For several years it was generally supposed impossible to sweep its main thoroughfare, Broadway—but an enterprising hatter having demonstrated the practicability of the task, it has since been kept tolerably clean; but the rest of the city seems to be past all hope of broom or shovel. The streets are wide, and are laid out generally at right angles. Its hotels are built on a palatial scale, and there are many other fine buildings; but the irregularity which prevails is a great hindrance to a general architectural effect. The Archbishop of New York, last August, laid the corner stone of a new Cathedral, which promises to be the great architectural feature of the city, and to compare favorably with some of the finest ecclesiastical edifices in Europe.

Bricks that will float used to be made years ago, but the art has been lost until recently. A Monsieur Fabroni has, it is said, discovered their composition, which is said to be five parts of silicious earth, fifteen of magnesia, fourteen of water, twelve of alumini, three of lime, and one of iron. They are infusible, and will float in water though one-twentieth part of common clay be added to them. They resist water, unite perfectly with lime, and are subject to no change from heat or cold. They are nearly as strong as common brick, though about one-sixth as heavy, or considerably lighter than water. They are such poor conductors of heat that one end may be heated red hot while the other is held in the hand.

There is a notice to the public from the carpenters and joiners, thanking their employers for giving them an advance of wages. This stands in pleasing contrast to the existing strike now in progress in London, and reflects credit on all parties concerned.—*Belfast News Letter.*

The premiums for designs for new Foreign and War Offices, and for block plan for the concentration of the principal government offices, amounted to £5,000; the cost of fitting up Westminster Hall for the exhibition of the designs and plans was £302 7s. 3d.; and for the attendance of police during the exhibition of the designs, £41 12s. 8d.; the cost of advertising, printing and copying, £542 9s.; making a total of £5,886 8s. 11d.

NOTICE.

Orders for Subscriptions to, and Advertisements for, The Dublin Builder, *will be received at the Proprietor's Office*, 17, Lower Gardiner-street. *Wholesale Agents*—Messrs. W. H. Smith & Son, *Sackville-street (from whom* "The Dublin Builder" *may be had at every Railway Station), and* George Mason, 24, *D'Olier-street.*

Payments (by Post-office Order or otherwise) for Advertisements in this Journal are to be made to PETER ROE, at the Printing Office, 42, Mabbot-street, Dublin.

Published in London by Atchley & Co., 106, *Great Russell-street, Bedford-square; and to be had in Belfast from* Mr. Henderson, *Castle-place.*

Iron Founders, Plumbers, &c.

BUILDERS' IRONMONGERY, at REDUCED PRICES.
THOMAS HENSHAW AND CO.,
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Beg to call attention to their extensive, varied, and well-selected stock of Ironmongery in all its different branches. It consists of Parlour, Drawingroom, and Bedroom Grates; Kitchen Ranges, Cottage Ranges, Sash Weights; Iron Rim, Mortice, and Stock Locks; Hinges of all descriptions; Wrought and Cut Nails, Eave Gutters, Down Pipes and Fittings, Metal Skylights, Ventilating Bricks; Cast-iron Chimney-pieces, with and without Grates; Rabbit Traps, Fox Traps, Galvanized Wire Netting, Fencing Wire, Sheet and Perforated Zinc, Sink Traps, Furnace Doors and Frames, Hot Air and Plain Stoves. Also on Sale, Saunders' Patent Cooking Range, *the* most economical cooking apparatus of the day.

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SPADE, SHOVEL, AND TOOL WORKS, CLONSKEAGH.

Agents for Perry's Patent Fire Proof Safes; quality considered, they are *the* cheapest in the market.

BUILDERS are invited to inspect our Stock previous to purchasing.

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OXMANTOWN FOUNDRY & IRON WORKS,
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Cast-Iron GIRDERS, Plain and Ornamental PILLARS, Moulded and Plain GUTTERS. Tank Plates, Gas Retorts and Pipes, Kitchen Range Work, Millwright, Castings, Balconies, Brackets, Staircase Ballusters, etc., supplied. A large variety of Models for the above in stock.

KITCHEN RANGES, Drawingroom Bright Grates, Fenders, Fire Irons, and all kinds of Builders' Ironmongery. MAURICE BROOKS, SACKVILLE-PLACE, Dublin.

HAYWARD, TYLER, and CO, 85, UPPER WHITECROSS-STREET, LONDON, ENGINEERS and BRASSFOUNDERS, manufacturers of high pressure steam-engines, hydraulic presses, soda-water machines, well-engines, and pumps for railways and all other purposes; proving pumps for boilers, iron pipes, &c.; hydraulic machines for proving iron girders, with rams of all sizes, on iron carriage, with gun-metal proving pump, the lever graduated to prove to any required pressure with the greatest accuracy. These machines are used at several of the most eminent Iron Works and Building Establishments in town and country.

HOWARD'S PATENT REGULATOR CLOSET, AND WATER WASTE PREVENTER, manufactured by HAYWARD, TYLER, and CO., 85, UPPER WHITECROSS-STREET, ST. LUKE'S, E.C., has been fixed under the direction of many of the most eminent architects in London and country, and proved to be the most efficient Closet made. It is free from leakage, and delivers only a given quantity of water at each action, into the basin, which can be adjusted when fixed. H. T. and Co. invite attention to these fixed at the Factory; the Court of Inventions, Crystal Palace. Plumbers' Brass-work of every description.

SURVEYING, ENGINEERING, ARCHITECTURE, &c. — PRACTICAL INSTRUCTION is given in SURVEYING, Levelling, Civil Engineering, Architecture Building, Draughting, Mapping, Measuring and Valuing of Land, Timber, Buildings, &c., by Messrs. HYDE, SMITH, and LEWIS, Civil Engineers, Architects, Surveyors, etc., in a short Course of Instruction on moderate terms, including FIELD WORK and the use of the INSTRUMENTS. For Prospectuses, apply at the Offices, 24, Guilford-st, Russell-square.

N.B.—An Architectural, Engineering, and Mechanical Class for Architects, Builders, Engineers' sons, etc., on moderate terms, including instruction in Drawing, Coloring, Taking out Quantities, etc.

Oils, Colours, Glass, &c.

MANNIN'S Wholesale and Retail DRUG, OIL, COLOUR, and GLASS WAREHOUSE,
2, GREAT BRUNSWICK-STREET.
(near D'Olier-street.)

Cattle Medicine of all kinds.

N.B.—Every article is warranted genuine, and at the lowest price.

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HOUSE PAINTER, AND GILDER,
IMPORTER and MANUFACTURER of DECORATIONS, and ORNAMENTAL PAPER HANGINGS,
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(within seven doors of Capel-st., Essex-bridge.)

ROOM PAPERS in great variety, 4d. to 40s. per doz.
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LAMINATED LEAD for Damp Walls, 6d per lb.
PREPARED OIL & GUTTA PERCHA PAPERS, ditto, 1s. 6d. to 3s. per doz.

ESTIMATES for Painting and Decorations supplied free of charge.

NOTE.—The Trade, Builders, and Gentlemen having extensive House Property SUPPLIED at WHOLESALE PRICES.

HIBERNIAN MILLS, KILMAINHAM.

ROOM PAPER.—A splendid assortment of the above, including the newest designs, at moderate prices.

Room Paper, Roman Cement, Portland Cement, Plaster Paris, White Lead, Ground Colours, Patent Driers, Putty, Whitening, John's Cement, Mastic, Coal Dust.

SAMUEL DAVIS, MANUFACTURER,
AND AT
137 & 138, ABBEY-STREET.

Stained Glass,

FLAT LEAD WINDOW, & PATENT
METAL SASH MANUFACTORY,
107 & 108, MIDDLE ABBEY-STREET, DUBLIN.

M. & R. SILLERY beg to inform parties requiring the above that they can supply them at much *Lower prices* than other houses, and respectfully invite an inspection of their patterns

ESTABLISHED UPWARDS OF HALF A CENTURY.

ROOM PAPER, in great variety, at MAURICE BROOKS', SACKVILLE-PLACE, Dublin.

THE Cheapest House in Dublin for Room Papers, Window Glass, and Laminated Lead for Damp Walls, is J. O'LEARY'S, 1, TEMPLE-LANE, DAME-STREET.

PLATE GLASS kept in Stock and supplied immediately, whereby the usual delay in ordering from the Manufactory is avoided.
MAURICE BROOKS, SACKVILLE-PLACE, DUBLIN.

London and Paris Great Exhibitions

Prize Medal Bells.

WILLWAY'S

PATENT ATMOSPHERIC BELL.

By means of this ingenious contrivance, the Wires and Cranks of ordinary Bell-hanging is entirely superseded; is so simple in its construction, that it is almost impossible for it to go astray or get out of repair, and is not more expensive than the present mode of putting up Bells. Sold by

WILLIAM MOONEY, 9, LOWER ORMOND-QUAY.

Auctions, Sales, &c.

AUCTION OF TIMBER, DEALS, ETC.

JOHN MARTIN AND SON will offer by AUCTION, on THURSDAY, the 8th SEPTEMBER, at their Stores, NORTH WALL, their present large Stock of NORTH AMERICAN and BALTIC WOOD of this and last year's import, together with the following Cargoes:—

Pieces.			
24,895 Deals, and 62 Birch	ex *Hibernia*,	from	Saint John's, N.B.
26,470 Deals	.. „ *Mary Carson*	„	St. Andrew's. (*To be sold unreservedly.*)
10,890 Do.	.. „ *British Tar*	„	St. Andrew's.
12,600 Do.	.. „ *Hector*	„	Quebec.
394 Red Pine 109 Hardwoods 10,800 Deals 39,000 Staves	„ *A. Anderson*	„	Quebec.
314 Timber	.. „ *Franziska*	„	Stettin.
10,430 Deals	.. „ *Loretto*	„	Richibucto.

And the following Cargoes, daily expected, if not previously disposed of by Private Sale:—

Pieces.			
741 Timber	.. ex *Fortuna*	„	Memel.
700 Do.	.. „ *Melea*	„	Do.
747 Do.	.. „ *F. Welhelm*	„	Do.
1,482 Do.	.. „ *B. Peiper*	„	Do.
863 Do.	.. „ *Minerva*	„	Sundswall.
11,000 Deals, and 104 Timber	„ *Baltic*	„	Soderham.
14,000 Deals	.. „ *Ask*	„	Pugwash.
Assorted Cargo	.. „ *Columbus*	„	Quebec.
Spruce Deals	.. „ *Arabian*	„	Onanndie.
Pitch Pine	.. „ *Sunderland*	„	Pensacola, U.S.
Timber &c.	.. „ *Rosa*	„	Danzig.
Do.	.. „ *H. Rodbertus*	„	Memel

JAFFRAY BARCROFT, *Broker.*
North Wall, Dublin, 17th Aug., 1859.

AUCTION OF TIMBER AND DEALS.

WILLIAM CARVILL will offer BY AUCTION, on THURSDAY, 1st September, in the CUSTOM HOUSE DOCKS, at One o'clock, The Cargo of St. John's Deals, Plank and Battens, *ex* Palmyra,

Ditto	ditto	ditto	Jane Lovett,
Ditto	ditto	ditto	Eva,
Ditto	ditto	ditto	Harriet Cann.

60 Tons large size Fresh Birch.

The Cargo of 1st and 2nd Quebec Spruce Deal *ex* Caroline A. Simpson.

3 Mills of Pipe Staves.

Also, if arrived, the

Cargo of Crown Memel Timber Deals, Staves, and Lathwood, per Othello, daily expected.

The Cargo, per Victor from Quebec, with Red and Yellow Pine, and Oak, Timber, Deals, Staves, and Lathwood.

JAFFRAY BARCROFT, Broker and Measurer,
Custom House Docks and Rathgar Saw Mills.
Dublin, 22nd August, 1859.

DOULTON'S
VITRIFIED SEWERAGE PIPES.

ROBERT LOVELY AND SON, the appointed Agents for Dublin to DOULTON, BROTHERS, and COMPANY, having imported a large stock of the above Goods, offer them at a CONSIDERABLE REDUCTION *from former prices.*

OLD-ESTABLISHED SLATE AND TILE STORES,
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PATENT ASPHALTE ROOFING FELT.

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PATENT FELT MANUFACTURERS,
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Malone Mills, Belfast.

ASPHALTIC ROOFING FELT, a light, clean, economical, and durable roofing, price 1d. per square foot. Samples and instructions may be had gratis in answer to letters from any part addressed to MAURICE BROOKS, IRONMONGERY, GLASS, & ROOM PAPER WAREHOUSE, SACKVILLE-PLACE.

The Dublin Builder.

Vol. I.—No. 10.

HARMONY IN OUR WORKSHOPS.

PEACE is happily restored between "master and man;" and after the adjustment of temporary differences, they work hand in hand for mutual interests. Our forebodings of a possibly protracted dispute have, to a certain extent, *not* been realized; for the master builders, after a short parley, yielded to the demand for increased wages, though to some of them—who must be thrown out of their calculations considerably—the pecuniary sacrifice will necessarily be important. Every efficient and well-conducted artizan in this city can now *command* constant employment—for the amount of work to be done is still disproportionate to the available hands—and enjoy his THIRTY SHILLINGS PER WEEK; nay more! for "picked men" are at present in receipt of THIRTY-TWO at some establishments. We have already expressed our hearty wish that mechanics in Dublin and Ireland generally should be elevated in the social scale, that an air of comfort greater than at present should prevail in their hearths; and that themselves and families should be afforded rational enjoyment, with a fair share of "the good things of this life," which tend to make existence happy. For the attainment of this end, they are more or less dependent on their employers to remunerate them liberally for their toil; and we trust that the late breach being now built up, it may be cemented over by a permanent compound of good faith and mutual satisfaction. Judging the employers as a body, we believe them to have the interest of the working man at heart; and further, we are convinced that they who insist most strenuously on *fair* prices for their work, keep in view the payment of *fair* wages to their employées. The business of a builder is very much a lottery, which, when drawn for, may turn up either a blank or a prize. The most astute employer cannot guard against erroneous calculations, and one false step may plunge its perpetrator from comparative independence into a ruinous abyss; *vice versa*, a lucky hit may raise a hitherto unknown individual to the rank of a millionaire.

Fluctuation of the markets, sharpness of competition for contracts, with many other occurrences, considerably influence a builder's business, and may prevent his guarding against contingencies infallibly to secure himself. It is, therefore, but just, that, as far as circumstances will permit, he should protect his pocket; and if "the trump" turn up to a few, more frequently than to others, it matters little to the public or to the tradesman as long as masters faithfully keep their engagements. We are led to these remarks by a paragraph in one of the late local manifestos, from which it would be inferred that the builders of Dublin sought but to gratify their personal comforts and luxuries, to the detriment of those who, by the sweat of their brow, filled their coffers. "Win gold and wear it," is a maxim ancient and incontrovertible, which we feel ourselves at liberty to apply in this instance; and as every man has a right to do what he pleases with his own, the taunt falls to the ground, having merged into a personality outside the question at issue. They who undertake on *chance* the responsibility of probable losses in speculative matters, have clearly a just claim to advantage themselves in return when legitimate opportunity offers. We may here mention without irrelevance a circumstance which some years ago occurred in this city, and to the present day will be verified by the chief party interested. A government notice for tenders, issued according to plans, &c.; a detailed schedule of prices to accompany each tender, to be opened when contractor was declared, and attached to the contract. The officials made an erroneous survey, and the building as planned could not be executed on the site available. *One* sharp builder alone discovered this; but finding that deviations from the contract would be paid for by the schedule annexed to the tender, he placed *good* paying prices opposite each item in his schedule, and accompanied his tender therewith, at a lower figure than others relying upon the measurements, could execute it for. The tender was adopted, as also the schedule, and subsequently, on the mistake being made known, the *entire building*, from foundations to roof, was executed at a *good* price, and the contractor reaped a considerable profit therefrom. Suppose a contrary case! Is there any mercy in public establishments (or in some private) for a builder who makes a "*blind*" contract? The pound of flesh is insisted on, the sureties are estreated, and the contract must be fulfilled. Previous errors produce complication between employers and the builders, complication frequently drags in litigation, and litigation ruin to some, or possibly ALL. If, therefore, despite all these difficulties an employer baffles the storm, and by tact and ability steers to a haven of prosperity, is it just that, while honourably defraying his expenses, paying every man his due, his gains should be questioned, or moreover, his mode of applying them?

Of this, however, enough! We live in an age too civilized for master and man not to appreciate their respective positions. Let each scrupulously keep within the prescribed circle, and he best regards his own interests. The most deadly enemies often become the most sincere friends, and we hope that the recent "brush" between master and man may be buried in oblivion, and all go on smoothly in future.

A word to societies! We admire the principle that suggests meetings composed of members of a craft united by the ties of fellowship; but good intentions may often be controverted; a single malcontent may taint—and scatter the seeds of dissension in—a multitude. Let those, therefore, who mean well, beware how peace so happily restored may be broken by the effects of misguided individuals, flushed with victory, again to blow the breath of discord, and to undo the good already secured. The trade societies of Dublin demand much remodelling in their constitution; but to this subject we shall revert hereafter.

AN AMERICAN PYRAMID.—Lieut. Ives, the architect and engineer in charge of the Washington National Monument, has made an official report to the society, in which he says that when raised to the height of 600 feet, the entire weight of the shaft and foundation will be 70,000 tons. The weight of the structure in its present condition is 40,000 tons.

THE PUBLIC BATHS OF LIVEROOL.—In Liverpool, where public baths and washhouses were first established, the taste for bathing seems to spread yearly. During the year ending the 31st of August last the total number of bathers at the St. Paul's, St. George's, and Cornwallis baths were 317,846, being an increase of 15,071 over the previous year. The receipts for 1858–59 were 6.103*l.* 16*s.* 2*d.*, being an increase of 184*l.* 14*s.* 6*d.* over the previous year.

THE ROCK MOUNTAINS OF THE COUNTY DUBLIN.*

In the summer of 1851, I availed myself of some spare time to study the antiquities of the county of Dublin, and among other vestiges of by-gone times, I have examined those extraordinary remains called cromleacs, or druids' altars; I have taken their dimensions, and compass bearing, and made sketches of them. The facts I have collected have led to my concluding, that these monuments are sepulchral, an opinion which is supported by J. J. A. Worsaae, respecting similar remains in Scandinavia. That author's work I had not seen till after my views were formed, a fact which I mention, because to me it seems to be an additional probability that the idea of those monuments being sepulchral is correct.

These remains are known in the county of Dublin, by the name of druids' altars; sometimes, but rarely, by that of cromleac. In examining this or any similar topic, the investigation must be conducted irrespective of any name, which is often but the expression of some olden theory, lost to literature, but preserved orally. Any one who has attended to the way in which the peasantry catch up the stray opinions of learned disquisitionists, will see the truth of this observation, and estimate its value. Literary antiquaries have devoted much time to the question of the purpose for which these gigantic works were raised, and, misled by names, have followed an *ignis fatuus*, with, of course, the usual consequences, being lost in a literary quagmire. How little regard is to be paid to mere names, may be known from the fact that, besides the two very opposite ones of cromleacs and druids' altars, by which they are known in the county of Dublin, similar monuments have various other names in other localities—for instances, in the county of Kilkenny, one is called the stone of the champion, another the goat's stone, another the ass's manger, another the grey stone; names purely local and so far differing from those used for such monuments in the county of Dublin, that they indicate no opinion as to any common object which their founders may have had in erecting them. We must therefore look beyond mere names, and, by a careful examination of the remains themselves, endeavour to ascertain the purpose for which they were constructed.

Howth.—On Howth hill, about 1 mile from the sea shore, is a rock monument; it is on the side of a steep hill, under a high cliff of quartz. The roof rock measures 17 feet in its greatest length, 12 in its least, its average measure being 14 feet; at its thickest part it exceeds 6 feet in depth, and its weight I calculate at about 90 tons. An attentive examination of this monument has convinced me, that this enormous mass constituted the roof of a chamber lying E. by N.; the chamber being about 12 feet long, by 4 feet wide, the floor of clay, the walls of other great stones, 3 to each side, and one at each end, 8 in all. The roof rock, though very irregular at its upper surface, is tolerably level beneath, and was so situated as to have it horizontal, or nearly so, thus constituting a level ceiling to the chamber; but, owing to the great thickness and consequent weight at one end, the supporting stones have given way, and, in slipping, the roof rock has been caught by a part of the stone on which its present higher portion rests. The supporting stones from which it has slipped are still standing undisturbed. These are about 7 feet high, so that the original height of this monument must have been 12 or 13 feet. The longer direction of the chamber is E. by N., its floor is a little below the natural level of the soil. There are several rocky fragments lying around, which in one part form a sort of rude intrenchment to the monument, but whether artificial, or the result of accident, I could not decide. This monument is of quartz rock.

Shanganagh.—This rock monument is about 7 miles south of Dublin, within ½ a mile of the sea shore. The field in which it lies is almost level, there is no trench or other artificial arrangement in connexion with it. There are only four supporting stones, two on each side, one of these has been broken in the middle, and the opposite one fallen in; but the roof rock rests on the side of the fallen one and the top of the fragment on the opposite side, so as to be retained in its present inclined position. The roof rock is nearly 7 feet 6 inches square, by about 3 feet thick; the under side is, as usual, nearly flat. The weight is probably 12 tons. The chamber lies E. and W., is 6 or 7 feet long, by 2 feet 6 inches wide, and was probably 5 feet high. The floor is of clay, and at the level of the surrounding surface. This monument is of granite.

Brennanstown.—The two monuments I have described, have their roof rocks disturbed from their original situations: the present one has suffered no such derangement. It is situated in a small and deep grassy valley, close by a small hill stream, and about 1 mile inland. The valley is modernly called Glen-druid. The roof rock is 15 feet broad and across, it is 5 feet thick at its utmost measure; the average thickness being about 3 feet. Weight, 60 tons. These are, of course only the proximate quantities. The chamber is about 12 feet long, by 6 wide, and the same high. The direction is E. and W., the floor clay, and considerably lower than the surface of the field. There are several large stones lying about, and tolerably decided indications of some of them having been arranged to form two parallel lines of approach to the lower end of the monument. It is of granite.

Kilternan.—This is a still more gigantic monument than the one immediately preceding. It is situated on the slope of a coarse, rocky, and furzy hill, about 8 miles south of Dublin, and about 3 miles inland. The roof rock, in its extreme, measures 22 feet long, 12½ feet wide, and nearly 6 feet thick; probable weight, 80 tons; the greatest length lies E. and W. The supporting stones have given way on the south side, so that the roof rock leans in that direction. At the north side the chamber is 5 feet high; it is about 18 or 20 feet long, by ½ that in width. The supporting stones are a good deal disarranged, which renders it difficult to decide these points with certainty. The direction of the chamber appears to be E. and W. The floor of the chamber is of clay, and below the surrounding surface. At one side of this rock monument, the hill seems to have been cut away, and roughly faced with stones, so as to keep it clear of the monument, which is of granite.

Mount Venus.—On the side of the counties of Dublin and Wicklow range of mountains, and about seven miles inland, in a very sheltered situation on Mount Venus, is a very remarkable rock monument. The extreme measures of the roof rock are 20 feet long, 10 feet 8 inches wide, and 4 feet 5 inches thick. The average thickness is 4 feet. The chamber lies N.W., it is rectangular, and about 18 feet long, by 6 feet wide, and 4 feet 5 inches thick; the floor is of clay, and a foot below the surface level, to which height its sides are faced with small stones without mortar. The roof rock rests at an angle of 45 degrees *against* the upright one. This supporting rock is 8 feet high from the surface to its apex, and must have been higher, as it is evidently broken at the top. Measured at the surface level, this rock is 5 feet 6 inches wide on its inside face, its thickness is 3 feet 8 inches. As all the pressure of the roof rock comes against this, the only supporting stone, it must be firmly embedded in the ground to resist the immense weight lying against it. The roof rock probably weighs above 70 tons. There are the stumps and fragments of other large masses of rock lying about the chamber; one great mass, which was probably a supporting rock, is lying on the ground; its measures are—length, 14 feet; average breadth, 4 feet; average thickness 2 feet. If we suppose this to have been set upright, and sunk in the ground 4 feet, it would be still 10 feet above the ground. Add to this the thickness of the roof rock, and the result is that this monument had probably a height exceeding 14 feet. This monument, besides its gigantic proportions, is remarkable for the sharpness of the angles of every part of it. There is no appearance of weathering. In other similar remains the angles are rounded as if they had been exposed for ages to the influence of the elements; here on the contrary, the stone is as sharp as if but recently quarried; there are, nevertheless, no marks of the hammer, chisel, wedge, or jumper. The sharpness of the angles may be partly owing to the monument being in a very sheltered situation, possibly to the stone being of a very good quality, and also, that, till a comparatively recent period, the monument may have been covered up under a mound or barrow, a suggestion which the monument on Knockmary will elucidate. This monument is of granite.

Glencullen.—On the hill at the Dublin side of Glencullen I discovered a rock monument. The roof rock is 10 feet long, 8 feet broad, and 4 feet thick, extreme measures; the longest direction of the roof rock is W.S.W., or nearly E. and W. The chamber is greatly disarranged.

Knockmary.—The monuments heretofore described have been possibly for ages lying exposed, and subject to casualties and violence. In describing them I have ventured to offer conjectures as to what they may have been when in their pristine state. However plausible these conjectures may appear, they want that convincing force which the examination of a rock chamber, to all appearance undisturbed, will have. Fortunately, such an examination has taken place lately, and the evidence it has afforded I now furnish. The Phœnix Park, Dublin, consists of a gently-sloping plain, which, on the south side, dips rather suddenly towards the river Liffey. In the course of some improvements which were making in this park, the workmen were removing a mound on the brow of the slope; about 15 feet high, and 120 feet in diameter: 4 small urns of burnt clay were found; they contained ashes and fragments of burnt bones; one of them has been preserved, and is now in the Museum of the Royal Irish Academy; they were enclosed in small stone chambers or cists. In the centre of the mound was a rock chamber; the top rock, 6 feet 6 inches long, 3 feet 3 inches wide, and 1 foot thick. The longest direction was N.N.E., or nearly N. and S. It was supported on several stones, enclosing a chamber of an irregularly oval shape, and about 4 feet long, by scarcely 2 feet deep, the floor of clay, and below the surface level. In this chamber were found two perfect male skeletons, and a human thigh bone; the individuals, of whom the remains were here discovered, had passed the meridian of life. The skeletons were doubled up, and lay with their heads towards the north; there were also found a bone, supposed to be of a dog, a quantity of small sea shells, the *Nerita littoralis*, prepared so that they might be strung, and some of which had a string of sea-weed passed through them; a small bone fibula, and a flint knife or arrow head. The roof rock is of calp, and looks water-worn, as if it had been taken from the bed of the adjacent river. Here, then, is a rock chamber to all appearance undisturbed, and it furnishes clear proof that the purpose of its erection was sepulchral.

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* Read by Mr. Henry O'Neill, before Kilkenny Archæological Society, and published in their Transactions.

On looking at the Knockmary chamber as it now stands, denuded of its enclosing barrow, it will be seen how much its general features resemble those of the other rock monuments I have described. The probability appears to be, that all these rock chambers were sepulchral, the larger ones being intended to hold several bodies, as, the various members of a distinguished family, or several chiefs who may have fallen in conflict; that originally these chambers were covered over with a quantity of earth, or whatever other suitable material was at hand; that these barrows have, as in the case of the Knockmary and Dungannon rock chambers, been removed, leaving the monuments exposed, and that the roof rock originally had its under surface horizontal, though now in most cases these rocks lie off a part of their supporters, and inclined to the horizon. It is unnecessary for me to add that the facts I have indicated are at variance with the supposition of these rock chambers having been druids' altars, a notion which their great height and magnitude seem sufficient to negative, and their having been concealed in enclosing barrows completely destroys.

Rock chambers are very extensively distributed over Europe and Asia; they abound particularly in the north of these regions, but they have been found as far south as Bombay; in no case is it known by what people they have been raised—they belong to an age antecedent to all history. Some antiquaries divide them into three classes, distinguished by the remains found in them into the stone, the bronze, and the iron: from the flint arrow head found in the Knockmary barrow, it would doubtless be classed as of the age of stone, the most ancient of these monuments. The Dungannon rock chamber is described as being near the summit of the barrow. All those I have seen, are on what seemed to be the natural level of the soil, and the floors of the chambers, with one exception, below that level—in the Brennanstown one, perhaps three feet.

The remote time at which these monuments are supposed to have been erected, the very inadequate means which their founders are thought to have possessed for the execution of such gigantic undertakings, added to the deep veil of mystery which hangs over the race or races by whom they were constructed, are circumstances which must render rock chambers deeply interesting to the antiquary, the philosopher, and all who study the history of our species. One fact is clear, that they were not erected by the giants of old. The remains found in even the most ancient of them are of beings not above the average standard height of the present day.

Those who have read the accounts of similar monuments situated in other parts of this island, cannot have failed to observe how often it is mentioned that there is a tradition of human bones having been found under them—a circumstance which further corroborates the conclusion I have deduced from the rock chambers of the county of Dublin.

From the preceding accounts the following general characteristics are deducible:—That the county of Dublin rock chambers are formed of upright masses of stone, covered over with a single rock, having had its under side horizontal and level, or nearly so; that the inner surfaces of the supporting stones were also level and placed in line with the sides of the chamber; that the rocks, more particularly the roof rocks, are rough and massive, constituting a monument, generally speaking, of gigantic dimensions, that the chambers are of a corresponding size, have plain clay floors, sunk below the ordinary level of the surrounding soil. The longer direction of the chambers is, in most cases, E. and W., or nearly so. That these remains are found singly, without any apparent connexion, as regards each other, or any religious or other monument of ancient times; and that each rock monument is constructed of the kind of stones found in the locality.

I have read accounts of similar monuments situated in other counties, but do not recollect any one of them equalling in magnitude the largest rock chamber in the county of Dublin.

I have described every rock monument I know of in the county of Dublin. There may be more—but I have taken the best means in my power to ascertain their existence. The best way I know of is an examination of the Ordnance Survey map, and marking on an index pocket map, with vermilion, the locality of each monument. My reason for limiting this essay to the county of Dublin is, that it is better to complete one county than give even more examples without having the collective character which is attained by limiting the locality.

To our antiquarian societies I would respectfully suggest, that the study of our antiquities would be greatly accelerated if the principle of the division of labour were made use of—if one member were especially appointed, and devoted himself to the subject of raths, another to rock monuments, a third to ancient crosses, a fourth to pillar towers, a fifth, or perhaps several, to old castles, others to ecclesiastical buildings; again, each labourer might take a limited district, a county where specimens of the class of antiquities allotted to the individual were rare, a barony or other division, when more numerous. Again, in the examination of monuments, *method* should be carefully observed—the general nature of the locality, the peculiar local position, compass bearing, measurements, general appearances, details of interests, presumed changes from its original condition, careful drawings—all these are necessary in order to convey a correct idea of an ancient monument.

In this paper but a very small part of Ireland—old Ireland—as these rock monuments clearly show, is embraced. I hope other investigators will come forward, and that ere long, the remaining counties will be examined and detailed.

COUNTY SURVEYORS OF IRELAND.

THE annual meeting of this body was held on the 7th ult., at the rooms of the Institution of Civil Engineers, 41, Upper Sackville-street. Mr. Williamson, Tyrone, in the chair. The report of the proceedings of the committee during the previous year was read and adopted. Among other matters it stated that on the preceding day a deputation had waited on the Chief Secretary, Mr. Cardwell, the Attorney and Solicitor-General being present—when Mr. Stokes, Kerry, briefly put forward the case of the county surveyors, referred to the favourable report of the select committee of the House of Commons, 1857; the introduction in the succeeding session of a remedial measure by the Chief Secretary, Mr. Herbert; the intended legislation by his successor, Lord Naas; and the disappointments occasioned by the recent repeated changes of ministry. Mr. Cardwell undertook to examine the several documents and statistical tables furnished to him, and to give the subject his attentive consideration. Among these documents was the following general statement:—

"The office of County Survey was instituted in the year 1834, by the Grand Jury Act, 3 and 4 Wm. IV., chap. 78, which was amended in 1836 by the Act now in force, 6 and 7 Wm. IV., chap. 116. It was the first public office for which a competitive examination was required. The maximum salary was fixed by the Act of 1834 at £300 per annum, 'inclusive of all charges and expenses, except £50 yearly for an office and clerk, and at that period the cost of living was considerably less than at present. The duties of the office comprised the designing and superintendence of the construction of all 'county' roads, bridges, and buildings, the management and supervision of their maintenance, and the guardianship of the public interests in matters connected therewith. By the Act of 1836, the amount of duty was increased, the salary remained as before, and power was given to appoint assistant surveyors, at salaries not exceeding £50 per annum. Subsequently the following acts were passed, each of which added to the duties of the office, without providing any increase of salary, or allowance for the expenses attendant on the additional duties imposed:—1st Vic., c. 1; 9th Vic., c. 1; 9th Vic., c. 2; 9th Vic., c. 3; 9th Vic., c. 4; 9th and 10th Vic., c. 107; 11th Vic., c. 1; 14th and 15th Vic., c. 21; 16th and 17th Vic., c. 136; 19th and 20th Vic., c. 37; 19th and 20th Vic., c. 63; 20th and 21st Vic., c. 15; 20th and 21st Vic., c. 16. The tendency of all proposed legislation affecting the office, has been to impose new duties without providing any remuneration. The new roads and bridges made during a quarter of a century under the grand jury acts—the new roads and bridges made under the various grants and relief acts—the roads, piers, and harbours previously maintained by the Commissioners of Public Works, and the construction of the bridges required by the drainage acts—have been, from time to time, placed under the superintendence of the county surveyors, and have enormously augmented the original duties of the office; in the item of road maintenance alone the increase from 1834 to 1854 has been from 13,191 miles to 36,703, and to this mileage have been since added all the turnpike roads of the kingdom. The annual expenditure now under their control amounts to nearly half a million sterling. The extent of roads under each surveyor's superintendence in 1854 varied from 400 to 1,900 miles, and the expenditure from £4,000 to £31,000 annually. As all are paid equal salaries, the remuneration is clearly disproportioned to their services and expenses; and as all receive the maximum, it is evident that the grand juries do not consider the salary too high, even in the smallest counties. From the peculiar nature of the works, spread as they are over such large areas (in some counties more than a million acres) their superintendence is particularly laborious and expensive, and would be but reasonably compensated at seven or even eight per cent. on the expenditure; but, from the low salaries given, without any allowance for travelling, the whole cost is but 4.2 per cent. In effect the remuneration in no case exceeds £200 per annum; and in the larger counties, from the increased outlay for expenses, it is considerably less. While a retiring allowance is provided for nearly all public officers, there is no provision by which county surveyors can be superannuated under any circumstances. The claims of the county surveyors for the improvement of their office having been repeatedly brought under the consideration of the executive and made the grounds of a petition to parliament, a select committee of the House of Commons, in 1857, recommended—increased remuneration—a classification of counties with salaries adequate to the extent of the duties—a superannuation allowance—and an increase of the salaries of assistant surveyors. If these recommendations were enacted in the manner proposed in the grand jury bill introduced by the Chief Secretary for Ireland in 1858, and were carried out to their fullest extent by the respective grand juries, the increase in the taxation would barely amount to one farthing in the pound on the valuation of Ireland; and with reference to such an increase, the select committee further state:—'Your committee are strongly of opinion that the cost of providing a really efficient supervision of county works, so far from entailing any additional charges upon counties, would be productive of increased economy as regards the application of the county funds.'"

VICTORIA BRIDGE—MONTREAL.

One of the greatest works of engineering science—the Victoria (St. Lawrence) Bridge, at Montreal, is now within a very short stage of completion. The Grand Trunk Railway, which traverses 1,200 miles of the richest parts of Upper and Lower Canada, is, indeed, a great boon to that country, yet, without the connecting link between the north and south shores of the St. Lawrence, this railway is very imperfect. The St. Lawrence is for five months out of the year frozen up, and all communication with Canada by ships or steamboats is entirely suspended during that period. For a long time the difficulties of bridging the St. Lawrence were deemed all but insurmountable, the width between its shores, even at the narrowest crossing, being very considerable, the velocity of the current very great, and the headway and waterway required for the navigation of steam vessels and huge rafts of timber were also extensive; but far more formidable than all these was the effect of the "breaking up of the ice." The whole field of ice, extending nine miles in length, and of the entire breadth of the river, to a depth of from three to five feet, becomes one floating mass. Its velocity, though slow at first, increases to a frightful extent through the influence of the melting snow, until it breaks up, when the detached masses are driven with fearful violence against any impediment, and, when effectually obstructed, it "packs," layer upon layer, to the height of fifty to sixty feet. Buildings are prostrated by the "shoves," and disasters of a most alarming nature frequently occur; indeed, so rapidly does the packing take place that vessels near the shore have been frequently buried and crushed. This, then, was the force that the piers of the bridge would have to withstand. Yet, in spite even of this difficulty, a bridge has been devised, and is now just about to be completed, with perfect success too; and in two or three months from the present time a ceremony will probably take place at Montreal that ever will be remembered. To Mr. Robert Stephenson is due the honour not only of designing the Victoria bridge, but of determining the possibility and applicability of a bridge at all across the St. Lawrence. He visited Canada in 1853, and decided that a bridge was practicable, and did not flinch from the task of contending with the ice. He well considered the different schemes proposed by various parties to resist this moving mass, most of which were similar to those adopted in Norway, the structures being composed of framed timber; but Mr. Stephenson rejected them, on account of the perishable nature of the material. His views have been carried out to a verity, for to the timber temporary breakwaters and cofferdams used by the contractor during the construction of the bridge, the effect of the ice has been singularly destructive. Whole balks have been disintegrated into mere fibres, and the pores of the timber have been frozen through and impregnated with ice. Mr. Stephenson determined upon the adoption of stone for the piers and icebreakers, the latter forming a part of the former, and being in the form of sloping cutwaters on the up-stream side, their fronts presenting an angular face to the ice. The object of the arrangement was not to stop or defy the ice, but to coax it as it were, to climb to the top, when the overbearing sides of its mass would gravitate, parting it in the middle, and the two halves would pass harmless away through the openings. This very effect has already taken place, and during the four years the bridge has been in course of construction the stone icebreakers have stood the severest test of the "breaking-up" without injury. The superstructure is similar in construction in almost every respect to the Britannia-bridge, the difference being that while the centre Britannia tube is 460 feet span, the central span of the Victoria bridge is 330 feet, all the others being 242 feet. The Victoria tubes also differ from the Britannia in not being constructed on the cellular principle; indeed they are the largest tubular beams ever constructed without cells. But the great total length of the Victoria bridge is its striking peculiarity. There will be a line of iron tubing a mile and a quarter in length, stretching from shore to shore. This immense iron viaduct, even in its present incomplete state, viewed from either side, or better still from the river, is truly magnificent. All the details were arranged here, the designs being made under Mr. Robert Stephenson's own eye, and the whole being carried out under the supervision of his relative, Mr. George Robert Stephenson, who attended not only to the designs and construction of the tubes, but even to the manufacture of the iron at the various iron works. Elaborate drawings were made by that gentleman, and the dimensions and strains for every plate and piece of iron were calculated and given by him. The tubes were made at Birkenhead, every plate being punched in readiness; in fact, all being done in this country except the permanent riveting, so that nothing but skilled labour was required in Canada to sort out the parts already marked, and permanently rivet them together. So determined was Mr. Stephenson to carry out this work successfully that he undertook the management of it in all its details in this country. Regarding the proportions of the bridge thus described, perhaps a few figures may be interesting, and your readers will probably be startled at the vastness of the following quantities in the structure. The masonry in the piers, icebreakers and abutments amounts to nearly 3,000,000 cubic feet, a quantity which would cover one acre piled solidly to a height of about 64 feet, and its weight 220,000 tons. The iron in the tubes, weighing about 9,000 tons, is held together by upwards of a million and a half of rivets. To Mr. Alexander M. Ross, resident engineer, great credit is due, he having specially devoted himself to the masonry. Mr. Hodges represents the contractors, Messrs. Peto, Brassey, and Betts, and on him has devolved the principal responsibility of the work; likewise Mr. Stockman, who in the early part of the present year went to Canada, accompanied by Mr. S. P. Bidder, to make a full inspection and report upon the work.

ART UNION OF IRELAND.

We with pleasure learn that the Subscription Lists of this Association are filling rapidly; and we think that the Exhibition of the Works of Art which have been selected by the fortunate prizeholders of the past year, and which is now open to subscribers and their friends, at the new rooms of the Society, in Grafton-street, ought to secure a large accession of subscribers for the present year.

We have been requested to mention that eighteen American subscribers' names have been forwarded by the New York Honorary Secretary, Mr. Watson, who is at present in Dublin.

"FALLING MOULDS."

[Apropos to the Biographical Notices in recent numbers of the "Dublin Builder," of the late William Vitruvius Morrison and James Gandon, architects, the following, from an unknown correspondent, has been submitted for publication. We accede, though, perhaps, appreciating more the animus of the author, which seems to be rightly directed, than the poetical merits of the composition.—Ed.]

The prophet dies! yet still his words outlast, like fires immortal,
So Gandon's genius shines to-day from portico and portal;
But Gandon 's dead, and buried long where soft suburban moisture
Has melted down to mould that heart which hated Art imposture;
And though his works and genius are with Irish pride regarded,
Still no humble cenotaph his memory is awarded.
The cold neglect of him to-day is not a kind reflecture
From that old City once he crowned a Queen of Architecture.

The "monster" system grows apace, unwieldy in dimensions,
And Progress runs a lightning race of patents and inventions;
The Machine *versus* Man contend, and clash in dread collision—
Man's handiwork laughs back on Man, its maker, in derision;
Temples rise, and townships grow, and population faster,
Run out like mad to clutch at homes of paper, lath, and plaster.
The monkey styles are much the same in mansion or prefecture—
From head to foot our streets are vamped in *fungi* architecture!

An Order's wanted, and we get Utopian for Ionic;
"'Tis new, at least," the public owns, in language quite laconic;
What boots it that the Parthenon or ruined Colliseum
Lift up their crests to heaven still—a hero's mausoleum?
The Seven Lamps have given their light, and Etna or Vesuvius
Is not more lasting than the leaves of ancients like Vitruvius.
Dear master minds of Greece or Rome, time can ne'er affect your
Grand foundations, as it does our *fungi* Architecture!

Mum's the word in every mouth; some legislative Solon
Advances from the comma state to state of semicolon,
And, pigmy like, he grasps the scroll that Titan's can abandon,
As only fit for master hands like Morrison or Gandon.
Rebecca rules our public boards, and Patrick bows to David,
The Cymri piles our town with stones, and helps the Gael to pave it;
Raphael guides the pencil still, and Ruskin lives to lecture,
The glorious dawn of Christendom's enfranchised Architecture.

C. C. H——Y.

Amalgamated Society of Engineers and Millwrights.—On the 26th ult the Dublin Branch of this society assembled to present their late secretary, Mr. George Hodges, of Irishtown, with a valuable gold watch and chain, manufactured by Mr. Donegan; also an address, in recognition of his valuable official services

THE WATER SUPPLY OF DUBLIN.[*]

IT gives us much pleasure to see that this question attracts the attention it deserves. It is a happy thing that the community of Dublin seem to be awaking to the due consideration of what so deeply affects them.

We have already published a letter from Mr. Martin, T.C., on that subject and the sewerage, and since our last article a very clever paper has appeared in the *Evening Mail*, recommending that the supply be taken from the Liffey, at Kippure—a source, in fact, of almost perfect purity. But is it like the other pure objects which through life we seek and hope for, but cannot reach? We fear it is. However, it will be our duty to investigate this in due course with the other propositions under consideration; now we have to deal with the nature of the supply from the Dodder and the proposed catchments, and that to be had from the canals; and, perhaps, we can scarcely do better than give the following extract from the paper we have alluded to, as to that from the Dodder, which we have already, in our former number, shown to be highly objectionable:—

> "The Corporation of the City of Dublin had been for many centuries guardians or owners of the watercourse from Templeogue; but as they were not owners of any of the lands through which it ran, they could not effectually prevent the occupation of its banks by mills and factories. That such occupation had commenced and produced inconvenience to the public and impurity to the water is manifest from the language of an Irish statute, 5th George I., cap. 16 (A.D. 1719), still in force, which recites that the corporation 'had for many ages past been seized and possessed of' that watercourse, and enacts severe penalties against persons ponding up the water, and against its contamination by the tuck-mills or nuisances on its banks. Notwithstanding that precautionary legislation, we find that there are now three paper-mills, one woollen factory, one tuck-mill, one iron-mill, and six flour-mills, using the Dodder water, above the Tongue at Kimmage, and one iron-mill, one flour-mill, and some small tenements and tan-yards in Dolphin's Barn-lane, using the city watercourse between the Tongue and James's-street basin. The paper-millers have always made paper from old rags, steeped, boiled, and washed with the Dodder water, letting the refuse liquid run into the tailrace. They have of late years used straw saturated with powerful acids, boiled into pulp, and discharged the refuse liquid, or "straw soup," into the stream, which was proved, on a prosecution instituted by the corporation in 1854, to have killed the fish, and produced sickness to persons and cattle that drank of the water more than a mile lower down the stream. Woollen and tuck millers are known to use the most disgusting materials in scouring their fabrics, and the rinsings from those on the Dodder above the city weir must, from their position, drain into the river and largely defile the watercourse."

It must be needless to go farther to prove the unfitness of the Dodder and catchment waters; but we have an enquiry to make, which should not be passed by. It is averred by the supporters of that scheme that Dr. Apjohn's analysis of the Dodder water shows it to be purer and better than that from either of the canals. We would ask those who obtained that water for test—*At what time of the year was it taken from the Dodder?* It has been stated on good authority that the water from which the analysis was made "*was procured after a drought of several months*," and that samples taken a few days subsequently at old Bawnbridge, after *a fall of rain*, "exhibited all the usual appearances of bog-water," whilst, of course, that taken after a long drought was entirely from springs, and free from any bog taint. That the water taken up at the old Bawn-bridge was as described we have the best reasons for believing, and that water coming from that source must be "tainted with peat" is acknowledged by Mr. Hawksley's report. But, perhaps, inasmuch as that the Rivington water is almost equally "tainted," it is presumed we are to be satisfied, and although it has been shown, in addition, that the catchment area, beyond that presenting peat-bog, contains "*graveyards, villages, residences in vast number, and all the land manured with soil taken from the city.*"

Before, in a future number, we go into particulars of the difficulties which present themselves, respecting the supply from Kippure, we feel it right now to guard the public against misconception on several points which appear in the publications we allude to; because although no one who understands the subject could for a moment deny that the supply from Kippure would be more to be desired than from any other source within reach of Dublin, as regards original quality of water and unsullied purity, yet there must be such grave doubts as to the possibility of obtaining it, except at a cost and risk in litigation, perhaps not to be compensated for by any advantages, that we dread being led into the temptation, under the idea that other water is not to be had fit for use, and at a cost within the means of the citizens.

We have great fears of a second edition of the Liverpool *modus operandi.* If the first step be taken in either the Dodder supply or that from Kippure, it necessitates the last, whatever that last one might cost; and our belief is, that no human foresight could predict what it might be. The question, we think, now lies between the supply from Kippure and that from the canals. The evidence extant as to the impurity and positive unwholesomeness of the catchment and Dodder supply will, we can scarcely doubt, overset the views of those who at present advocate it; and, in fact, the reports of the engineers employed by the Corporation are conclusively in favour of the supply being taken from the canals, and plainly show that the present proposition was adopted only as a *dernier resort,* because the canal companies hesitated to bind themselves to the maximum supply demanded. These facts we shall show, in a future paper, from the reports themselves, which exhibit, by the way, an extent of plagiarism, we might, perhaps, say, exceeding anything we have ever before discovered, even in those days of "professional robbery," and which, for the sake of our profession, we cannot but deplore. Formerly it used to be that the ideas of the dead only were stolen by the living, on the ground, no doubt, that "dead men tell no tales;" now the living steal from the living, "and blush not at the theft."

But to our subject.

The paper in the *Evening Mail* is not content with introducing to the notice of the citizens the purest and best water that can be had, but, like some of our fair ones, who, being favoured by charms irresistible, will not allow that others have any—it slanders the canals most unmercifully, and, like most slanders, having very little, if any, foundation.

It tells us that—

> "The Grand Canal cut through such varieties of strata in its lengths of over 90 miles, receiving the drainage of small streams, bogs, and natural springs, its waters must necessarily be heterogeneous, and it has been ascertained by repeated analysis of our best chemists to be inferior in purity, colour, and softness to the unmixed waters of the Liffey or Dodder taken at their source. It has of late years become notorious that the great diminution of the boat traffic on that canal within 15 miles of Dublin has almost changed its character to that of a stagnant ditch, rankling with noisome weeds, which become detached by the occasional passage of boats and opening of the lock gates. . . . . . The Royal Canal being chiefly supplied from Lough Owel, near Mullingar, and other limestone springs, its water is ascertained to be of better taste and

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[*] See page 110 *ante*, and previous numbers.

brighter colour, but of greater hardness than that of the Grand Canal. It has also become nearly stagnant and undergrown with weeds from want of constant traffic. The Midland Railway Factory and an extensive bone factory largely consuming deleterious acids, have been lately established on its bank, within two miles of Blessington-street basin."

Now, in place of the water of the Grand Canal reaching Dublin affected by *ninety miles of drainage of small streams, bogs,"* &c., the fact is, that the centre of the summit level, Robertstown, is only *twenty miles* from Dublin. From thence the Canal falls, not towards Dublin, but *towards the Shannon*, nearly 70 miles, and unless the "streams from the bogs" run up to Dublin, they cannot reach it any other way. The level also of the Bog of Allen is considerably lower than the summit level of the canal; it is, therefore, impossible that bog-water can reach the canal under any circumstance. The drainage from that bog, in fact, passes away by culverts under the canal.

The main supply of the summit level is from pure springs; one of the most remarkable being St. James's Well, at the termination of a branch of the canal beyond Robertstown—a source which, if developed as it might be at a moderate expense, would, perhaps, in itself alone give an ample quantum for all purposes. The other principal supply between that and Dublin is the River Morrel, an abundant and pure stream. To speak, therefore, of 90 *miles fall of water* towards Dublin, is to exhibit a thorough want of knowledge of the subject.

Again—This paper asserts the diminution of the traffic of the canal has been so much during the last few years, that within 15 miles of Dublin has become "*a stagnant ditch*."

This is conclusive as to the writer's ignorance of facts, as may be seen from the following, taken from the official returns for 1850 to 1858:—

			Tons.	Cwts.
No. of Tons carried on the Grand Canal to and from Dublin,		1850	226,633	15
Ditto,	ditto,	1858	236,622	5

In place, therefore, of diminishing, the traffic has increased; and, according to that tonnage, the number of boats that pass any given point within 15 miles of Dublin, may be taken as from 15 to 20 daily. How the canal could become "a stagnant ditch" under such circumstances, cannot be easily conceived.

Now, as regards the water of this "stagnant ditch," what does Dr. Apjohn say in his report to the directors on the subject?

> "As respects the canal water, I have no hesitation in saying, that the specimen of it which I have examined is *soft, sweet, and wholesome, and well adapted for domestic uses of every description.*
>
> "Before concluding this brief report, it may not be out of place to add, that the exact determination of the amount of organic matter in water is a thing of very difficult accomplishment, and that, from the manner in which it is usually attempted, the relative proportion of the organic to the saline ingredients is sure to be exaggerated. I have paid much attention to this point in the course of the inquiry just concluded, and I am quite certain that the quantity of vegetable and animal impurities in the canal water—impurities of which no natural water is ever destitute—does not exceed that indicated by the analysis. I may add, that their relative proportion is much too small to leave any room for apprehending that their presence can confer upon the water properties which would render it either disagreeable to the taste or injurious to the health."

But he says a great deal more; for if his very elaborate figures be analyzed, it will be seen that the mean amount of "organic matter" *in one gallon of Grand Canal water* is only 2·798 grains!—that is, merely *two grains and the eight-tenths of a grain, fractionally, in every seventy thousand grains*, that being the weight of *a gallon of water!*

The wondrous talk, therefore, about the *excess* of organic matter in the canal water, is merely talk; and in the face of these facts, we can scarcely suppose that the *natural* purity of the Granal Canal water will be again questioned. As regards Mr. Martin's *supposition* respecting the *practices* of "the 2,000 boatmen," in defiling the canal water, he may feel assured there never was anything more erroneous. A little thought will tell him it could not be as he says. There are no means in, or attaching to, a canal boat which would permit of *the water* being made the receptacle of their filth; and we can vouch, from our own experience, that such is not the case. We admit his fact as to bilge-water being pumped into the canal; but we hope to show, before we conclude this subject finally, that there is no difficulty in perfectly filtering the water for the city supply, even within the extent of its present basins.

With respect to the water of the Royal Canal, the paper in the *Evening Mail*, is also in error. It states "*it is of better taste and brighter colour*" than that of the Grand Canal, but that the Royal Canal also has become "stagnant."

Dr. Apjohn's analysis tells a different story. It says—

> "The water as it reached me, though quite clear, had, when compared with the pipe-water of my laboratory (in Baggot-street, taken from the Grand Canal), *a yellow tinge, and its taste was less agreeable*," &c. . . . . "As respects the amount of mineral matter held by it in solution, *this water must be considered to be a pure one*, and the same might be said of its organic matter, which, notwithstanding the *colour and taste* of the water already adverted to, are certainly not present in inordinate quantity."

That the water is really good and desirable, there is no real question. There lies before us at this moment a tumbler of it, taken within the last hour from the level above Newcomen-bridge, at the point where every alleged impurity would have acted upon it, being the lowest level of the canal. It is transparent and without any disagreeable flavour; and if the simple means of filtration were adopted, which ought and might be, with little comparative cost, it would be unexceptionable. It is to be recollected, that if the Royal Canal were in reality *stagnant*, this is exactly the period of the year that decomposing vegetable matter is most to be found in stagnant water, the taste and smell of which are unmistakeable.

It is deeply to be regretted that in advocating a favourite cause, partizanship is allowed to intrude itself so much as it usually does. The waters of the canals close to Dublin are, no doubt, not so pure as that of the Liffey *at Kippure;* but if they be taken from a proper elevation above the city, and treated as they might be, without the useless expenditures recommended for their filtration by sand, they will be, in our humble judgment, more than ample for our wants, and, perhaps, as pure, after all, as any other to be brought to our city. There might, and possibly would be a necessity *eventually*, when the city increases in population, *to lower the summit levels of each canal*, and thus to increase the supply, the expense of which would be of moderate amount; but we are strongly under the impression, that at present there would be no such need, nor for a long time to come. If that were done the Royal Canal alone would supply almost any quantity of water. It should be recollected we now have the water which supplies us within facile reach, with appliances already existing which can all be made available to save expenditure, the greater part of which will become useless and lost, if the proposed plan of the Corporation be carried into effect; also, that erroneous grounds have been assumed as to the necessity for the quantum of supply estimated. To assert that the inhabitants of Dublin—infant and adult—require "25 *gallons* per head per diem," is, we believe, without any real foundation on fact. It was originally thus calculated when the mania for "flushing" existed, and when the authorities of the day assumed that "*conveyance by water was the cheapest for getting rid of night-soil*," and that "*rivers were the natural outlets for the filth of cities*." Fortunately these errors are being at last seen through, perhaps in time to prevent a useless expenditure here for a worse than useless purpose.

Looking at the question in any light, 25 gallons per head per diem cannot be necessary. Dublin is every day becoming more and more a city of shops, warehouses, and offices. Whole streets are now appropriated to those purposes, and the use of *water* in such instances is almost nothing; whilst formerly each of the houses accommodated a family, or perhaps two. We believe it is idle to assume that the mass of the residents of Dublin at present either demand or could use 25 gallons each per day, were it provided; and we hope to show just grounds for the belief—that to provide *a high-pressure* supply for, at least, three-fourths of the inhabitants of Dublin, is utterly useless; they have neither means, nor power to avail themselves of it. We should not, therefore, be led away by misconception of facts. We should not act without full examination of what are our real wants, and what we require to supply them. We should well consider what we have within our reach, and not act on needless and problematical plans, which would cost us at least hundreds of thousands; and, to use a homely adage, "We should not throw out (even) muddy water until we are sure of clear."

In our next article we hope to analyze the plans of the Corporation engineers, and see from what sources they have sprung.

THE STRIKE IN LONDON—LAST ACCOUNTS.

THE members of the Trades' Conference, forty-two in number, held a special meeting at the Paviors' Arms, Westminster, chiefly to take into consideration the altered state of things occasioned by the defection of the operative masons from the Nine Hours' Movement. They sat two hours and a-half, with closed doors. They are understood, however, to have passed a resolution, embodying a proposition to the Central Association of Master Builders, the precise object of which did not transpire, and which will probably be brought under the notice of the executive committee of that body at their meeting this day (Tuesday). It is said that in another resolution they expressed their dissatisfaction—probably that is a mild term—at the conduct of the operative masons in deputing Mr. Harnott, the secretary of the central committee of the Masons' Society, with others, to treat with the masters' executive committee without previously obtaining the consent of the conference. It is likewise reported that a communication was read at the meeting from the Rev. E. A. Verity, B.D., incumbent of All Saints, Habergham, Lancashire, volunteering to come to London and deliver a lecture at the Freemasons' Tavern, with the view of influencing public opinion on the matters in issue between the masters and men, adding, that his ardent sympathies were with the men, whom he believed to have truth and justice on their side. When it is stated that Mr. Verity is described—if, indeed, he does not describe himself—as "the distinguished advocate of the working classes," "the able supporter of the short time movement," and "the successful advocate of the Padiham strike," no one can be at a loss to understand into which scale he will throw his influence; but still the metropolitan community will, probably, be curious to know what new light a clergyman from the country can hope to throw upon topics which, during the last two months, have been ventilated *ad nauseam*. The conference is said to have cordially entertained the rev. gentleman's proposal, and a communication to that effect would probably be forwarded to him by the post of last night. The Paviors' Arms Committee declared another dividend yesterday at the rate of 4s. a man to the operatives on strike, 6,454, exclusive of Trollope's men, who were paid each 12s. skilled, and 8s. unskilled. The aggregate sum distributed was £1,328 4s., or £2 8s. less than the amount paid away on the previous week. The recipients were also fewer than on the preceding Monday by 501, and by 522, compared with the week before that, showing that the men have either returned to work to that extent, or have ceased to be dependent on the funds dispensed at the Paviors' Arms. Subjoined is the official return of the money paid yesterday by the committee:—

		£	s.
Masons	420	84	0
Bricklayers	740	148	0
Carpenters	1,950	300	0
Plasterers	650	130	0
Painters	120	24	0
Stone sawyers	67	13	8
Woolwich men	270	41	8
Labourers:—Lodge 1	336	67	4
" " 2	214	42	16
" " 3	151	30	4
" " 4	275	55	0
" " 5	88	17	12
" " 6	488	97	12
" " 7	153	30	12
" " 8	29	5	16
" " 9	331	66	4
" " 10	145	29	0
" " 11* .. .	—	—	
" " 12	18	3	12
" " 13	7	1	8
Stone polishers	2	0	8
Trollope's men	..	50	0
	6,454	£1,328	4

* Paid with Woolwich men.

From enquiries made on Monday it was found that Messrs. Trollope had 271 men at work; Patman and Fotheringham, Theobald's Road, 71; W. Cubitt and Co., Gray's-inn Road, 852; Mansfield and Son, Henry-street, Gray's-inn Road, 87; Moxon, 868; Browne and Robinson, Worship-street, 69: Higgs, Lambeth, 154; Kelk, 674; and Piper and Son, 276. The whole of these men are reported to be working under the terms of the declaration.—*Times*.

ANTIQUITIES OF DUBLIN.—Dublin has two cathedral churches, one without the walls of the city known by the name of St. Patrick, the other in the midst of the city dedicated to the Holy Trinity, within the bounds whereof, the house of the Archbishops of Dublin was heretofore seated, as we learn out of Giraldus. Within the limits of the Church of St. Patrick, not far from the bellfry, we see that well (late inclosed and stopped up in private houses) at which the new converts of Dublin were baptised by him near the city, southward, as we have heard before out of Jocelin. The other consecrated to the holy name of the Trinity, commonly called Christ's Church, is built upon subterraneous vaults, whereof in the Black Book of that church we read thus: The arches or vaults were founded by the Danes before the coming of St. Patrick, and at that time Christ's Church was not founded nor built as it is now. Therefore St. Patrick celebrated mass in one of the vaults, which to this day is called St. Patrick's vault. Afterward, St. Patrick seeing the great miracles which God showed him, prophecyed and said:—After many years to come, a church shall be built here; and God shall be praised in it after all the churches of Ireland.—*Usher*.

EXPERIMENTAL RESEARCHES TO DETERMINE THE DENSITY OF STEAM AT ALL TEMPERATURES.—Mr. W. Fairbairn read a paper on this subject before the recent meeting of the British Association, in which he stated that the results obtained by his experiments were these—one cubic inch of water expands into 1670 cubic inches of steam at 212 degs. Fahrenheit, into 882 inches of steam at 251 degs. Fahrenheit, and into 400 cubic inches, at 304 degs. Fahrenheit, and so on. Mr. Fairbairn hopes by the time of the next meeting of the Association to lay before the section a series of results which would fully determine the value of superheated steam and its density and volume.—Professor Rankine expressed his extreme satisfaction with Mr. Fairbairn's experiments, which had obtained the only reliable results which had been obtained by any experiments on steam above 212 degs. The thanks of the Section were voted to Mr. Fairbairn.

E. B. Webb, Esq., for some years well known as engineer and superintendent of works on the line of the Derry and Coleraine Railway, was on the 7th of December last elected a member of the Institute of Civil Engineers in London. During the last six years he has been actively engaged in some of the most important engineering works in Brazil, in South America, and has just returned to that empire by last month's mail, on a very important mission connected with his profession.

IMPROVEMENTS AT THE NORTH SIDE.

Though we cannot chronicle progress at the same rapid pace in the northern districts of the metropolis as elsewhere, it is nevertheless *sure* if *slow*, and we are gratified to find that the attention of enterprising speculators is engaged in quarters hitherto totally neglected, and but a few years since considered almost valueless. The large area of reclaimed land bounded by the Circular-road leading to the popularly designated "smoothing iron" or bathing slip at one side, and the Royal Canal at the other, presented few inducements either to capitalists to build for domestic purposes, or to agriculturists, from the nature of the soil, for tillage or pasture. However, a gradually increasing traffic with the sister countries, in cattle and horses especially, has compelled dealers and those connected with the shipping to seek for homes, storage, &c., in the locality; likewise the multitude of workmen on the new graving-dock—a truly creditable and important structure—had to be housed. The new wharves, already noticed, several more of which are both required and intended to be continued to the lighthouse, and lastly, the projected Liffey branch line, have each considerably enhanced the value of property in the neighbourhood. Amongst the improvements effected recently by English residents of the class alluded to, we may mention that Mr. Wheeler, horse dealer, having purchased an extensive area at the junction of the eastern canal bank with Upper Sheriff-street, and adjoining the bridge, has built a superior cottage residence and stabling, &c., after designs by Mr. Lyons, architect—Mr. Whiteacre, the builder—and is now engaged in completing three others under same direction. Mr. Bollands, of similar occupation, has a farm and residence with out-offices on Church-road, notable for its English style and cleanliness, and has erected works under same architect's supervision.

Again, we notice that a respected fellow-citizen, Mr. Philip Brady, to whom belongs a large tract of some 50 acres, recently purchased under Incumbered Estates Court, has had a large portion of same plotted out in building lots, and commenced the erection, as a preliminary, of blocks of model semi-detached cottages; internally arranged in a very commodious manner, after English fashion, and to present a tasteful cemented front externally, also according to the drawings furnished by Mr. Lyons, to whom is entrusted the carrying out of all the arrangements. We understand that the all-important appendage of good water for drinking is as yet deficient, but we trust that in this and other matters of necessity, the public bodies—the Corporation and Ballast Board—will afford encouragement for improvement in a locality destined to be one of importance. There is a great want for a public fountain; and if the water mains were extended along Church-road, it would encourage building speculators. At Emily-place, in same locality, we also notice cottages for the humbler classes in course of erection; Mr. Douglas, builder.

EXCURSION TRIPS—RAILWAY FACILITIES.

During the past season the facility afforded to excursionists to travel cheaply and comfortably have been very great, perhaps indeed—if we except periods of rivalry between opposition companies—the greatest as yet. In Ireland the various railway companies whose lines communicate between the metropolis and Derry, Enniskillen, Belfast, Armagh, Drogheda, Navan, &c., northward; Cork, Limerick, &c., southward; and Galway, Ballinasloe, Mullingar, &c., westward; as also many of minor importance, have liberally encouraged those who desired recreation, change of scene, and improvement, to gratify themselves at very small cost. In like manner did the railway companies in England act; for we find excursions to London and back from Liverpool or Manchester for 12s. 6d., in eight hours' time, and *vice versa*; Liverpool to Manchester and back, for 1s. 6d. The "trips" from the English metropolis were almost innumerable, and the charges fabulous; for instance, to Boulogne and back, remaining eight hours, and including a passport, for 7s. 6d.; to Brighton and back, 3s. 6d. Three grand trunk lines—viz., the London and North-western, the Great Northern, and the Great Western—communicate between London and Liverpool, and equal advantages are offered by each to excursionists. Complaints of irregularity as to time occasionally occur, and no doubt are justified; but having had some experience, both during previous seasons and very recently, of the way those matters are conducted in England, we can bear personal testimony to the *general* punctuality and business-like arrangements observed. We notice, however, with regret, that although there were excursions from various parts of England *to* Ireland, there were none *from* Dublin thereto—a loss easily remedied by our steam-packet companies co-operating for a reduced fare at certain periods, so as to enable passengers to catch cheap trains, and which we have reason to hope will be favourably considered next season.

LOUGH ESKE CASTLE, CO. DONEGAL.

This castle, now being erected for Thomas Brooke, Esq,, on the site of the old house, is in the Elizabethan style. The east entrance front is 130 feet in length. The principal entrance will be by a handsome *porte cocheré* projecting a distance of 30 feet from the front of house, the spandrils and panelling over the entrance doors being sculptured with the "Brooke arms." The steps to principal floor are contained within the porch. The roof of porch is formed with Gothic ribs and traceried spandrils; the spaces between rafters filled in with rough plate glass; the sides of porch have buttresses, also traceried windows and embrasures, and octagon towers on front. The principal floor contains drawing-room, 25 by 18 feet; anteroom, 18 by 18 feet; tower room *en suite* with drawing-room, 17 by 17 feet; dining-room, 22 by 18 feet; morning-room, 17 by 15 feet; grand stairs, 24 by 13 feet; inner hall, 20 by 13 feet; back stairs, strong room, water-closets, bath-room, butler's pantry, cloak-room, and two bed-rooms. The windows to east front are five light oriels, three storeys in height. Embattled parapets and gables are introduced. The octagon towers on kitchen wing to be used as ventilation shafts. The great tower overlooking the Lough on north front is 22 feet square, and 80 feet high. The walls of the first floor are built with a batter; circular bower windows project from principal floor to north front, and on bed-room floor to east front. The tower is machicolated, crenelated, and embattled, has square turrets on angles, and circular tower on 4th angle springing from corbeling, flagstaff, &c., &c. The dressings throughout are of Mountcharles sandstone. The masonry is of finely punched millstone grit, of a superior quality, procured in the neighbourhood. The mansion stands on a most picturesque site, and the tourist, after emerging from the wild and rugged scenery of the famous "Gap of Barnesmore," cannot fail to be struck with the beauty and grandeur of the landscape around Lough Eske Castle. The Lough, with its islets and wooded banks, and the wild scenery of the mountains of Bluestack and Croghnageer rising out of the Lough 2,100 feet. This castle, when complete, will constitute a most pleasing feature in the view. The architect is Mr. Fitzgibbon Louch, C.E., of Sackville-street, Londonderry; the contractor, Mr. Albert Williams; clerk of works, Mr. Michael Stedman.

THE CEMETERY, LONDONDERRY.

The Corporation of the borough of Derry having advertised and offered a premium for the best design for the principal entrance and superintendent's residence to their beautiful cemetery, awarded the prize to Mr. Fitzgibbon Louch, C.E., of that city. The design is Gothic, and comprises a grand portal, 20 feet high to apex of Gothic arch, having richly mounted jambs and heads; buttresses and responds with finials and crockets on either side of jambs; the front faces panelled and traceried; over the arch on plain face the borough arms are to be sculptured in basso relievo. On the right side of entrance is the office, with Gothic windows, and buttresses with finials and crockets to each pier, and on angles, parapets are embattled. On the left of entrance is the side gate, and on the extreme left of centre an octagon tower, rising 42 feet high, each face richly panelled and traceried in compartments and belt mouldings. The pinnacle is richly carved and crocketted. The gates are highly ornamented. The wing walls are embattled, and the spaces between filled in with mediæval pattern railing; on the extreme end of the wings are octagon piers 22 feet high each, panelled with tracery pinnacles. The whole will occupy a frontage of 120 feet, and to be executed in Scotch sandstone. The superintendent's house is a neat Gothic structure of brick, with stone dressings, and to be erected within the grounds. Mr. Matthew M'Clelland is declared the contractor at £635. It is expected that the Honorable Irish Society will defray the expenditure.

DEATH OF MR. BRUNEL, C.E.

Our quarter of the world is already aware of this sad event; and as fast as time-conquering telegraph and flying steam can communicate, every inhabitant of the civilized globe shall mourn internally. Science has lost one of its brightest ornaments, society one of its best friends. The master mind that assisted in bringing to maturity, if not conceived (?) that Herculean task, the Thames Tunnel, and some of the greatest projects of the age, has "shuffled off this mortal coil," but left undying fame behind. Like many other great men, he was called on the point of "victory," and before his plans were fully consummated.

CHIPPINGS IN BELFAST.

The terrace of dwelling-houses at Elmswood, opposite the Queen's College (already described in the Dublin Builder), is now nearing towards completion. The proprietor, Mr. Thomas Gaffickain, purposes calling the property "the Queen's Elms," in commemoration of her Majesty having been driven through the avenue in her progress to the College, on the occasion of her visit to Belfast in 1849. The central house of the seven intersects the old avenue. The owner of the estate, Edward H. Clarke, Esq., has stipulated that the row of fine old elms shall be allowed to remain. The houses are built of patent red dressed bricks, tuck jointed: dressings round doors, windows, gables, parapets, &c., being of cut freestone, from near Dungannon. The houses are being erected by Messrs. Cannon and Co., of Belfast, their estimate being £7,350, exclusive of grates, chimney-pieces, hardware, &c. Mr. Thomas Jackson, architect.

Designs for Turkish baths for two gentlemen residing short distances from town have been made by the same architect.

The competition for £50 and £25 prizes for new concert hall promises to be a very brisk one, several gentlemen of standing having entered the lists. Let us hope that the committee will, in their decision, observe the motto, "Palmam ferat qui meruit," and that deserving candidates may bear off the prizes.

FREE MUSEUM AND LIBRARY,

PEEL PARK, SALFORD, NEAR MANCHESTER.

Perhaps one of the most excellent institutions in the United Kingdom combining recreation with instruction, is the above; and having, on the occasion of a recent visit to the City of Manchester, been enabled personally to judge of its advantages, we subjoin the following particulars of its history, which must prove interesting:—

"The Park was formed in 1846, when a sum of £36,540 was subscribed for the establishment of three Parks for the free use of the people in Manchester and Salford;—of this sum, £13,000 was expended in the purchase and laying out of Lark Hill and the adjoining land, which, when completed, was named Peel Park, in honour of that distinguished statesman Sir Robert Peel. It now comprises about 40 acres of land, was opened August 22nd, 1846, and is vested in the Mayor and Town Council of Salford. The grounds are laid out in a tasteful manner, with flower-beds, lawns, grass-plots, artificial lakes, &c.; and moreover there are two large and well provided gymnasia, as well as cricket, quoit, and archery grounds. The gravel walks extend about four miles over the park; a drinking fountain and ornamental water grace the lower part; and on the upper grounds are memorial statues of the late Sir Robert Peel and the late Joseph Brotherton, M.P., in bronze, and a marble statue of the Queen, erected to commemorate her Majesty's visit to Peel Park in 1851: these three colossal statues are the work of Matthew Noble, sculptor, London. At the east entrance is the Victoria arch —a lofty Venetian arched gateway, with side entrances—designed by T. G. Barker, architect, of Salford; at the west entrance are placed the handsome iron gates presented by Earl Ducie. A glacial boulder, of granite, weighing six tons; a mass of Vesuvian lava, basalt from the Giant's Causeway, two 68-pound Russian guns, from Sebastopol, and other objects of interest adorn the grounds near the museum buildings.

The free museum and library was originated in May, 1849, by the late Joseph Brotherton, M.P. for Salford, and E. R. Langworthy, Esq., mayor in 1848-50; and the library of reference, containing 7,000 volumes, was first opened on January 9, 1850; as also a museum of local natural history, in June of same year.

In 1852 the north wing and grand staircase, Messrs. Travis and Mangnall, architects, were added, by which the present fine reading-room was attached to the library. A free lending library opened on May, 1, 1854; and the museum building now consists of four library rooms, a reading-room, seven rooms and galleries, with a lower and upper corridor, in which are displayed the collections forming the museum. The sum of £13,107 has been received in pecuniary donations, besides which, valuable presents of books, paintings, engravings, and specimens have been made. The valuation of the contents of the museum and library in August, 1858, was £17,511, and of the building, £6000—a total of £23,511; all the property is vested in the Town Council of Salford, who levy a small rate under the powers of the "Public Libraries Act," for its maintenance and support.

The interior comprises reference and lending libraries; the former containing about 16,000 volumes on science and the arts, a good and consecutive series of antient and modern historical works, with theological, political, and general literature most useful to the class of readers frequenting the reading-room, *Specifications of Patents* (presented by the Honourable Her Majesty's Commissioners of Patents), from the time of James I., 1617, to the present, chronologically arranged, the value of which to intending patentees is incalculable; and the free lending library, containing 7,500 volumes, any of which may be taken to the homes of the borrowers, upon certain guarantees. The working classes avail themselves largely of the privileges of this department, and the large reading-room is frequented by about 380 readers daily.

Arranged on both sides of the corridor are groups of sculpture—casts from the antique, presented to the museum by the Honorable the Board of Trade—amongst which are "Venus de Milo," a statue of heroic size; "Dancing Faun" (Satyr), the "Gladiator," the "Discobolus," or Quoit-thrower; "Antinous," the "Belvedere Apollo," of heroic size; the "Fighting Gladiator," in vigorous action; "Germanicus," son of Drusus and Antonia, the niece of Augustus; it is also thought to be a statue of the God of Eloquence; there are also busts of Apollo, Clyte, Epicurus, Periander, Minerva, Trajan, Augustus, Pericles, Demosthenes, Indian Bacchus, Homeric Hero, and others; Roman and Grecian antiques.

In the staircase hall and grand staircase we noticed likewise several sculptured figures and busts, Elgin marble slabs, models, &c. Inserted in the walls of the corridors are enormous slabs of Assyrian sculpture, in low relief—the originals were found by Mr. Layard in the buried city of Nimroud (ancient Nineveh).

A copy of the Nimroud obelisk stands on the upper landing; this is considered as the most important historical monument brought from the city of Nineveh; it is of black marble; on each of its sides are five panels, sculptured in bas relief, with lines of arrow-headed, or cuneiform writing.

A cast of the valuable Rosetta stone is in a case on the landing, and contains three inscriptions—one in hieroglyphics, another in the Egyptian written character, called Demotic or Enchorial, and a third in the Greek language; these inscriptions record the services which Ptolemy the Fifth, Epiphanes, rendered his country.

The south gallery contains the paintings and works of art, contributed to form the present exhibition, and we recognised several previously exhibited in Dublin, amongst which were "The Wolf and the Lamb," and "Cottage Interior—Awaiting the Return from Market," by Mulready, contributed by the Queen; some architectural models, porcelain figures, statuettes, &c., &c.; numbering in all 230 works of art.

The table cases round the gallery contain bead ornamented articles of clothing, made by the Canadian Indians; shoes, clogs, sandals, and other protections for the feet, from nearly every part of the world; a variety of articles from India and China, grotesque and elaborate carvings in wood, stone and ivory, tools for common use by the eastern workman, models of machines, weapons of war, metal mosaic work, Chinese drawings, Hindoo paintings; antiquities of Egyptio-Greek, Greek, Roman, Celtic, and Anglo Saxon periods, vases and vessels of various forms, bronzes, iron weapons, and articles made of glass; one of the cinerary urns, found near Wilmslow, is filled with the bones of an ancient British chieftain, interred perhaps 1,500 years since; a collection of stone images from the Island of Cyprus, supposed to have been made by colonists from Egypt, who settled in Cyprus long before the Christian era, and represent the gods of Egypt (Isis and Osirus); with these figures are others of Greek form made of terra cotta, evidently intended to be "*toys for children;*" one is unmistakeably a "*hobby-horse,*" with which, perhaps, the little child of a Greek or Egyptian mother was amused and played with some 2,500 years ago; a few Celtic, Irish, and mediæval antiquities; a very fine Druidic bronze sword and an old Irish Methvin drinking-cup, cut square from the willow-tree, dug from a deep bog near Belfast; several axe-heads, of stone, called "celts;" flint arrow and spear-heads, samples of old glass painting, and needlework samplers, &c., &c., showing the skill and industry of fair fingers several generations ago.

The north gallery contains industrial products and manufactures, and upon the walls are arranged oil paintings belonging to the institution, chiefly portraits, and foremost is that of the late Daniel O'Connell. Further there is a natural history room, lined with upright cases, containing more than a thousand specimens of British birds, arranged in classified order; and a foreign natural history room, the walls of which exhibit, in classified arrangement, a series of more than 2,000 typical specimens of foreign ornithology.

In the north gallery, casts of Canova's Three Graces, Gibson's

Psyche borne by the Zephyrs, Bacchus and Ariadne, Diana Robing, and others are upon pedestals. Passing to the lower room of the south wing, the walls are occupied with an extensive series of chromo-lithographs, having to the untutored and uninitiated in art all the charms of the costly original drawings. In the middle of this room is a large marble group, "Venus disarming Cupid," by Davies, sculptor, London. There is also a statue of "Ruth," by Papworth; "Highland Mary," by Spence, &c., &c. The inner division of this room contains, perhaps, the most attractive object in the whole museum and exhibition—that is, the magnificent Indian silver bedstead. The frame of this bed is made of hard wood, and is plated over the entire surface with plates of silver, richly burnished with gold; it is covered with raised ornaments and figures of animals. The massive canopy over the bed is supported by twelve pillars, the cornice is elaborately worked, the velvet mattress, pillows, and bolster are rich purple velvet, with gold and silver embroidery, and the curtains are of the finest gold and silver tissue which the native Hindoo's love for gorgeous and dazzling display ever wove, or the luxurious taste of an eastern prince ever purchased. The inscription is as follows:—Presented to Her Majesty the Queen of Great Britain, by Baboo Deenarain Sing, of Benares, for the Exhibition of Art and Industry, 1851, manufactured by Manhoo Lohar. At the angles of the platform, upon which the bed is placed, are the state umbrellas, brought from Siam, and upon the platform are placed India matting of different patterns, with a scarlet cloth, embroidered in silver, forming a covering for a bullock; these articles have been lent by her Majesty the Queen.

In the Geological Room, in the wall cases, are displayed a series of specimens of fossils, and in the table cases are minerals, ores, metals, rock specimens, corals, and coralines. There are also exhibited models of extinct animals, and other geological and mineral specimens. At the end of the room is a colossal figure, "The Thracian Falconer," modelled by Mr. Leyland, of Halifax; a fresh water aquarium, a fern case, and other objects."

On the whole, the exhibition is a highly creditable one, and we refer with much pleasure to the feast of reason partaken of during a few hours visit to the Peel Park.

STATE OF THE LIFFEY—SEWERAGE OF THE CITY.

In our last number we published a report of the Corporation meeting, when Messrs. Martin and Whelan, Town Councillors, brought forward their respective propositions upon these very important questions, and we have since heard a good deal of discussion upon them. It is really gratifying to find that *the public* are at last beginning to take a *personal* interest in matters which so deeply concern themselves, but which hitherto they have—whether from delicacy in interfering with their representatives, or supineness, we cannot say—seemed to think little about.

Messrs. Martin and Whelan well deserve the thanks of their fellow citizens. They have brought information before them which, perhaps, would otherwise not have been made public; for there is a great deal of freemasonry amongst engineers and architects, as well as amongst doctors and watchmakers. They do not like the "outsiders" to understand the secrets of their trade; and, no doubt, our well-intentioned representatives will be considered as poachers upon engineering manors. But we would say, "Go on, gentlemen." You may not hit the nail directly on the head, but every blow you strike will awake an echo at least, to tell of your good intentions, and at last sneers may turn to thanks; for even those who sneer at the propositions of the *unpaid*, must feel they are at least worthy of the respect due to disinterestedness.

We do not agree with the plans of Messrs. Martin and Whelan, but we respect their intentions; and, perhaps, we cannot do better than republish the following letter, which we take from a cotemporary, as an exposition of our own ideas. We have well considered the question of the Liffey and the sewers, and we *almost* agree with Mr. Martin that, "*Mr. Rogers's plan for separating night-soil from water is the best;*" but we should like to hear more on the subject before we conclude. When we were about to decide upon a wife, we recollect well we were very anxious to hear the opinions of our friends, although over head and ears in love; now, we cannot say we are *in love*, for there never was a more unloveable subject than *the Liffey and the sewers;* but still we should be very glad to hear what our friends can say on the subject.

Omitting *beginnings* and *endings*, we republish Mr. Rogers's letter *in extenso:*—

THE RIVER LIFFEY—THE PLANS OF MESSRS. MARTIN AND WHELAN.

It is needless, perhaps, to refer to the simpler modes of effecting the purification of the Liffey and the sewers, which have been already fully described in your journal and elsewhere. They are, perhaps, too simple and inexpensive for the second city in the empire to think of adopting. There would be no need for heavy expenditures, contracts, &c.; and it is not at all unlikely that some such plans as now proposed, may be at last fixed on, especially as there is actually at the command of the Ballast Corporation ample funds which could be legally and most legitimately applied to such a purpose; and, somehow, all corporations seem to like plans that cost hundreds of thousands in preference to simple thousands. It becomes necessary, therefore, to examine into the merits of the propositions now made.

Although the public owe thanks to the gentlemen who have given their time, &c., to the present suggestions, they are, no doubt, prepared to hear without ill-will, the objections which present themselves.

The plans proposed are:—

First, by Mr. Whelan, T.C.—"To retain the waters of the Liffey by means of stop-gates, in order to make a floating basin for ships, and by covering up the bed, to destroy the present noxious emanations."

Second, by Mr. Martin, T.C.—"To construct intercepting sewers, north and south of the river, into which all the existing sewers might empty."

Mr. Whelan's proposition is grounded on the fact that the River Avon, at Bristol, has been dammed at the lower part of the city, and a spacious basin made for the accommodation of the shipping; and that, therefore, there is nothing to prevent the same course being followed in Dublin; but he will, no doubt, see, on a little further consideration, there is no analogy between the two places.

The River Avon above Bristol is one of the most sluggish rivers perhaps in the kingdom—its general fall is little more than perceptible, and it creeps along, winter and summer alike. The Liffey is at times a mountain torrent, artificially bent up at its mouth by the piers of the bridges and the quay walls of Dublin, until it is only to be wondered at that the floods which at times occur do not sweep away some of the obstructions; and the time may yet arrive when an easterly gale, driving before it an extra body of water up the river, on a maximum spring tide, and meeting an unusual mountain flood, will produce such a catastrophe.

The River Avon, on the other hand, is not pent up at all; for, although its original bed passing through Bristol has been converted into a basin, a "New Cut" has been made—in fact, a navigable river, which carries off all the surplus water above the level of the basin, and this "New Cut" discharges into the Avon below the entrance locks.

It must be plain that if such a "safety valve" be necessary at Bristol, where there are no mountain torrents to swell the stream, it would be infinitely more essential here, where there are. Let anyone observe the height of the flood waters against the arches of the bridges at present, and then imagine that stop-gates permanently held a body of water, say even 8 or 10 feet higher than the bed of the river, and he will at once see that there would not be space sufficient above that height, to permit the passage of floods through the arches. In fact, we have already too little water way within our quay walls and through our bridges, and to curtail it in any manner without "a safety valve," such as at Bristol, would be most dangerous. I do not believe that any engineer understanding hydraulic action could think of forming the River Liffey into a basin, without providing for the discharge of the natural overplus current; and that is scarcely practicable.

But, even if it were possible to construct the basin for ships, would the water being retained rid us of the filth discharged by the sewers? Surely not! Would it destroy the odour or prevent decomposition of the matter? No! Water has no more the power to prevent decomposition than it has to hold the gases emanating from decomposition. It has been assumed by engineers, that to cover or intermix night-soil with water is to destroy its foulness—but it is a simple fallacy; decomposition takes place beneath as well as above water, and its gases rise and discharge themselves into the atmosphere.

Water in the Liffey, held as proposed, and daily supplied with the contents of the sewers, would speedily become such a mass of noxiousness, that its emanations would be unbearable. The Thames now tells its own tale in contradiction to all the futile theories of assumed science, and proclaims the fallacies which have so long misled the public.

The principle of the second proposition—the construction of intercepting sewers—is unfortunately still "sub judice" in London, therefore, it has its advocates, and will have them no doubt, until time gives the same proof that it has already given against other unjustifiable practices which have made one of the noblest rivers in the world the foulest blot upon the country and upon its engineers. But although I do not expect that my poor voice will have weight enough to wholly counteract the evil, perhaps delay might be thought desirable, until London, which seems to be our pole-star, proves the capability of her intercepting sewers.

If there be no claims arising from the population whose only bathing-place is to be converted into a cess-pool—if there be none from the inhabitants of the whole shore from Ballybough bridge to Dollymount, which would soon be as foul as the shore of the Thames at Westminister—if those grievances make no impression upon the thoughts of the authorities of our city, there is another which may have its weight. They are just about to complete a work which does them honour; and the quays, almost from end to end, are laid down with an admirable pavement—a credit to the city and its authorities. In the name of common sense, let it not be ripped up to excavate for intercepting sewers. Let it rest, at least until the citizens have received some value for the large sum it has cost—and pleasure in enjoying so creditable a work. Above all, let the inhabitants be saved from the horrors of a *winter excavation*, extending from the King's bridge to the Dodder mouth on one side of the city, and from the same starting point, to the extreme end of the north-east wall on the other, presenting miles of mountains of mire.

A respite has more than once saved "the powers that be" from the consequences of an unjust judicial punishment. Let Dublin have a respite, and in the interim there may be a hope for the citizens, for its poor bathers, and for the people of Clontarf. Mr. Martin, whom I have not the honour of knowing personally, says, in a recent letter published on the question, that "Mr. Rogers' plan for separating water from night-soil, seems to be the best. That perhaps a law to compel the owners of every house to provide a receptacle in the front area, or in the rere of each house, in which house a public company could place a tank suitable in size for the number of residents, fitted with couplings to the soil pipe or pipes, might prove effective, and that the company might find it profitable to provide tanks and machinery to remove and replace empty tanks." &c., &c.

I have to offer Mr. Martin my acknowledgment for his valuable adhesion to this proposition, and for his complimentary observation. It is ten years since the plan was published, detailing all the arrangements he alludes to, and was fully explained by public lectures at the Dublin Society—given by me, at the request of the Sanitary Association. But it has been said that "it takes ten years to make the public understand a novelty."

It will scarcely be doubted that I believe Mr. Martin's proposition for a company to be a wise one. I shall now, however, only record my conviction, that one day or other, some such plan will be universally adopted. I may not live to see it; but the day will come—because it is the simplest mode of saving rivers and sewers from pollution, and cities from infectious emanations; and also of saving for the purposes of agriculture that which was specially designed for it.

Jasper W. Rogers.

Biographical Sketches.

FRANCIS JOHNSTON, R.H.A.

Of this talented architect, to whom the architectural importance of Dublin is so much indebted, we regret to state, no memoir has yet been written. As it is not supposed that we can intuitively recount the life of one who has lived so many years before our time, and as we have been unable to learn where to derive assistance from his family, the following poor account, obtained from such available sources as local histories afford, must only be taken as something in hand, waiting for the time when his memory shall be honoured by a writer better acquainted with his professional life.

We would premise that the name of this architect is seldom written properly. It is Johnston, and not Johnstone or Johnson, as frequently found in most of the works describing the edifices of Dublin.

Another mistake connected with his name appears by the following extract from *Whitelaw's* History of Dublin, quoting *Malton*, who states that "in 1785 an elegant suite of rooms were begun to be added to the Rotundo, and the Rotundo itself to be much beautified in its external appearance, by Mr. Richard Johnston, architect, assisted by Frederick Trench, Esq., to whose exertions and taste in architecture these buildings are much indebted. The foundation stone of the new rooms was laid by the Duke of Rutland, on the 17th of July, 1785; . . . They form a pleasing range of building, 101 feet in extent, parallel with Cavendish-row, the east side of the square. The new rooms are superb; they consist of two principal apartments, one over the other, 86 feet long by 40 broad; the lower is the ball, the upper the supper and tea room. There is a smaller ball-room on the ground floor, 60 feet by 24, . . . and several lesser rooms for cards and refreshments." *Mulvany*, also, in his *Life of Gandon*, mentions "the commanding talents of Mr. Richard Johnston, an architect of whom any country might be proud." It will be perceived that the Christian name is different, from which it might be presumed they were distinct persons; otherwise who was this Richard?

Francis Johnston, however (taking the date into consideration) may have directed the above works at the Rotundo, and under the advice of Mr. Trench, as it appears that Johnston was residing at Armagh from 1786 till 1793, superintending the erection of the tower of the Cathedral there. He is believed to have been a native of that city.

In 1670 St. Andrew's Church Dublin, was rebuilt, the form injudiciously adopted being that of an ellipse, imitated from similar churches executed but not used for an auditorium at Rome. Stone gutters having been used, the main timbers of the roof and the upper part of the walls became so dangerously decayed, that about 1793 it was found necessary to rebuild the edifice. All above the lower belting was removed, by which the old form and dimensions were unfortunately retained; it is 80 feet by 60 feet, and 43 feet high to the cornice, and is, as was foreseen, so unfavourable to the voice, that a preacher of ordinary lungs cannot be heard with any distinctness by a great proportion of the congregation. The exterior is uninteresting; the interior, however, is richly decorated, and includes some details escaping beyond the usual routine in design of the day. The design included a tower, 230 feet high, in the Gothic style, the two first storeys of which alone were finished in consequence of the want of funds; the entire expense of the church, which was opened 7th March, 1807, including the new organ, was nearly £22,000.

The parish of St. George being formed in 1793, the church was commenced shortly after, and finished in 1802. It stands completely insulated in the centre of a partly rectangular and partly semi-crescent-like area, denominated St. George's-place, and surrounded by houses. The exterior dimensions of the body of the church are 92 feet in front by 84 feet in depth, having a projection in the rear for the vestry room and parish school. The whole is of hewn stone; the entrance is formed by four fluted Ionic columns, 3 feet 6 inches diameter, supporting a pediment. This portico is 42 feet long by 15 feet projection, and over it rises a handsome steeple diversified in plan at each stage, and terminating in a spire surmounted by a cross, the whole most judiciously treated, to a height of 200 feet from the pavement, forming one of the most prominent features of Dublin. The interior is 84 feet by 60, and presents the remarkable feature of the side aisles being separated from the body of the church by a partition, which partition supports the gallery extending over the aisle, so that no columns are necessary; some space, however, is lost. The cost is said to have been £70,000, though about £50,000 is generally named in the descriptions. This is one of his best productions.

At the Parliament House, a fire broke out on the 27th February, 1792, in the House of Commons, and entirely consumed that noble apartment, which was of an octangular shape. It was rebuilt by Johnston, so as very nearly to resemble the old room, but of a circular form. When purchased in 1802 by the Bank of Ireland, this building was found to require extensive alterations in the interior, to fit it for the new purposes. The Court of Requests and the above-mentioned Commons room were pulled down. Preparatory to doing so, liberal premiums were offered for designs by the governors, but none were adopted, the alterations being placed under Johnston's directions. The cash-office, then erected, one of the finest rooms in the city, is 70 feet by 53 feet, the walls panelled with Bath stone, and ornamented with 24 fluted Ionic columns of Portland stone on pedestals, and supporting a rich entablature. It is lit by windows and by a lantern, 50 feet by 30 feet, the ceiling of which is 50 feet from the stone floor. The library contained a perfect model of the whole of the Bank, the work of nearly three years' labour, and which distinctly showed the construction of this office. It is an object of much interest to visitors.

The Richmond General Penitentiary and House of Correction, for four hundred persons, situate in Grangegorman-lane, was commenced in 1812. It is 700 feet in front and 400 feet in depth; the material of dark blue limestone, the details of granite; the whole cost is put down at upwards of £50,000.

To the Foundling Hospital, situate in James's-street, and of late years known as the North Dublin Union Workhouse, Johnston added the infirmary, a plain substantial structure, finished in 1810. The building is about 150 feet long, three storeys in height; each of the twelve wards is nearly 30 feet by 20 and 14 feet high—calculated to hold twelve beds each—well ventilated. To this institution he added the chapel, of Gothic architecture, which was finished about 1816. It is placed in the centre of the buildings on the south side of the interior court, and is 70 feet by 50 feet inside; the nave or centre aisle 70 feet by 15 feet, is divided on each side by six pillars formed by a union of six others, and which supports the gallery and the roof. This chapel had the defect of being unfavourable to the voice of the preacher, when the pulpit was placed, as originally, at the extreme end of the chapel in the recess.

At the Castle, he directed (1813 to 1817) the alterations in the Wardrobe tower for the Records; and erected (1807 to 1814) the Castle Chapel, in the decorated period of the Gothic style of architecture, the lower windows of a depressed or Tudor curvature, questionably judicious The material is of the calp or common black Irish stone, and the arrangement internally consists merely of a choir, 73 feet by 35 feet, without either nave or transepts. Amongst the external sculptural decorations—which were executed by the Smiths—are numerous corbel heads of kings, bishops, &c., under hood mouldings of windows; and the internal carvings, by Stewart, an eminent artist, are very beautiful. The ceiling shows groined arches of plaster work; the panels of the gallery are of carved oak; with much other ornamental work and stained glass. The total cost was £42,000.

Whilst engaged in these works last named, his talents were directed to designing another important public edifice. The first stone of the Post-office in Sackville-street was laid by his Excellency Lord Whitworth, on the 12th of August, 1815, and was proceeded with with a degree of rapidity then unexampled in this country. It is three storeys in height; of granite, 223 feet, in front, 150 feet in depth, and 50 feet high to the top of the cornice. A grand portico of Portland stone, 80 feet in length, has six Ionic columns, each 4 feet 4 inches in diameter, which are considerably larger than that of any other in the metropolis; the pediment is surmounted by three statues by the younger Smith, representing Hibernia, Mercury, and Fidelity. The expense of this large building, completed in 1817, was over £50,000.

To Lord Whitworth's administration is also due the addition, about 1816, to the North front of the Viceregal Lodge, in the Phœnix Park. This is ornamented with a pediment supported by four Ionic pillars of Portland stone, from a design by Johnston. The whole façade has been new-faced, to correspond with this portico, before which time the structure presented a very plain appearance of brickwork only.

The Hibernian School, for the children of soldiers, in the Phœnix Park, was originally built in 1766–7. To this, wings and other additions were erected, about 1816, in a manner much to the credit of Mr. Johnston; these include the dining-hall, 100 feet by 40, and 32 feet high. The entrance gate, in the Gothic style, to the Royal Hospital, Kilmainham, removed from Usher's-island, was erected about 1818. This is the last work but one to which we find his name attached in the city of Dublin. The last is also not the least, and well exhibits the architect, artist, and man. On the 29th of April, 1824, he laid the first stone, in Abbey-street, of an edifice destined for the Royal Hibernian Academy of Painting, Sculpture, and Architecture, of which Institution he was the founder and the president. It was to the interest of Sir William Chambers, the celebrated architect, in a great measure, with King George the Third, that the artists of England were indebted for the foundation of the Royal Academy of Arts in London. It was, we believe, entirely owing to Johnston, that the scheme of the Academy was suggested, and but for his most liberal assistance it might never have existed. The building is of three storeys in front; the centre of the lower one is formed in front into a recess by two fluted Doric columns, which support the wall above. The room beyond the entrance hall, and approached by a short but spacious flight of stone steps, being the first exhibition room, is 40 feet by 20, used for water-colour drawings; communicates by a large archway, with the great saloon or gallery for oil paintings. This room is 50 feet by 40 feet, and is lighted by a lantern, whose sashes are inclined at an angle of 45 degrees, whereby the light is cast on that part of the wall only on which the paintings are to be suspended, while the spectators are left completely in the shade. This arrangement of lighting a gallery, it is believed, was first introduced by the President West, in his picture-gallery in Newman-street, London, and erected about 1820. It is, no doubt, the best method for the purpose. A very ingeniously contrived octangular staircase leads to the council room, keeper's apartments, and which are all in the front building. The first stone records that Johnston "munificently founded this building for their (the artists) use, to form a National School of Art," and by its erection at his own private expense, besides purchasing the fee-simple of the ground, he has raised for himself—says *Wright*, in his Guide—"a monument such as the pride of kings could not confer, and has left to posterity a name to be cherished and revered, while the arts shall have an existence in the land."

He held for many years the office of architect to the Board of Works. We are quite unacquainted with the buildings, if any, in the interior parts of Ireland, that he may have been commissioned to design; and have only left on record that he died on the 14th of March 1829, and was buried in St. George's burial-ground (adjoining the Royal Canal), on the north side.

As already noticed, Johnston added greatly to the ornamentation of the city. Though exhibiting originality in Italian architecture, he did not decline to attempt the Grecian and Gothic styles, and though the latter works may not show so good an appreciation of the peculiarities of the style, as we are now accustomed to look for, they are of great merit, especially when it is recollected that the details, more particularly of the Castle Chapel, do not abound in Ireland to the same extent as in England, and at the time this chapel was erected, there were not so many publications on the subject as at present. Did he travel in England? is a question that naturally arises in one's mind; who was his original instructor; and had he any pupils? are among the many questions to which we should have wished for answers, before printing this attempt, and we shall be happy to learn further authentic particulars.

GEORGE ENSOR.

The Rotundo, adjoining the Lying-in-Hospital, is a noble apartment, 80 feet in diameter, by 40 feet in height. The walls are decorated with 18 Corinthian pilasters, the intervals between which are occupied by windows enriched by architraves and pediments. The ceiling is divided by concentric circles, intersected by radii—a design simple but effective. It was built in the year 1757, for a place of public entertainments, and in it have been likewise held a large number of important public meetings. Its acoustical properties are admirable. Some of the present decorations on the exterior of the building appear to have been added some years after by Johnston.

This, we regret to say, is all we have been able to find relating to one who has left so good a specimen of his talents.

Correspondence.

NEW LINE OF COMMUNICATION BETWEEN THE CITY AND CLONTARF.

Sir—I claim no originality of idea for this project, nevertheless, it may have some novelty for many of your readers. By previous numbers of your journal, I observe that with your usual watchful eye, and very judiciously, you direct much attention to the long-neglected north side, where there is ample opportunity—nay, necessity—for vast improvement. You tell us that "Annesley and Newcomen bridges, by their construction, present serious impediments to public traffic;" also that "the waste space between Clontarf road and Ballybough-bridge, now a swamp, ought to be reclaimed and made a park of." Very desirable, no doubt, but what think you of this? I recently met with a Ballast-office map, dated A.D. 1717, and published before railways were thought of, on which it is clearly defined, that the veritable Church-road, as also East-road, and another near the site of new graving-dock, now in existence was projected to be continued across the sea to Clontarf-road, and the holdings of various tenants at either side clearly marked out.

Now a railway *does* exist there! Suppose arrangements were made with the company, by the proper authorities, for a pedestrian communication—for the present—along the sloped embankment from the Wharf-road to Clontarf-road, and thereby forthwith save an unnecessary journey of at least *a mile and a-half* to inhabitants at portion of the north side. Hereafter it *might* prove further desirable to enclose the area between the railway and Annesley-bridge for a park or building purposes, or, by sluice-gates, make a lake thereof; and then form *a route for vehicles* along the pathway site, communicating with the quays, docks, &c.; and when the projected bridge across the Liffey, at the Custom-house, shall have been constructed, bring Irishtown and Clontarf within *twenty minutes* omnibus communication of each other, now three quarters of an hour at least direct by other vehicles. S.

[The project merits consideration.—Ed.]

DUST!

Sir—May I ask, how is it that where there are such vast spaces about the city that require filling in, and for which "dust" would be such a valuable article, the system of ash-pit cleansing is so defective and expensive? In London, Manchester, Liverpool, and other cities, dust is sought for as a compliment, and removed gratis; *here* it is quite a compliment to get it removed at a price. Contracts are entered into in the above-named places with the local Corporations, and the contractors' carts are sent round every night. Contractors there, by cleansing "for nothing," make fortunes of the material alone, which is here regarded as useless.

By the excellent series of articles in your journal on "Sanitary arrangements," "Water supply," &c., you have exposed many palpable defects in our system, and I trust that you will permit insertion of these few remarks.

A Householder and Subscriber.

THE TERMINUS IN HARCOURT-STREET.

Sir—Doubtless you have taken notice of the novel and pleasing front of the railway terminus in Harcourt-street, and the admirable arrangement of its piazza, allowing sufficient space for *several* vehicles to receive passengers at the same time, while their utmost exposure to weather is while stepping across the footway. Within a few days, however, I find, to my utter dismay, that the piazza is to be closed in with iron railing, and undo all the comforts previously prepared for the public. I freely grant that annoyances might spring up in other forms, as is too often to be found in such places, but surely in those days of well-regulated police it is not to be dreaded; and at the worst, a trifle to some poor person to look after the piazza each morning would remedy all. Architecturally viewing the matter, iron railings of any kind are injurious to the appearance of fronts, particularly where columns are introduced, and are merely regarded as an excrescence, but disappearing of late, as may be seen by some of our public monuments.

A Subscriber.

Church Building Intelligence.

[We are requested by Mr. Moran to state, that the water-font in new Augustinian church, Galway (see page 112), described to be in the *Ionic* order—whereas the style of the edifice is *Gothic*—was not specially constructed therefor, but designed several years since by a Galway artist, and is only intended to answer a *temporary* purpose.—Ed.]

The new church of St. Augustine, at Drogheda, is to be built from designs by Mr. M. B. Moran, architect. Internal dimensions, 145 by 60 feet; style, early Gothic, bordering on tracery period; comprises internally, nave, aisles, lateral chapel, tower, sacristy at south-east angle, and connecting cloister. Nave will have arcades with polished marble piers.

The tenders for roofing, &c., Armagh Cathedral, as per plans, &c., by Mr. M'Carthy, architect, were as follows:—M'Gaughey (Armagh), £16,722; Robert Farrell (Dublin), £13,009; Thos. Byrne (Belfast), £9,896; Connolly (Armagh), £8,339. Mr. Byrne has obtained the contract, and made a supplemental contract to finish the interior for £5,400, and the Church is to be ready for consecration in June, 1863.

During a recent visit to Ballinasloe we noticed that a new Roman Catholic church had been erected there, for which on enquiry we found that plans had been originally furnished by Mr. M'Carthy, architect, but not carried out according to the intentions of that gentleman.

The new church at Mayo Bridge was designed by Mr. M'Carthy, and not Mr. John Murray, of Dundalk (as learned from some of our contemporaries), who is acting as clerk of works; Mr. M'Gaughey, of Armagh, the builder. It will accommodate 1,400 persons, and cost £3.000. Style, Gothic.

A church of small dimensions is being built at Nire, a mountainous district in the County Waterford. Same architect.

A large conventual building has been erected at Enniskillen. It is three storeys high, and immediately adjoining are two-storey school-houses, containing apartments 84 by 24 feet, in which female children are instructed.

The interior of the new parochial (R.C.) church of St. James, at Dublin, is nearly completed, and a grand stained glass oriel window, by Messrs. O'Connor, of London, has been erected. The design illustrates the birth, death, and majesty of the Saviour; and forty-three figures are introduced. The window is 30 feet in height and 14 in width, divided into five lights with geometrical tracery.

A new church has just been erected at Clonroche, Wexford.

The Marquis of Waterford has subscribed £50 towards repairing the cathedral of Derry.

The Remonstrant Presbyterian congregation of Newtownlimavady have erected a manse at Tullyhoe; style, Elizabethan. Fitzgibbon Louch, Esq., C.E., Londonderry, the architect; Mr. James Allison, Newtownlimavady, contractor.

[Several handsome villas have been designed by the same architect, and are about being erected in the vicinity of Londonderry.]

Convent of Mercy at Enniskillen.—A large and commodious convent, three storeys high, has been built within the last two or three years by the Very Rev. Dean Boylan, on one of the prettiest sites on the banks of the beautiful Erne, immediately adjoining the town of Enniskillen, by subscription. Immediately adjoining the convent, spacious schoolrooms, 24 by 84 feet, two storeys high, have been built, in which at present are nearly 200 female children.

Notes of New Works.

The Board of Public Works has commenced building an additional wing to the female training department, fronting Talbot street, in connection with the model schools at Marlborough-street; and we understand that a corresponding wing is in contemplation, both harmonizing in architectural character with the existing Italian structure. We understand Mr. John Nolan, of Meredyth-place, is the builder. The same body is also about having a coastguard station built at Clontarf, on the North Bull.

In the town of Belfast twenty-five ordinary drinking fountains are being erected. We hope the movement will extend to many towns of less importance, where fairs and markets are held especially.

The dwelling-house at Glenmarine, Brittas, Co. Dublin, on the recently purchased estate of Thomas M'Adam, Esq., of Limerick, has been improved both externally and internally, under the directions of Mr. Lyons, architect; Mr. Whiteacre, builder.

The Magnetic Telegraph Company have extended their wires to the Curragh Camp.

The Town Council of Derry are about erecting an entrance gateway and superintendent's house at the cemetery adjoining the town; and the Port Commissioners are forming an embankment, roadway, and stone bulwark extending from Strand-road to graving-dock.

The statue erected at Portrush, in memory of the late Rev. Dr. Adam Clarke, has been inaugurated. It is said to be a truthful historic likeness, and is in the usual attire of the celebrated divine. The statue, when raised on the plinth in front of the obelisk, will stand eight feet high, and will be visible from the different approaches to Portrush. The obelisk is forty-five feet high. The laying the foundation-stone of the Memorial Chapel, at Portstewart, took place at the same time

A movement has been set on foot for erecting, on a plot of ground at the rere of the Royal Cork Institution, a public museum and library.

Alterations are being made to premises at Carlow, lately taken by the National Bank. W. F. Caldbeck, architect; Mr. Faircloth, contractor.

The monumental oratory previously mentioned at Glasnevin Cemetery, is in course of completion. Mr. Lyons, architect; Mr. Wm. Crowe, contractor. It will be a novel but suitable and permanent structure of chiselled Foxrock granite, not Scotch stone, as intended.

AMERICAN ITEMS.

A handsome church has been erected by the Irish and Acadian French of Yarmouth, Nova Scotia, at Boston.

The foundation-stone of the new church of St. Patrick at Norristown, has been laid.

Mr. T. Molson, of Montreal, has at his own expense erected St. Thomas' Church in that city, also expended £50,000 in founding a College to which he contributes £1,000 annually.

Milwaukee, aside from its superabundant dust, is one of the handsomest cities in the Union, and comprises a large number of splendid private residences, with liberal surroundings in the way of parks, gardens, and fountains. A large portion of the town is built on made land excavated from the hills and filled into the wild rice swamp, traces of which may be seen here and there. There are very few buildings of other material than the yellow Milwaukee brick, which, however, built into neat architectural designs, makes handsome edifices. There are several buildings constructed of Chicago marble, and quite ornate in execution. The churches, with the exception of the Cathedral, are quite ordinary affairs externally. An immense amount of building is in progress. On every street are being constructed private residences or extensive blocks for business. Indeed, the air of Milwaukee conveys an impression of prosperity, with the exception of the non-commissioned vessels lying at her docks, though that is not peculiar to the City of Bricks. The New Hall Hotel, recently erected, is one of the most colossal and magnificent buildings in the world (a description will be found in a previous number of the Dublin Builder), and quite throws in the shade structures of a similar character in Europe.

An appropriate site for a permanent church structure, capable of accommodating at least 2.000, persons has been purchased. This, and the erection of a temporary building to be used for service until the permanent structure shall be completed, has been commenced. The contract was taken up at a cost of 2,300 dollars—it is now roofed in, and will be completed and ready for use before the 5th of October next.

The recently constructed aqueduct about four miles above Port Byron, which conveys the waters of the canal over the Seneca River, is an immense structure. It is second, as a gigantic work of art, only to the Suspension Bridge at Niagara, though not by any means similar to it. Its cost was not far from two hundred thousand dollars.

The new burying-place, called the Fort Hill Cemetery, at Auburn, is a notable place. The first thing that strikes the gaze of the visitor is Logan's monument—a stone pillar about fifty or sixty feet high, and ten feet broad at its base. It was erected some eight years ago, by the company which owns Fort Hill, to the memory of that noble Indian chief, who, it is thought, died in this city. The hill has the appearance of having once been an Indian fort, as earthworks surround the brow of the elevation, and warlike implements have been excavated from the ground. Among the principal vaults, is the most extensive one of the Pettitt's, which cost 8,000 dollars, being built of fine marble and stone, with some tasteful ornamental work displayed upon the inside, as well as the outside. Another vault, constructed wholly of iron, and owned by John Curtis, cost 5,000 dols.

The New York State Prison, which occupies a central position in the city, was built in 1816 forty-three years ago. The boundary walls are each 500 feet long, and at least 20 feet high. The different mechanical departments in the prison are under the charge of superintendents and agents both of the State and of the gentlemen to whom the labour of the convicts is given for a consideration agreed upon by the contracting parties, and comprise coopers' and tool shops, a manufactory of agricultural implements, large shoe shop, in which hundreds of hands are actively employed, harness shop, furniture and upholstering rooms, carpet-weaving room, in which five hundred yards of all kinds of carpeting are daily manufactured, and wool-carding and spinning rooms. Wool is furnished in its natural state, and here undergoes those changes which are at last completed in beautiful carpets, in fine cloths, &c, &c, One of the sights of the prison is the dining-room. The dinner procession of convicts is an interesting sight. The workmen in each shop form in single file, and each man takes hold of the jacket of the man ahead of him, and thus they march to their dinner, which is (as is also breakfast) taken on the lower floor; supper being provided for them in their cells. There are now 797 convicts in the prison, the lowest number during the past ten months. Several of the prisoners are now undergoing punishment by wearing bonnets of iron, or frames which cover their heads. and by carrying the ball to which is attached a heavy chain, which is also fastened to the leg.

In close proximity to the State Prison is the Insane Convict Asylum—the only one in the State, or in the United States, which is a separate building, built expressly for the purpose. It is a large and substantial structure, and now contains 57 insane criminals.

A ride out to Owasco Lake gave me an opportunity of seeing what is generally conceded to be one of the finest sheets of water in the State. It is about a mile and a-half wide. at the widest point, and ten or twelve miles long. With a fast nag and a fast driver, I have seen the whole of Auburn to-day. Governor Seward's residence is finely located in the centre of a little forest of shrubbery. The building is not showy, nor as expensive as many others in this place, but is, however, substantial and comfortable. The weather is quite cold here. and overcoats are generally worn. I may write again from Auburn.

Wheeling, nine years back, had but one place of public worship; Wheeling now has 18 churches and three chapels, of which the cathedral and church of St. Alphonsus, in the town of Wheeling, are among the finest specimens in their kind of high architectural design that adorn any city in the Union.

Laying the Corner-Stone of a New Church in Brooklyn.—The corner-stone of a new Catholic Church, to be called St. Peter's, was laid with appropriate ceremonies, recently, in the presence of a concourse of people estimated at from 15,000 to 20,000. The spire of the church will be 170 feet in height. There are to be 202 pews on the main floor, capable of seating 1,000 persons, with room for 400 more in the organ gallery. The church and presbytery are to be finished in June, 1860, when a school is to be commenced on Hicks-street, upon which the work will cost 20,000 dollars.

The opera house at Cincinnati cost half-a-million of dollars during erection; it was designed and ornamented by some of the most skilful architects in America. The Merchants' Exchange is a spacious and expensive building, and the library is said to be a complete model.

Monthly Railway Memoranda.

There is a chance of adjustment of the differences which have hitherto retarded the formation of a railway from Cork to Macroom. A meeting was held recently, at which Mr. Leader and Mr. Colthurst C.E., and other gentlemen attended. Two projects came before the county under the sanction of professional talent. One of them—the southern line—introduced by Sir John Benson, proposes starting from the terminus of the Cork and Bandon Railway, and leave that line at about a mile distant from Cork, cross through the lands of Wilton, under Wilton demesne, and through Bishopstown to Ballincollig, within a short distance of the gunpowder mills. From Ballincollig along the valley of the Bride, and in almost a level line to Crookstown, and from Crookstown to Macroom; the entire distance, inclusive of the mile of the Cork and Bandon Railway, being 23¼ miles. The estimated cost. for a double line of rails, is £115,000, or under £5,000 per mile. The northern line, by Mr. Colthurst, C.E., proposes to start from the new bridge of Macroom, run close to the coach road, pass through the vale of Ummara, and along the lower part of Coolalta, to the lawn of Oakgrove. It crosses the Dripsey stream, and then entering the valley of the Lee runs under Innislinga abbey through the valley of Inniscarra and on to a point near the Cork waterworks, or it may by an additional expenditure be carried to a point near the heart of the sea.

The protracted disputes between the two principal railway companies in Ireland, the Great Southern and Western, and Midland Great Western, are in course of amicable adjustment, preliminaries having been agreed on, and the details of a permanent arrangement referred to arbitration.

Two schemes for connecting Derry with Letterkenny, by railway, are on foot, one proposing a line from the latter place to Johnstown, there to join the Derry and Enniskillen Railway, at a cost of £100,000 for 14½ miles in length; another to extend the Derry and Lough Swilly line to Letterkenny.

The report of the directors of the Great Northern and Western Railway states that the agreement between the Midland Great Western Railway of Ireland Company and this company has been completed. An act has passed for the extension of the Great Northern and Western line from Castlereagh to Castlebar. Much of the land between Roscommon and Castlereagh is already purchased, and it is expected that the contractors will be in possession of the whole this month. The report of the engineers (Messrs. Fowler and Barry) state that since the last report the works of the railway between Athlone and Roscommon have been proceeded with by the contractors in an energetic manner. The earthwork, bridges, and culvert are far advanced towards completion, and considerably more than one-third the length of the permanent way is laid. The supply of permanent materials now on the ground and the state of the works enable the contractors to make rapid progress with the remaining length of the permanent way, and at the present time more than a mile per week is being laid down.

The affairs of the Waterford and Kilkenny Railway appear to have arrived at a crisis. The Government Loan Commissioners have, it is stated, taken possession of the line, in virtue of their claim for money advanced, and are to let it on lease to other parties. There are said to be three competitors for the tenancy, viz., the Waterford and Limerick Railway Company, the Great Southern and Western Railway Company, and Mr. Nixon, or the company which that gentleman represents. It is said that the Waterford and Limerick Company have made the highest bid, and are likely to the lease.

NEW ULSTER BANK ESTABLISHMENT.

The new Ulster Bank, in Waring-street, is now nearly completed in all its external parts, and when the building will be finished it will be an ornament to Belfast. There is nothing certainly equal to it in point of architectural beauty in Belfast or in the North of Ireland; and, viewing it as a public building, the only thing to be regretted regarding it is that it is situated in a place where it never now can be conspicuous. The building is erected on a piece of ground 119 feet in frontage and 130 feet in rere, and is three storeys high. The façade measures 91 feet in length and 95 feet 6 inches in depth. From the ground to the top of the parapet in front, the height is 55 feet, and the whole height, including a group of figures which are to ornament the building, is 77 feet. The style of architecture adopted is the Italian, and all the details are carried out in strict conformity with the best period of the Roman school. For the best design the directors and committee of the bank offered a premium of £100, and this stimulated architects into a sharp competition, as is evident from the fact that there were no fewer than sixty-seven competitors. The design of Mr. James Hamilton, of Glasgow, was selected, and in accordance with that design the edifice has been erected. The work was begun in February, 1858. The foundations were laid with piles, each 42 feet long, formed with Memel timber and concrete of blue lias lime, covered over with freestone flags, 13 inches thick; and the work of laying the piles was necessarily a tedious one. Nothing short of such precautions to secure proper foundations would have sufficed to have secured stability for the structure to be raised upon them. The building starts with a base of Scotch freestone, two feet nine inches in height all round the front and east and west wings. The window cases all round the sides and back of the building are of cut freestone; and the inside and back of the edifice are built of Moore's perforated brick, two feet thick. These perforated bricks are very much esteemed by builders, on account of their superiority, in every respect, over the old solid brick, which they are rapidly superseding. We have stated that the building is three storeys in height. First, we have the basement storey; next, a cash-office storey; and third, a residence storey. The basement storey is eight feet high in the clear, and is arched over. This storey is made fireproof. The cash-office is approached by a flight of twelve granite steps, at the top of which we have a magnificent portico, with eight coupled Doric columns. You then enter the cash-office by a capacious folding door, and approach the counter in front of you. This office is 68 feet long, by 40 feet wide. The space in front of the counter contains 1,080 square feet, and is abundantly sufficient for the accommodation of the public. The interior of this place is very handsome and capacious in the extreme. It is lighted by a spacious dome, 73 feet in altitude. The dome will be filled in with stained glass, figured, and exquisitely designed and adorned. Four columns, each 28 feet high, of Aberdeen granite, highly polished, with marble bases and Corinthian capitals, support the dome; and round the walls are pilasters to correspond. The floor is, or will be, covered with encaustic tiles of different designs and colouring. The windows will be of stained glass, and in perfect keeping with the features and character of the building. Altogether, this department will be extremely beautiful. Along the right wing are situated the director's dressing room, retiring room, manager's room, director's room, secretary's room, and apartments for the inspector and law officer; and on the left, in front, is a large room for the accommodation of the committee or shareholders; and on a line with it, running to the rere, are the strangers' room, book-keeper's apartment, and safe and book-safe. Over the Doric columns; on the outside of the building on the second storey, rise eight Corinthian columns, above which runs an enriched frieze, elaborately sculptured and surmounted by a Corinthian cornice and blocking. Above that again we have a panelled parapet, enriched piers, and antique vases, with a symbolic group of three figures, the principal and centre one being Britannia, with heraldic devices under it. Along the side compartments and returns are Doric and Corinthian pilasters, which correspond and harmonise with the pillars and the character of the edifice. Between the pilasters and the columns there are beautiful arch-topped windows, the whole being finished with highly enriched spandrils and mask keystones. The wing rooms in the business storey are 17 feet 3 inches in height, and the floors, which are fire-proof, have iron joists, filled in with concrete, and one-half is flagged with Arbroath stones, and the other half boarded. The rooms on the third storey are 16 feet 6 inches in height, and well adapted for the purposes for which they are intended. They consist in front of a bed-room, bath-room, drawing-room, and dining-room; and on the right wing are a nursery and bed-room, and on the left are pantry, kitchen, and scullery. The entire building is fireproof, the residence floor being upon Fox and Barrett's principle. When finished the cost of the building will be about £20,000, exclusive of a good deal of extra work which must be done to the surrounding walls and buildings, which will partly be taken down, in order to have them in keeping with the design of the building itself. Mr. James Moore, who represents Mr. Hamilton, the architect, and so efficiently superintends the progress of the work going on at the building, informed us that the bank will not be ready for business until about June, 1860. We may mention that it was Mr. Moore who built, with so much credit to himself. the Ulster Arcade for the Messrs. Lindsay, and coupling the Ulster Bank with the Arcade, we think he may be proud in having his name associated with the erection of two such splendid buildings.—*Belfast Mercury.*

Miscellaneous.

RIO JANEIRO GRAND THEATRE, AND OTTAWA BUILDINGS COMPETITIONS.—We learn from the *Bath Express* that Mr. Green, architect, of that city, has obtained the second premium for his design for the New Grand Theatre, at Rio Janeiro, which will cover more than four times the area of that on which the Covent Garden Theatre stands, and it will cost more than half a million of money. The competitors embraced architects from London, Paris, Vienna, Berlin, New York, and other principal cities in the world. Twenty-five designs were selected for the final competition, and the first premium of £2.250 was obtained by a German (Mr. Walheneldt, living at Rio de Janeiro; the second of £900 by an Englishman (Mr. Green), and the third by an American (Mr. Swan, of Philadelphia.) Not only were the premiums offered by the Brazilian government very liberal, but it redounds greatly to its credit that the amounts were paid to the successful competitors immediately the award was made. In Canada, too, Mr. Green, as also Messrs. Fuller and Stent, all of them professionally educated in Bath, have attained high honours in the competition for the new Houses of Parliament, to be erected at Ottawa. These structures will be built on a scale of magnificence worthy the grandeur of that fine country, of which Ottawa is to be the metropolis. Sixteen architects competed for the honour. out of which number Messrs. Fuller and Stent are the successful candidates. The following is the exact position awarded them:—Parliament Houses—Mr. Fuller, 1st premium, 1,000 dollars; Messrs. Stent and Laver, 2nd do., 400 dollars. Departmental buildings—Messrs. Stent and Laver, 1st premium, 1,000 dollars; Mr. Fuller, 2nd do., 400 dollars. Governor's residence—Mr. Cumberland, 1st premium, 400 dollars; Messrs. Fuller and Green, 2nd do., 200 dollars.

EXPLOSION OF GAS.—Lord Limerick has narrowly escaped severe injury from an explosion of gas. Some alterations to the gas-fittings were being made in his house near Limerick, and, through some carelessness, the lower portion of the dwelling, including the servants' hall, became impregnated with gas. A person holding a lighted candel at this time came into the room, and immediately a thundering explosion took place which shook the entire edifice, reducing the whole of the furniture in the servants' kitchen and adjoining room to pieces, and causing considerable damage in other portions of the building. Several of the servants received slight burns in different parts of the body, and were removed to the hospital; but fortunately no life was lost. The library, which is placed directly over the room whence the explosion originated, was also the scene of some injuries. Lord Limerick himself had only left this room a few moments before the explosion occurred.

CRYSTAL PALACE.—VICTORIA BRIDGE.—A model of this great work of engineering skill (a description of which appears in this No. of DUBLIN BUILDER, and which is to be opened in November next) has been placed in the centre of the nave at the Crystal Palace. The model, which is the property of the Canadian government, being constructed to scale, visitors may form some conception of the gigantic character of the enterprise which has succeeded in bridgeing the St. Lawrence, by a structure only 176 feet less than two miles in length, as well as some slight notion of the want of through communication between Canada and America, which would commercially justify so costly an undertaking. A large collection of photographs, taken at various times during the construction of the bridge, kindly lent for exibition by Sir Cusack P. Roney, affords much information respecting the progress of the structure. To those persons who may be desirous of comparing the proportions of this great bridge with those of similar works in this country, the model gallery of the Crystal Palace affords ample opportunity, as in it will be found models of the Britannia Bridge over the Menai Straits, the bridge over the Dnieper at Kieff (the longest suspension-bridge in the world), the Saltash bridge on the South Devon Railway at Plymouth (one of the latest and most gigantic works of the late Mr. Brunel), the Crumlin Viaduct, and other great engineering works. As adding to the interest of the subject, it may be mentioned that the passengers by the Great Eastern will probably be in America at the time fixed for the formal opening of the Victoria Bridge; and it will be a coincidence long to be remembered, that the successful completion of two such great works as the Great Ship and the Victoria Bridge should have resulted at the same period, and through the labours of English engineers.—*Building News.*

[A recent visit to the model gallery of the Crystal Palace, and inspection of the model in question, fully confirms the opinion of our valued contemporary.—ED.]

NEW MUZZLE-LOADING ORDNANCE.—Sir William Armstrong recently obtained protection under the patent law, for an improvement in muzzle-loading ordnance and projectiles; which he thus describes:—"In rifled ordnance as heretofore made (other than breech-loading ordnance) the loading, owing to the necessary tightness of the fit, presents serious practical difficulties which it is the object of this invention to avoid. For this purpose I cause the projectile, fitted with suitable fillets or projections on one side, to enter the piece of ordnance by one and to leave it by another track, the projectile and the piece of ordnance being so adapted to each other as that the projectiles on entering, and throughout the loading of the piece of ordnance, shall be free and easy to move, but, on leaving the piece of ordnance, shall be sufficiently tight to preserve the steadiness essential to precision of action. The projectile, in addition to the ordinary projections or projectiles adapted for rifled ordnance, is furnished with a certain piece or pieces of a soft material, which will crush and prevent any jamming or too great tightness as the projectile leaves the piece of ordnance."

AMERICAN STEAM FIRE-ENGINE.—The *Scientific American* states that one of the newly-constructed locomotive steam fire-engines lately ran twenty miles on a common road in two hours. The whole weight of the engine water and 9 passengers, was 1 [illegible] 0lbs, 9,000 lbs. being the weight of the engine alone.

ARTIFICIAL STATUARY MARBLE.—Mr. Jobard, of Brussels, has invented an artificial statuary marble, which is to be prepared for sculptors in a liquid state, and can be moulded with the plaster figure. It is said to be pure and spotless as Carrara—transparent, polished, and hard as the real substance taken from the quarry.

From Milan we learn that a subscription is mooted for an equestrian statue of Napoleon III., to be erected in front of the white marble minster or duomo that towers over the plains of liberated Lombardy.

A communication from Rome says:—The magnificent statue of the Marine Venus, which was discovered a few weeks ago in some excavations made in the gardens of Julius Cæsar, not far from the Portese Gate, has been definitely purchased for the Imperial Museum of St. Petersburgh, for the sum of about 50,000f.

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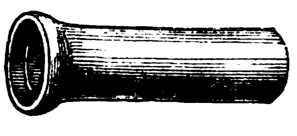

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Vol. I.—No. 11.

PASSING EVENTS.

TOPICS replete with interest to both the scientific and mercantile communities, have presented themselves in such rapid succession during the preceding month, that we find it impossible in our available space to give to each sufficiently lengthy and special consideration.

How strangely coincidental that scarcely had the death-bell ceased its tolling, and the remains of one of England's brightest luminaries in the scientific hemisphere been lowered into their last resting-place; than the world was again taken by surprise at the unexpected announcement of the death of another in the same profession, to whose abilities and energy in developing possibilities, mankind in every quarter of the globe is indebted. Robert Stephenson was destined to improve and perfect what his father "George" had begun, and nobly has he sustained the reputation of his ancestor. To both father and son the world at large owe more for social and commercial advancement, than to the whole phalanx of political agitators and economists, reform champions, &c., &c., of the age. Ireland alone—though not the scene of his triumphs even partially—has directly profited by his genius in surmounting apparent obstacles to facility of intercourse with the sister country; for by his conception and skilful completion of that stupendous work, the Britannia Tubular Bridge, she has been brought nearer those on whom her progress most depends; nearer in a commercial sense, as evidenced by the rapidly increasing traffic and importance of business transactions between the two countries; and in a social, as affording better opportunity for mutual appreciation and the dispelling of ancient prejudices, which happily, day by day, *are* gradually vanishing. This month—and probably before the sorrowful news shall have well reached our transatlantic friends—another mighty monument of his genius—the Victoria Bridge at Montreal, and now the greatest structure of its kind in the world—is to be completed. Particulars of this work may be found in other portions of the journal, and a perusal will serve to show the great moral courage, the wonderful skill, the unceasing energy, that was brought to bear to ensure the successful completion of such a herculean task. With its inauguration in January, will be associated a universal regret for the melancholy event that deprived the projector, the satisfaction and pride of witnessing his work accomplished. It has been with truth remarked that Mr. Robert Stephenson was peculiarly fortunate, both in the character of his works being utilitarian, and in his projects being matured—indeed society has reason to congratulate itself on this fact; for we believe that many giant minds exist unknown in every age, and many glorious projects are conceived whose maturity would immortalize their authors, but die with them in obscurity for lack of opportunity to realize them. Next to this, the engrossing topics in every grade of society are the "Great Eastern," that monster of the deep—beside whose huge proportions all other monsters sink into insignificance—where will be her destination?—what are the probabilities of her success as a commercial speculation? The consideration of these queries we must leave to longer heads than ours, but in an artistic capacity we must confess that her vastness seems to be her only recommendation. A more graceless, bulky, or unwieldy mass could scarcely ride the deep than she is. For this expression we are prepared to incur censure from a *few* of the enthusiasts, who proclaim her "a miracle of art;" yet for the one who may be found to differ, twenty will agree with us that she is certainly not in contour an artistic model. Will she answer her purpose?—will she conveniently carry an army of 10,000 soldiers fully equipped for a campaign?—will she achieve, in all weathers, a minimum speed of 15 knots an hour?—will her vastness and her build lessen the motion to be experienced by her passengers, and the inconvenience of sea sickness?—will she weather a storm? These are every-day questions yet to be answered by time and a few trips across the troubled waters of the broad Atlantic; but without professing to be an authority in nautical matters, we confess to number amongst those who entertain misgivings as to her seafaring qualities; though, with *all* wondering at her vastness, and admiring her appointments.

Would that it became our pleasure to announce this month, with reference to the London strike, the same satisfactory adjustment of differences as in the case of the Dublin carpenters a short time since; but such is not permitted, for dissension yet prevails, and as long as a shilling dividend is obtainable, for many of those who have warred against the declaration, it appears likely to remain so. Slowly, but surely, however, the masters appear to be gaining ground; and have maintained the lock-out, though in a considerable minority, against a multitude of opponents, with a determination and unanimity of purpose truly remarkable, but very characteristic of John Bull. From the most recent authenticated returns by the Central Association of Master Builders, we learn that the following is the result. The numbers of men returned to work under the declaration—

For the week ending	September	17,	were	4,242
" "	"	24,	"	7,620
" "	October	1,	"	9,037
" "	"	8,	"	10,740
" "	"	15,	"	11,692
" "	"	22,	"	12,226

"It was also reported that on the 22nd October, 2,700 men (in addition to the 12,226) had entered establishments under a shop rule embracing the spirit of the declaration." Hence it would appear that about 6,000 skilled hands still remain voluntarily out of employment; and assuming that their families represent even an average of three for each man, it is clear some 18,000 human beings are, from this misguided movement, thrown into a state of self-imposed mendicancy. We read figures and facts here relative to this strike with comparative indifference, but to become an eye-witness awakens the senses to pity and concern, not perhaps for the wrong-headed individuals themselves, but for their starving wives and innocent offspring. Recently we saw distributed in different districts of the English metropolis, groups of the malcontents lazily lolling in the vicinity of the buildings, they were a short time since assisting in rearing; regarding them with an air of fixed and sullen determination, and heaping curses both loud and deep—accompanied, when opportunity offered, with hooting and blows of missiles—on their fellows who had resumed. We anxiously hope for the total cessation of hostilities, for the odds now are so unequal, that the contest must speedily come to a close.

THE PROGRESS OF ARCHITECTURE IN IRELAND.

BY (THE LATE) JAMES GANDON, ARCHITECT.

(Continued from page 107.)

THE ingenious Dr. Young, late Bishop of Clonfert, in the Transactions of the Royal Irish Academy, has done little more than confine himself to the theory of the Gothic arch—how far it has peculiar properties of sustaining incumbent weights under peculiar circumstances. In stating the sentiments of different writers, concerning the origin of the Gothic arch, his lordship refers to Stukely, who considers the pointed arch and slender pillar to have been invented by Abraham—an opinion that Warburton adopted in his notes on Pope's Fourth Epistle, where he calls them calf cathedrals. This idea is probably taken from the thirteenth chapter of third book of Albertus, who has these words—"Etenim ducendi arcus rationem traxisse homines hinc puto. Nam cum viderent trabes duas junctis capitibus posse, imis pedibus divaricatis, ita fermari ut mutuo innexu, paribusque contra se ponderibus sisterent, placuit inventum." Stukely had nothing more to do but to give these trabes or beams their branches and leaves, to make his patriarchal arch. In the like manner the author of the History of the Gothic Building at Batalha supposes the Gothic architects attended to the proportions of the human frame. This notion is taken from the first chapter of the third book of Vitruvius, the title of which is, "De sacrarum Ædium compositione, et symmetrus, et corporis humani Mensura."

Vasari, more than two centuries ago, has given the result of every inquiry that can be made into the origin of the Gothic style. "There is," he says, "another species of architecture, which, in its ornaments and proportions, is very different from the antique and from the modern, nor is it used at present by good architects, but avoided as barbarous and monstrous, being entirely deficient in order, so that it may be rather called disorder and confusion. It was introduced by the Goths, who, after they had destroyed the ancient fabrics, and the architects were slain in war, introduced arches of the fourth point, and filled all Italy with this monstrous style of building." He adds much more, well worth perusal. I must, however, observe, that Dr. Ledwich has disproved, in a very satisfactory manner, the Goths being the authors of the style, though it certainly originated in the dark ages; and however slight may have been held the opinion of that great man, Sir Christopher Wren, as to the Gothic style being of Saracenic origin, there is every reason to believe that his observations on this subject are not without foundation; and the annexed print[*] I consider will, in a great measure, serve to illustrate Sir Christopher's opinion. The drawing from which the print is taken was given to me by that truly esteemed artist, Mr. Daniel, whose illustrations of the architectural buildings of India do him much honour. The print represents the entrance of a Hindoo temple; the antiquity is so very remote that the time cannot, from any authority whatsoever, be ascertained. It is cut out of a granite rock, and dedicated to Mahudeva; it is situated near Eya, in Bahar, East Indies. The arch is not only pointed, but also decorated with quatrefoil between the mouldings, and it is only substituting angels and saints instead of the elephants, and it may be adapted for an entrance to a cathedral. It may be suggested that this strong illustration has not been, in after periods of Asiatic architecture, resorted to; but many reasons might have interfered; it may have been thought too sacred, and were even this inference incorrect, the style was surely sufficient for an ingenious architect to emulate, and indulge his fancy in forming a new style of architecture. There appear additional circumstances in support of these conjectures; for in the Asiatic researches, in Chambers's Account of the Ruins of Mavalepuram, they evidently assimilate to the Gothic taste, being surmounted by arched roofs, composed of two segments of circles meeting at a point, &c. And Fra Bartolomeo relates in his voyage—"There have existed Christians from the time of the martyrdom of St. Thomas on the coast of Malabar. The missionaries visiting this place, who were skilled in drawing, might have brought specimens to Italy, &c.; and as the architects were chiefly priests or monks, they might have preferred this style of building to that of the Greek or Roman, as deviating from their temples and being more impressive to their ideas of Christian worship." But to proceed with this sketch of Irish architecture. On the arrival of the English, and their settlement in the country, the erecting of castles became indispensably necessary to the security of their persons and property, and the continual feuds between the settlers and the natives multiplied fortresses to an incredible number; for it appears, about the 7th of James I., that every person possessing the greatest portion—that is, 2,000 acres—was bound, within two years, to erect a castle on its lands, with a strong court or bawn about it; every person of a middle portion—*i.e*, 1,500 acres—within the same time, to build a stone or brick court, with a bawn about it; and every person of 1,000 acres to encourage his under-tenants to build about the castles.—*Vide* Harris's Hibernica, p. 128. In consequence of the regulations, according to Pyner's Survey, made 1618, there were built 107 castles with bawns, 19 castles without bawns, 42 bawns without castles, 1,897 dwelling-houses of stone or timber. We find the dwelling-houses are thus described—they were composed of clay, covered with ferns, heaths, or straw, as similar to those described by Holingshed—"The greater part of our buildings in cities and good towns of England, consisteth only of timber, cast over with thick clay, to keep out the wind, &c."

These houses were framed with timber, the panels wattled and pargetted over with coloured clay or mortar. Dick's coffee-house, in Skinner-row, Dublin, was of this sort, and so convenient, roomy, and elegant, as to be inhabited by the Earl of Kildare in 1534, and called the Carbrie. Moryson, in 1589, thus speaks of Irish houses —"The houses of Dublin and Waterford are, for the most part, of timber, clay, and plaster; in general they very seldom keep out the rain, the timber not being well seasoned, and the wall being combined with clay only, not with lime and mortar tempered; and many gentlemen have castles built of freestone, unpolished, and of flints, or little stones; and they are built strong for defence in times of rebellion, for which cause they have narrow stairs and little windows, and commonly they have a spacious hall, adjoining to the castle, of timber and clay, wherein they eat with their family. The mere Irish sleep under the canopy of heaven, or in cabins, wattled and covered with turf."

About 1633, the Earl of Strafford, Lord Lieutenant of Ireland, began, for that age, a princely mansion,[*] situated at Jigginstown, about a mile eastward of Naas. Tradition says, the bricks of which it was erected were brought from Holland; they are smaller, better made and coloured than any now in use. From the foundation to the first floor this edifice is erected with stone, extremely well built; the length of the front is about 360 feet, and it had 24 windows on the ground floor, which was vaulted, at each flank three in a square pavilion, raised higher than the front; under these are vaulted kitchens, faced with bricks, in good preservation. Being informed that in the construction of this building there were many circumstances worthy of attention, I availed myself of an opportunity that presented itself of examining the remains of this building, in the year 1783, with the late Earl of Portarlington, when accompanying him to his seat at Dawson-court. On inspection of these vast ruins, we discovered nothing peculiar, except the incrustation or cement with which they were covered internally. Having with some difficulty broken off a piece, it had all the appearance of having been an oil cement. To the south-west is a square stone building, and at some distance another; probably these were designed for flanking towers, for all the houses at this period had such defences, or were castellated; but as this house was never finished it produced very little excitement for imitation in building, and the truly calamitous situation of Ireland shortly after this period, was a preventive check to any further improvement in civil architecture; and the state of building continued nearly the same as already described until the revolution in 1688, and the face of the country long continued to show nothing but dreary scenes of ruined churches, castles,[†] and poor, wretched hovels of houses; even those of the gentry were every way unworthy to mark the residence of opulence or distinction. Little more was at this period thought of than individual security. Even so late as the year 1779,

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[*] Mr. Gandon evidently intended to illustrate this essay with engravings.—ED.

[*] Allen, Viscount Allen.—This family, long residing in the kingdom of Ireland, was transplanted from Holland about two hundred years since. James Allen, Esq., came from that country to Ireland, sent over as a factor for the Dutch, in the latter end of Elizabeth's reign. Being very handsome in person, and possessing great skill in architecture, he was much esteemed and consulted by the most eminent nobility and gentlemen in their buildings, particularly by the Earl of Strafford, Lord Lieutenant of Ireland, in his large intended edifice near Naas, and laid out the plan of his house at Mullinahack, near Dublin, leaving it to his son, Sir Joshua, for whom he acquired a considerable fortune.—*Vide* Archdall's Irish Peerage, vol. v., p. 181.

[†] There are very few castles at present remaining in Ireland of any considerable magnitude, when compared with those of England. It must be allowed that at the time of Henry VIII., when the cathedrals, religious houses, together with the castles of the barons, embosomed in their woods, existed in all their Gothic pride, England exhibited a scenery that must have afforded surprise, and would have delighted even a Greek or Roman architect of the Augustan age; the lofty and towering spires of the cathedrals uniting to a peculiar style such variety of fantastic ornament, executed with materials so slight in substance, yet possessing such strength, combined with such great statistical knowledge in the art of cutting, and the formation of masonry, as in the arches, &c., to support the incumbent weights On the other hand, we may observe, that the Greek or Roman architects, with all their refinement, knowledge, and taste, were frequently obliged to have recourse to enormous blocks of stone or marble, added to such thickness of wall as to form artificial works in the construction of their edifices, in order to resist the injuries of time, and hand them down to posterity. The present generation, particularly the Society of Antiquaries, sensible of the genius shown in many of these works, are investigating, with the discrimination they merit, their several beauties; while the painter of landscape seeks every occasion to add our ruined Gothic buildings to embellish the glowing colours of his canvas. The many excellent engravings of these subjects will hand down to posterity ruins daily crumbling into dust, and will show that if our ancestors had not that pure taste of Greece or Rome, yet they had one more suited to the times, though often wild and extravagant, yet beautiful, and, in some instances, both in the design and construction, sublime.

Mr. Arthur Young, in his Tour through Ireland, makes the following observations:—"Another circumstance to be remarked is the miserableness of many of their houses. There are men of £5,000 a-year in Ireland who live in habitations that men of £700 a-year in England would disdain. An air of neatness and order, dress and propriety, is wanting to a surprising degree around the mansion; even new and excellent houses have often nothing of this kind about them."

The fine arts, which have made such considerable advances in every civilized country in Europe, were slow in being unfolded in this island until within the last fifty years. This slow advancement towards improvement has not been occasioned by the absence of genius, taste, or culture of the fine arts, for it is a melancholy fact that the professors of the arts of the highest branch and of celebrity to their several departments, have, for the want of encouragement, been compelled to seek for patronage and employment in the sister isle.[*] It can only be observed, that the great improvement made within the few years past in every kind of domestic comfort, combining taste and elegance in the different buildings for resident noblemen and gentlemen, clearly evinces that it was only necessary that the fostering hand of liberal encouragement should be resorted to, in order to bring forward genius and merit. I may add, that many of the villas lately erected in Ireland combine diversity in the arrangement of their plans with external beauty of elevation, which has materially contributed to banish the monotony of the gable end residences which were so common all over the country parts of Ireland, where not a single tree or shrub was allowed to decorate them, or contribute to embellish the variety of beautiful scenery the country possessed; for I may here be permitted to ask, can any country be mentioned that abounds with more diversity of attractions, constituting all the attributes of landscape scenery than Ireland, and every way adapted for architectural embellishments, either for the bold and aspiring residence of the lordly baron, the graceful villa abbey, or the sequestered cottage? Here the glowing pencil of the enthusiast in landscape painting may range with increasing delight, while the poet may waft his inspirations over mountain, wood, lake, river, or glen; for here that great, luxuriant and descriptive poet embodied his prolific visions of the "Faerie Queen," on the banks of his extolled and sequestered Mulla.

The gradual changes which are produced in the design and construction of houses in all countries must be dated from the commencement and progress of their public works To illustrate this assertion I shall quote Harris's History of Dublin, made in 1688, who says, "The castle which had for a long period of years been the residence of the chief governor, the parliament, and the courts of justice, was partly destroyed by fire in the same year, which took place on the 7th of April." But this accident occasioned great improvements in the city; better accommodations were made for the chief governor; the courts of justice were removed to those erected in Christ Church Lane. The tholsel was erected about this period. The architectnre of this building was in the style called King James' Gothic; yet, from the largeness of its component parts, it possessed a picturesque appearance, and was the first noble work in Dublin that was decorated with statues, having one of Charles II., and James Duke of York.[†] The Royal Hospital, at Kilmainham, was also building at this period. The design of this building was attributed to Inigo Jones, but upon what authority this conjecture is founded does not appear; and of the truth of this assertion there are strong doubts, inasmuch as Inigo Jones died on the 21st of July, 1651, thirty-two years before the commencement of the building. Whoever was the architect of this building it would be very desirable to have it recorded, for though it certainly possesses no superior merit to justify the superior hand of that great master to whom it is attributed, it evidently claims the originality of this having been one of the first specimens of regular architecture in the country. Essex and Arran Bridges have been recently built. These communications over the River Liffey are only noticed here as affording that convenience to the city which such works always contribute. From this period may be dated the epoch in which the city of Dublin has continued rapidly to advance in the improvements and taste for such buildings as give consequence, beauty, and magnificence to a city.

It must be acknowledged that public works of art from the leading features which must invariably attract the attention and notice of strangers, and must contribute to impress them with favourable ideas of the culture and progress of the fine arts; and whatever the inducement that may attract travellers to visit any country, we find an invariable record of the state and progress of its public works—these are often the only remaining monuments to point out to posterity its wealth and greatness.

There are many other considerations of no small importance to a state in erecting public works—the employment of a variety of professions, whose united efforts are required in their construction. The public wealth is diffused among the many; excitement is produced among individuals to embark in a variety of improvements, genius brought forward, which, without such encouragement and emulation, might be dormant; and the grandeur and taste of public buildings must always influence, more or less, those erected for the accommodation of persons of rank and taste. These are no small considerations. Among many other advantages attending the erecting of public works, independent of those, it is an acknowledged fact, that the great numbers who have been drawn by vagrant curiosity or study to visit Versailles, Chantilly, &c., have amply recompensed the expense incurred in erecting those celebrated places; and to the ruins of ancient Rome, the present city is indebted in a great measure for its support; even Greece has now scarcely any other inducement to invite travellers but to survey the remains of her magnificent public structures, and to trace the vestiges of her ruined cities.[*]

That public and national works should differ from those of private dwellings must be evident; the latter do not require that strict attention to the rules of art, yet the fancy which may range in their composition should be restrained by judgment, so as not to wander from the original principle which taste and culture have already established. Those acknowledged laws of improved art are surely models sufficient to restrain the practitioner of architecture from running into Gothicism and incoherence for the sake of novelty, too much the fashion of the present day.[†]

It appears (as related by Vitruvius) that the Grecians differed in some particulars in the manner of decorating the internal walls of their houses from the Romans, and admitted no subject but what were faithful representations of nature in stucco or painting; whereas the Romans frequently employed those fantastic ornaments which we call grotesque, and the French arabesque—of which many examples have been discovered at different periods in the neighbourhood of Rome, and were so much approved by Raphael and other great masters of his time, as to be imitated by them in a style no way inferior to the Romans; and notwithstanding this manner is censured by Vitruvius, 1, vii. c. 5, who says, "We now only paint on our walls extravagant monsters, instead of faithful objects." With all due deference to such a celebrated author, it has, in my opinion, many peculiar beauties, and sufficient merit to entitle its admission to contribute to the variety of decorations adopted much by the first restorers of architecture in Italy, either in their public or private works; their style was more massy and expressive combined with large historic pictures. For, as the architect frequently united the sculptor and painter in the same profession, whose aim appears to be to combine their different excellencies in the same composition, the ornaments of their walls and ceilings were composed of such mouldings and parts as to serve for frames for their productions in painting. This manner was followed by the architects in France and England; by Inigo Jones, who adopted the compartments in the ceiling for painting at old Somerset House. The ceiling at Whitehall is painted by Rubens, having a massy fretwork as frames enclosing the pictures. Le Pantre has published a number of beautiful designs in this style, but was at length compelled to give way to the bad taste which prevailed in the reign of Louis XV., when Massonier, Orpinor, and others introduced a strange compound of shields, which were executed in stucco, sometimes picked in with colour, varnished, gilt, &c. Very few of these decorations possessed any of the beauties of the ancient ornaments, yet this taste was for many years much admired in France and England, even after Kent had introduced many good specimens of the antique.

The painting of large historic pictures, &c., on ceilings and stairs was now declining, occasioned by the great expense and the want of excellence in the artists then employed; for at this period the arts in England were in a wretched state, particularly painting, and the circumstance that contributed to put this department out of fashion is rather singular. Kent, though a very indifferent painter, became not only a good but successful architect. Sir James Thornhill, the first historic painter of the English school at this period, had likewise begun to turn his thoughts to the same profession, and was employed to design and erect an extensive house at Moor Park, Herts, for a Mr. Styles. On Sir James making the usual charge of five per cent., that gentleman demurred paying it, which occasioned a lawsuit. The plea alleged by Mr. Styles was, that Sir James seldom attended the works during their execution. On the trial his merit was deemed the greater for being able to conduct the work without such frequent attendance.[*] The architects of that day were all greatly alarmed at this intrusion of the painters on their profession, and invited Actiere and other celebrated Italian stucco modellers in the French manner, which was but indifferently understood in England at this time. This style united cheapness to the charm of novelty; it became the prevailing taste, and thereby turned the painters out of doors, whom they (the architects) seem to be very cautious of admitting since.

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[*] Among the painters, Hussey, Barrett, Barry, West, Carver, Hamilton, &c.; Hickey and Smith, sculptors; M'Ardell, Houston, Dixon, Gwynn, &c., engravers.

[†] Afterwards James II.

[*] There are very few monuments now remaining of Grecian or Roman magnificence but public buildings, temples, amphitheatres, and baths: these are the only works that possessed sufficient solidity to resist the effacing fingers of time, or to defy the violence of barbarians. The private but splendid edifices in which the citizens of Athens and Rome resided, have all perished. Few vestiges remain of the innumerable villas with which Italy was crowded, though in erecting and adorning them the Romans lavished the wealth of the world.

[†] How much these facts are exemplified may be seen in most of the improvements now in progress in various parts of the metropolis of London. Columns that were intended to support superstructures are inverted; the base to sustain the weight, is placed at the top; the diminished top is placed at the bottom; square bandboxes are united to columns, as at Warren Hotel, Waterloo-place, where all these incongruities are to be met with, and many others.

[In reprinting this paper we are actuated by the belief, that it cannot fail to prove interesting to our readers, emanating from the "pen" of such a man as James Gandon, although the author's success in *this* department is admittedly not equivalent with *that* in the "pencil," and some irrelevance, verboseness, and views not according with those generally entertained now-a-days, may be found therein.—Ed.]

MUSEUM OF IRISH INDUSTRY—DISTRIBUTION OF PRIZES.

The annual distribution of prizes to the students of this establishment took place on the 20th ult., in presence of the Lord Lieutenant and an elegant assemblage. Sir Robert Kane, the director of the institution, in the course of a lengthened and eloquent address, said that "the object for which the institution is founded is educational, and not merely the education directly of the number, necessarily limited, who receive instruction within its walls, but also that each individual here instructed may become in his own turn a centre of educational light and progress, so that the confines beyond which are the dark and dismal realms of ignorance, prejudice, and error, may yearly be further removed, and, under the guidance of enlightened statesmen, it and similar institutions may be made the instruments of advancing the intellectual position and the social prosperity of Ireland. Upon the whole a very satisfactory pregress had been made in the last session as compared with the session before the last. A distinction is drawn between the general and the special examinations; for, in the former the candidates are examined in all the fine branches of science taught in this institution; and in the latter only one branch of science is examined in. For the first place in the former the silver medal of the department is awarded; for the latter a bronze medal for each subject. Besides the medals, are awarded one or more money prizes of small amount, and a certificate of the prize having been obtained, as the examinations took place early in June, the money prizes were then paid."

The pupils to whom silver medals were awarded were presented by the director, and the professors severally presented to His Excellency the successful pupils in their respective departments.

The Lord Lieutenant, after some preliminary remarks, said—The products of nature, the materials of industry, the deductions of science, which form the special and exclusive subjects of attention and study within these walls, have nothing in common with the passions of the parties of the passing hour. We are here treading the serene temple of knowledge, which is pursued for its own bright sake with a homage which is perfectly disinterested. The rivalries of creeds and parties can find no admission here, and as for worldly honour and emoluments, the most lucrative rewards that we can offer to you are, the humble but honorable prizes and certificates which it has just been my privilege to deliver. It will further, I am sure, be looked upon as a most satisfactory incident in these proceedings, that as no distinction of class, or creed, or opinion, can find admission, so likewise there is no monopoly of sex. The laurels that are to be gathered here are twined around fair as well as around manly brows. Why should it be necessary to send to London for the medals which are to grace and adorn the possessors of Irish genius? Surely we ought not to allow it to be said, if you allow me to quote a line from the Roman poet—"Excudit alii Sperantia æra." Why should not Ireland cast her own medals as well as nurture her own successful prizemen?

Geyelin's Patent Bedsteads.—One of these bedsteads has been forwarded to us by the London agent, Mr. Kennedy, of Oxford-street, and—though it may not appear strictly within our province—we direct our reader's attention to the ingenuity of the invention. It combines the comfort of the spring mattress and the ordinary iron bedsteads—*duo juncta in uno*—and the lathing is formed of interlacing longitudinal and transverse hoop-iron strips, with powerful spiral springs between the upper and lower rows of the former, and between each flap of the hinges, connecting the latter with the frame and smaller springs. The centre is slightly elevated in curved form above the sides, which are also raised by the springs before described above the frame-work. They are easy of adjustment when the principle is understood, and are light but strong of construction.

EFFECTS OF RAILWAYS ON SOCIAL PROGRESS.

The *Building News*, in a memoir of the late Mr. R. Stephenson, remarks that—

"It is almost a stale theme to descant on the benefits of iron roads and steam horses; and yet, unless we do constrast the means of travelling before and after the Stephensons, we shall have but a very imperfect idea of the value of their labors. It is within the memory of men now living, when a journey between the northern and southern parts of this island was a perilous undertaking—necessitating the loss of many days, the expenditure of much money, and considerable personal annoyance. The 'north countrie' was as little known to Londoners at the beginning of the century as is Siberia now. Every man who spoke our English Doric, or had the Northumberland burr, was set down as a Scotchman, and trans-Tweed men had barely emerged from the condition of being regarded as foreigners. Mercantile communities excluded Scotchmen from their employment, and oftentimes included north countrymen under the same ban, while those dwelling beyond the Humber looked upon all the southerns as little better than cockneys, and not much superior to Frenchmen and continentals. The north countrymen who came to London acted as though they were dwelling among strangers.

"Such was the condition of England before Robert Stephenson's beneficent labors had borne fruit. What it is now we all know. The population is no longer stationary; it is eminently locomotive. Prices have gradually adjusted themselves almost to a level, and how important that is to capital and labour needs no political economist to expound to the least educated among us. The morning's *Times* may be on the luncheon-table or, at most, on the dinner-table of every household in this island on the day of publication. No incident can occur that is not chronicled in the London or local journals; local jealousies and feuds have disappeared, and pitched battles between rival towns are unheard of The productive powers and defensive forces of the empire have been augmented a hundred-fold by railways. And this happy change—this gigantic stride—has been mainly the result of Robert Stephenson's unceasing labours."

IMPROVEMENTS AT BRAY.

We understand that Mr. Dargan has laid out Bray strand as a promenade at his own expense, and applied to the town commissioners to fence it with chains and granite posts. As the borough funds were exhausted by other improvements and lighting the town with gas, the commissioners were reluctantly obliged to decline doing so at present, but unanimously offered to raise the amount by voluntary subscriptions. A committee was formed, and were proceeding to make collections, when they were met by Mr. Dargan with a request that the matter should be left in his hands, he thereby undertaking a further expenditure of £400. The commissioners unanimously passed a vote of thanks to Mr. Dargan for his liberality and generous offer.

VILLA SITES IN THE SUBURBS.

The lands of Kerrymount, Foxrock, and part of Galloping-green, south, lying between the Stillorgan and Carrickmines stations on the Dublin and Wicklow Railway, have been laid out in building lots, and will be disposed of by public auction in the course of this month by Messrs. Bentley, the proprietors. We took occasion to visit them recently, and find them in every respect desirable for the proposed purpose; combining the treble advantage of beautiful site, facility of approach, and building materials on the ground. The Railway Company has consented to a special station for this property—a concession highly commendable, considering tha very short distance intervening between the existing stations; and we learn that as soon as one dozen houses shall have been erected and tenanted, the enterprising proprietors will provide omnibus accommodation to and from Kingstown, for marketing purposes, &c. We hope to witness a busy scene in this locality shortly.

Wilme's Handbook for Mapping &c.—We learn from London that Mr. B. P. Wilme, C.E., M.R.I.A., is about bringing out a re-issue of his important and eagerly sought for work entitled "Wilme's Handbook for Mapping, Engineering, and Architectural Drawing." Early application should be made for copies (the number of which is limited) to the publisher, Mr. Weale, of 59, High Holborn.

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[*] *Vid.* Walpole's Anecdotes of the Reigns of George I. and II.

THE WATER SUPPLY OF DUBLIN.*

IN our last article on this subject we said we should "analyze the plans of the corporation engineers, and see from what sources they sprung." We shall now do so, and our readers will be able then to judge whether we were justified in also saying that plagiarism has been practised to an unprecedented extent, and the labours of others availed of by the consulting engineer of the corporation, without the slightest acknowledgment to those from whom he borrowed his suggestions.

It will, no doubt, be recollected that when the water supply of Dublin was agitated in 1854, the Sanitary Association devoted a considerable portion of time to its investigation, and followed, perhaps, the wisest course that could have been taken to arrive at truth—namely, to examine, as witnesses, every person in Dublin of known knowledge on the subject. The whole evidence was published in the *Sanitary Journal*, and with it an elaborate report of the association, signed by its chairman, Sir Edward Borough, Bart., which report, it appears, was officially presented to the corporation, together with diagramic plans and sections of the proposition, designed by the honorary engineer, Mr. Jasper Rogers, C.E., by whom that report, &c., had been prepared on behalf of the association; and the report of the corporation committee states that these were all placed before Mr. Hawksley, together with the plans submitted by others.

It will scarcely be forgotten also that what produced the necessity for this report from the Sanitary Association, was the plan presented to the corporation by their engineer, Mr. Neville, proposing that the supply from the canals should be abandoned; the whole to be obtained by means of catchment basins in the Dublin mountains — a proposition, in fact, originating with Mr. Robert Mallet; and we are strongly of opinion that if the association had not acted so judiciously as they did, the ratepayers of Dublin would *be now paying* their contribution towards a scheme which was subsequently negatived by the engineer to whom the question was submitted, and who adopted in its place the almost identical plan suggested by the Sanitary Association—*vide* extracts from its report, as follow :—

"THE SANITARY ASSOCIATION.

"Royal Dublin Society House,
12th September, 1854.

"Committee appointed to report upon the water-supply of Dublin as regards its best source, its sufficiency, its purity, its economy.

"Sir Edward Borough, Bart., *Chairman;* Sir Henry Jervis, Bart., James Haughton, Esq., Robert Molloy, Esq., Doctor Ryan, Jasper Rogers, Esq., C.E., *Honorary Engineer;* Doctor Mason, *Hon. Secretary*.

"REPORT.

"In accordance with the desire of the Association, your Committee has given their best attention to the subject submitted to their investigation, believing it to be one of paramount importance to the citizens of Dublin, and being satisfied that, next to effective drainage, an ample supply of pure water is the most essential requirement for the preservation of health in all cities. . . . . .

"Your committee submit the evidence given *in extenso*, believing that it will be read with interest. And they would beg to draw attention to the letters of Messrs. Louch and Mulvany, civil engineers, and of the Secretary to the Grand Canal; but they have to express their regret that the borough engineer did not permit them to have the benefit of his evidencc, he having been especially invited to attend the meetings along with the other parties interested in the water supply of Dublin. . . . . . .

"The proposed supply from the River Dodder, to be aided by catchments, has occupied your committee's best attention. It will be seen by the evidence, amongst other facts:—

"That the River Dodder is frequently almost dry during the months of June, Jnly, August, September, and October.

"That the fall of rain proposed to be collected by the catchments cannot be depended upon as being sufficient for the supply of Dublin. . . . . . .

"That the table given in the borough engineer's report shows the *fall of rain in Dublin for the year*, but there is no table to show the monthly fall.

. . . . . . "That almost the whole catchment basin for the proposed reservoir consists of a bed of peat, of a slightly fibrous and earthly texture, from four to eight feet in depth. . . . .

"That bog water is unfit for household use; and your committee believe that no extent of filtration at present known would divest such water of the several properties, injurious to the animal system, which it contains. . . . . . .

"They, therefore, have no hesitation in expressing their conviction that the River Dodder and the propased catchments should not be made the source of supply to the city of Dublin, especially as they believe that a never-failling supply of pure and wholesome water, principally derivable from springs, may be procured at an infinitely less expense. . . . . . .

"Your committee feeling satisfied, from the proofs enumerated, that there is to be found in the Grand and Royal Canals a supply of water amply sufficient for all the requirements of the city and suburbs of Dublin, now and for the future, conceive it to be their duty to submit certain views on the questions which have presented themselves, arising out of the evidence offered and otherwise.

"It appears to your committee that to take the supply from either canal *solely* would be liable to objection, from the necessity, in such event, for the descent of the water into the valley of the Liffey, and its ascent at the opposite side; they would, therefore, recommend that the supply be taken from both canals. . . . .

"That for the supply of the south side of Dublin, the Grand Canal should be made available, taking the water from the point laid down in Mr. Mulvany's proposition for the whole supply of Dublin *(the 11th Lock)*.

"That for the north side it should be taken from the Royal Canal, at or near *Blanchardstown*, the position selected by Mr. Louch for the supply of the reservoir proposed by him, also for the total supply.

"At each of these points, your committee suggest that a moderate sized *purifying basin*, of an extent sufficient to be made use of hereafter as a *filtering chamber* (if found necessary), should be excavated immediately adjoining the canal alongside of it, formed in the same way, and about the same breadth and depth, the junction with the canal being at the further end from Dublin—the opening being about fifty feet in length.

"Your committee suggest, that at the point of junction, and for one hundred feet at each side, a perpendicular, or slightly battered, wall should be constructed within the breadth of the embankment of the canal, and that the recess thus formed be excavated to a level with the lowest point of the bottom of the canal, while the grating, or opening, through which the water would enter the purifying basin, should be not more than one foot in depth from the average water surface line. The result of this arrangement your committee conceive would be that a deposit of all siliceous and clayey substances would take place outside the purifying basin in the dead water caused by the recess within the embankment, and whenever necessary that deposit might be readily removed. Thus, the purifying basin could be kept free from such description of impurities.

"Your committee propose, that from the purifying basins mains of sufficient dimensions should be laid *direct* along the line of the canal to the present reservoir of the city, connecting those mains with a "*regulating chamber*," formed of strong metal plates, and fixed about the centre of the reservoir, and from which chamber the high-pressure mains should issue. The chamber should be so constructed as to permit the water to flow into the present reservoir, which should be at all times kept full in order to supply the low-pressure mains. Thus, the high-pressure service would be effected from *the chamber*, and the low-pressure from *the reservoir.* The *chamber* should be placed in such position in or about the centre of the reservoir, that discharge of water from the ventilators might take place without inconvenience.

"Your committee believe that such an arrangement would enable the city of Dublin and suburbs to be supplied with a high-pressure service of water, sufficient to supersede the use of fire engines, by separate mains of moderate bore being used for that purpose, and for those parties who might require a high-pressure supply at an increased rate; whilst a low-pressure supply of pure water would be secured to those who prefer it through the existing mains. . . . .

"It will be seen by the proposition suggested,

"That the whole *cost* of the great reservoirs proposed, and the watercourses, &c., to them from the canals, would be saved.

"And that the *expenditure* would be only the cost of the supply

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* See page 125 *ante*, and previous numbers.

> mains, the regulating chambers, and the purifying basins, the two latter being comparatively trifling. . . . . .
>
> "As regards the final purification of the water to be taken from the sources recommended, your committee believe there need not be any apprehension. It is well known, that the effective filtration of large quantities of foul water has been long considered to be an operation of great difficulty, but the analyses of the canal waters show that they are comparatively pure. Pending, therefore, any necessity for filtration which might arise hereafter, your committee would suggest that *the purifying basins* proposed at the side of the canals at Blanchardstown and the 11th Lock, should be well stocked with fish usually found in the canals.
>
> "Experience has amply proved that animalculæ, and all animal impurities in suspension in water, are greedily devoured by fish; and observation has shown that in every instance where fish is abundant, water is pure. The proposition is unattended with expense, and your committee suggest it pending any arrangement for regular filtration which possibly might be found necessary, and *which may be accomplished, if required, within the space proposed to be contained in the purifying basins.*—(Signed) EDWARD BOROUGH, BART., *Chairman Sanitary Association.*"

This is the report of the Sanitary Association, acting under the able guidance of Sir Edward Borough, Bart., made in September, 1854, in opposition to the proposed plan of the corporation engineer, then upon the eve of adoption.

Let us now see what the corporation engineer reports in November, 1858, having, in 1854, repudiated the water of the canals:—

> "REPORT OF THE CITY ENGINEER ON THE PROPOSED WATER WORKS.
>
> "GENTLEMEN—I have carefully read over the report that you have received from your consulting engineer, Mr. Hawksley, on the subject of the improvement of the supply of water to the City of Dublin.
>
> "I find that the result that he has arrived at, after the examination of the different plans submitted to you for the improvement of the water supply, is as follows:—
>
> . . . . . "That the best and most economical plan for you to adopt is, to continue to derive the supply of water for the use of the city from *both* canals, ... provided they will undertake to give a guaranteed and preferential supply of not less than ten million gallons of water per diem, at a fixed rent, in perpetuity, of £2,500 per annum.
>
> . . . . . "That the water be taken from the Grand Canal Company, from the pond or level at the head of *the 11th Lock*, near Clondalkin; and that on the land adjoining this a service reservoir, filter-beds, and pure water tank should be constructed, from which the water should be conveyed to join the present mains, distributing the water through the city by a 36-inch main; and that the water should be taken from the Royal Canal at the eastern end of the pond or level above the 12th Lock, *at Blanchardstown*; and that a service reservoir, filter-beds, and pure water tank should be constructed on the adjacent lands, from which the water is to be conveyed, to join the city mains, by a 30-inch main. . . . .
>
> "From the experience I have had in connection with your works, now for ten years, I believe that neither canal can of itself, under existing circumstances, give you the quantity of water you require, therefore, that you must deal with both.
>
> "With regard to the quality of the water for domestic use, although it is not as soft as that which could be got from the granite districts of the Dublin and Wicklow Mountains, and consequently not so good for brewing, washing, and culinary purposes, yet it is a good water, colourless, and not above the average hardness of the water supplied to London and many other large cities and towns: and when taken at the distance from the city proposed, and properly filtered, will be of a very superior quality to what it is at present, delivered from the city basins.
>
> "Under all the circumstances of the case, and after giving the subject my best consideration, I feel bound to state, that I believe that if the canal companies agree to give the water, as mentioned, for the sum of £2,500 per annum, that it will be best for the Corporation to carry out the plans *of their consulting engineer, (?) and adopt the canals as the source for the improved water supply to the city.*"

Thus we find that after four years of consultation, investigation, reports, and surveys—at a cost of some £500—the borough engineer, the consulting engineer, and the corporation actually adopt the identical plan of the Sanitary Association. And the borough engineer, to his credit be it named, candidly admits that, "AFTER GIVING THE SUBJECT HIS BEST CONSIDERATION, HE FEELS BOUND TO STATE THAT HE BELIEVES, IF THE CANAL COMPANIES AGREE TO GIVE THE WATER, THAT IT WILL BE BEST FOR THE CORPORATION TO ADOPT THE CANALS AS THE SOURCE FOR THE IMPROVED WATER SUPPLY TO THE CITY."

But do any of the parties admit *the source* from whence they took the so-called "*plans of their consulting engineer!*"—Do they name the Sanitary Association or their engineer, Mr. Jasper Rogers, in any manner whatever, whilst their "consulting engineer!" actually uses almost the words of the association report as his own, in bringing forward his proposition (and we have reason to believe he was directly supplied with that report and evidence by Mr. Rogers)—Do any of the parties acknowledge, in any manner, from whom the proposition sprung? No, not one! On the contrary, Mr. Hawksley, in his report, totally ignores the association proposition, whilst he adopts it nearly verbatim; and in order apparently to cover the—we had nearly said theft—he concludes his report with the following passage:—

> "But I do not think I should be acting with justice to the gentlemen by whom they were originated if I did not recall to your recollection that Mr. Louch, Mr. Hassard, Mr. Neville, and Mr. Mulvany, have each separately proposed that the future supply should be obtained in an improved manner from one or other of the canals. . . . . . Mr. Hassard has also suggested as an alternative scheme the employment of the beautiful waters of the River Vartry and other adjacent districts, but at a cost which that gentleman admits to have placed these (otherwise the best sources) beyond the reach of the community. Mr. Brazill has proposed the River Liffey, near Poulaphuca Bridge, as an available source; and Mr. Mallet, who projected a scheme on the Dodder for the use of the millowners, concurs in the appropriation of the canals."

The Sanitary Association proposition is thus entirely cushioned. Why? it may be asked. Was it that Mr. Hawksley might take to himself the credit, and set it before the world as his own?

Another question, also naturally arises, was the committee of the corporation ashamed of the plagiarism, and anxious to get out of its adoption?

Naturally, as gentlemen, they would be—and it appears very like it; for after a lengthened correspondence with the canal directors, couched in terms that almost invite a rejection of the propositions made under Mr. Hawksley's report, and proposed in such stringent terms that no body of men directing the affairs of a company could properly bind themselves to, the negotiation was abruptly ended as regards the supply from the *two* canals. The city engineer was then called upon to consider a plan for supplying the city with water from the proposed catchment basins, aided by the water of *the Grand Canal* only, at a rent of £1,800 per annum; which by that company's letter of the 5th November, 1858, they stated was the lowest sum they would take for a "preferential and guaranteed supply of six million gallons daily," *being £300 a-year increased rent!* In pursuance of this order, Mr. Neville submitted the plan which has now been approved of and adopted by the corporation.

We think it is tolerably evident, then, that there was, in reality, an objection on the part of the corporation to adopt the plan of the Sanitary Association, which, although attempted to be brought out as Mr. Hawksley's, could not fail to be known as that of a so-called "rival body." But although we think there was apparently a good deal of such feeling in the matter, it is to be regretted, as regards the interests of the citizens; for no matter whether plagiarised by Mr. Hawksley or not, there can scarcely be a doubt that it is the most economical and most desirable proposition which has been made. The Sanitary Association did not propose it until they had taken the best evidence that could be had on the subject; and after four years' subsequent consideration, Mr. Hawksley and Mr. Neville report, in the strongest terms, in its favour. But we shall return to the subject, and show facts which will, perhaps, satisfy all parties that it *is* the best plan which can be adopted, and the most economical.

Since the foregoing was in type we have had the pleasure of reading the very unexpected report from Dr. Gray and Mr. Codd, recommending the abandonment of the third and last plan unanimously adopted by the corporation. It is a most wise step; and although the third time may not really be the charm, the citizens owe much indeed to Dr. Gray, to whom Mr. Codd, very modestly and very justly, gives almost all the credit for a truly clever and elaborate examination into existing facts. No one can doubt that a source for the purest water has been selected, and in a very judicious situation. The canal companies have apparently made *a good case against themselves*, by what would appear to be over caution, and there could scarcely be a more fortunate loophole for letting a body of corporators out through.

The negativing of the Kippure plan is also most wise. We have already said no one could tell what its cost would be, and we only wonder that any one who ever walked over the land proposed for the basins, could have imagined the capability; it might be as well expected to hold water in a kitchen cullender.

But notwithstanding the over caution of the canal directors, we still believe, even if there be not sufficient water now, which we doubt, the lowering of the summit levels even 6 *inches* would give it more than amply. It would be well to contrast that cost with the compensation to the mill-owners, and actually arrive at what that is to be, before the proposed measure be undertaken.

Heartily congratulating our fellow-citizens on the retreat from the long-fought battle of the catchment basins and bog-water, which appears to have been accomplished by an able *coup d'etat*, we shall continue the subject, and perhaps be able to show that Mr. Whelan is not far wrong as to the capabilities of the canals, although he stood alone in opposition to the present plan as he did to the former.

MR. POLLOK'S FARM STEADINGS, RESIDENCE AND OTHER WORKS, CO. GALWAY.

THE monster steadings erected by Mr. Pollok on his estates in the County Galway, have acquired a world-famed celebrity for that gentleman; and the following is a general description of one of the *fourteen* completely finished since July, 1856, when the first stone was laid. The main building covers an area of 3320 square yards roofed in; the barn, straw house, and steaming house are at end, measuring 176 feet by 24 feet in the clear, with two ranges of granaries, sheaf barn, and straw houses above. The sheaf barn is 64 feet by 24 feet, and is supplied with a threshing machine, driven by a water wheel, which also works a bone mill in another part of the building. a pair of millstones, a straw cutter, oil cake bruiser, a pair of fanners in each granary, and a force pump, supplying a cistern 38 feet above ground level, and containing 2,400 gallons.

At right angles to barn, and nearly in its centre, it is bisected by a transept 199 feet long by 24 feet wide and 22 feet high. The roof and side walls of second floor of transept are supported by metal pillars and trussed girders. The ground floor of transept is a through passage, and turnip and root store for feeding purposes. Twelve feet high above the passage is a loft the whole length of transept, and 24 feet wide, part being a hay-loft, and the remainder stores for cut hay, bran, oats, oilcake, grass seeds, &c.

The four angles included in barn and transept are each enclosed and roofed, and subdivided for cattle, &c. The respective sizes of each angle are as follows:—95 feet by 72 feet, and 64 feet by 58 feet on one side of barn; and 64 feet by 72 feet, and 64 feet by 58 feet on the other, each 12 feet high from floor to under side of tie-beam. Two adjacent angles on right and left of barn and east side of transept—viz., 95 by 72 feet and 64 by 72 feet—are each arranged for 232 tied-up feeding cattle, and have stalls, feeding passages, and fire clay feeding troughs. The other two angles right and left of barn, and on the west side of transept—viz., 95 by 58 feet on the one side, and 64 by 58 feet on the other—are subdivided as follows: in the large angle is the stable, for 19 horses in stalls, and 16 in loose boxes, also 6 loose boxes for bullocks, each box to hold two. In one of the angles of this square is the steward's or caretaker's lodge, containing kitchen, parlour, and closet on ground floor, and two bedrooms above; and which, though contained within the square, is completely disconnected from the interior by a high wall with a small window for surveillance.

The other side or square—viz , 64 by 58 feet—is subdivided into 8 loose boxes, for two cattle in each, a large bone store, with bone mill, blacksmith's forge, and carpenter's workshop. The whole is principally lighted from the roof, although side lights are used where they could be put in with propriety. On the roofs and sides of transepts are 52 louvre board ventilators, ensuring free current of fresh air through the whole establishment. Owing to the extra height of the walls (12 feet), and roof and space above the cattle, there is no extra current of cold air in any particular part of the whole house, when fully filled with cattle and horses (which it has been during the last two seasons, and is now filled the third time) there is always a uniformity of temperature through the whole.

There are 1,740 superficial square yards of timber flooring and 4,200 yards of slating. The roofs on this and all the other buildings on Mr. Pollok's estate are all sheeted with ⅝ sheeting, nailed on to horizontal purlins, which gives the inside a neat, clean, and comfortable appearance, and also keeps the houses cooler and a uniform ventilation—every joint of the sheeting and every joint of the slating being a ventilator on a small scale. The whole roofing is supported with 36 metal pillars, 12 feet high, each pillar answering the double purpose of pillar and down pipe for roof water. Connected with said pillars are 390 feet of cast-iron gutters, which answer both for gutters and roof girders; also 920 feet of eave gutters, 350 feet of lead valley, and 240 feet of down pipe; 65 roof lights, 55 side lights, and 20 outside doors. The whole steading is lighted up with Messrs. Edmundson and Co.'s (Capel-street) hydro-carbon gas in upwards of 50 bat-wing jets, in glass lanterns; all in suitable places through the whole building, presenting an imposing scene when all is lighted up, and upwards of 300 cattle contentedly but busily eating up their last meal for the night, with all the light and shade of roof and pillars and the various colours of the cattle.

The main building is walled all round and enclosed by an open shed inside, 1,100 feet long by 14 feet wide, and between main building and surrounding shed there is an area of 24 feet wide on three sides, and 70 feet wide on the fourth side, in which there are two large dung-pits and liquid-tank. There is only one main entrance into yard and main building, and one from stack-yard into second storey of barn, which is on a level with stack-yard. All the large stack-yard is fitted up with iron stack-stands, arranged for iron tramways from stacks into barn. One half of the surrounding sheds are divided into 10 loose boxes for 2 bullocks each box, and 3 loose boxes for bulls, and pens for 140 store cattle; one half of the remaining half are cart-sheds, harness and tool room, pay-office, and weighing-office; and the remaining half of this subdivision consists of guano-store, poultry-house, implement-store, watercloset, and glass retort-house. The whole extent of ground floorage of surrounding shed is 1,711 superficial square yards. The total ground taken up with all buildings is 8,450 superficial square yards; the total of all the roofs is 7,555 superficial square yards; total of all ground floors, 5,050 superficial square yards, and 1,750 square yards of timber floors. The total cubical contents of all buildings is 756,224 cubic feet—the actual cost of the whole being under 2d. per cubic foot. Five fire plugs are placed throughout, and two hoses are provided in the event of accident.

In addition to the above works, a large dwelling-house, in the Elizabethan style, has been erected for the proprietor; also 8 farm-houses, a large flour and oatmeal mill, with store and house for miller, 2 carpenter's shops and blacksmiths' forges, 2 saw-mills, 7 steam thrashing-mills, 4 limekilns, 40 stewards', tradesmen's, and labourers' cottages—comprising upwards of 40 miles of stone walls. The plans and specifications were made, and the work superintended by Mr. William Maxwell, of Ballinasloe, by whom the above particulars have been communicated.

The goodness of illuminating gas is diminished by its being kept and that of coal gas more rapidly than that of oil gas.

THE NEW BUILDING—KILDARE-STREET CLUB.

For several months past the new "house" for this club has been in course of construction at the intersection of Kildare and Leinster Streets; and being already built to about the level of first floor, commences to display some of its architectural characteristics.

The style adopted by the architects, Messrs. Deane and Woodward, is Byzantine, which admits of many bold and ornamental features being adopted in the detailed portions, and picturesqueness of effect secured in the general contour—a style which, we must remark *en passant*, is coming rapidly into public appreciation, and seems destined to work a most desirable revolution in our "street architecture" especially. This building will present towards Kildare-street a frontage of 184 feet, by 63 feet towards Leinster-street; and carried up to a height of three storeys, exclusive of basement, will attain a considerably additional elevation above the surrounding houses. On the exterior a variety of colour is obtained by the application of different materials for the walling, the dressings and ornamental work. For the former, red brick is employed; and for the latter, Portland and native limestones. One of the most prominent features for the public gaze will be a projecting oriel, carried up two storeys, in Leinster-street, with elaborate dressings thereon; and we may also add that a handsome arcaded portico, with disengaged shafts of polished marble, and forming the main entrance, will contribute a pleasing object in Kildare-street. The windows of each storey will present a variety of design, and be relieved with ornamental stone dressings. Horizontal string and belting courses are introduced at intervals, and the whole building is to be capped with an elaborately enriched projecting main cornice. The carvings of this latter, and the caps of the columnar shafts, will admit of much taste and variety being displayed in the execution; but we understand that the professional firm supervising the work very liberally allows competent workmen a consistent latitude in producing forms—a fact highly creditable and worthy of general adoption. Interiorly the arrangements of the ground floor—which though technically termed so, is elevated above the pathway level—comprise an outer and inner hall, communicating with a grand stone staircase, arcaded on two storeys, and presenting many noteworthy features; a coffee and morning room, each 60 feet by 30 feet; bar, serving-room, clerks'-room, &c., &c. On the first floor are the library, 60 feet by 30 feet; the card-room, 30 feet by 20 feet; the writing-room, 39 feet by 30 feet; and spare-room, 30 feet by 25 feet. On the floor above will be numerous bed-rooms, &c., for the members. At the rere of the building a racquet-court, private dining and smoking rooms, are provided; and in the basement storey are comprehensive culinary arrangements, stores, servants' accommodation, &c. The contractors for the work are Messrs. Cockburn and Son, and the expenditure will be about £21,000.

INCREASING VALUE OF PROPERTY IN BELFAST.

An extensive district was recently sold in the town of Belfast for a sum that indicates the present value of property in that town, whose rapid increase in extent, population, and mercantile enterprize exceed by far that of any other town in Ireland.

It lies between the Old Lodge Road and Peter's Hill, and covers about five acres of ground, with several new streets laid out through it—amongst others, Israel-street, Upper Townsend-street, &c. There are 68 dwelling-houses thereon, which pay a gross rental of £311 18s. 1d., and £53 19s. of ground-rents, making a total income of £365 17s. 1d. After deducting a head-rent of £11 1s. 7d. and a sum sufficient to cover the taxes payable by the landlord, there would remain a nett rental of about £260 per annum. In addition to this, there are about 2,500 feet of building ground, the worst of which can be readily let for 2s. per foot, and some of it will be worth double that sum. The site is high, and offers facilities for drainage, and there is no doubt of its being very soon let for building. For this valuable property, offered at first in seven lots, there were no bidders, and on the whole being offered in one lot, only two bidders appeared After three or four bids the property was knocked down to John Savage, Esq., T.C., at the sum of £5,600. The unsuccessful competitor was David M'Connell, Esq.

THE NEW ROYAL BANK, FOSTER-PLACE.

As the building operations for the Royal Banking Company progress towards completion, we are enabled to give reliable particulars of the works actually executed. The new bank immediately adjoins the old—each being on each side of the existing entrance doorway—and the cash department will occupy an extent of 80 feet from front to rere, by about 54 feet in width. The approach to cash-office will be through a pair of double doors and mahogany timber porches, to a vestibule—intended as a portion thereof—occupying the full width of the building, and about 22 feet in height, formed by columns supporting the divisional walls above, and terminated with a richly stiled, pannelled, and coffered horizontal ceiling. Thence commences the main portion of the new building, which is triple roofed, the central span being 26 feet in with, with semicircular ribs springing from metal columns, and having elaborately enriched pannelling, spandrelling, central and side lights, corresponding with curve, introduced; and the side compartments or aisles, about 13 feet each, are roofed in quadrant form, the ribs abutting respectively against main walls and girders of central roof, and decorated in character with the other portions. The columns on which the girders rest will be finished with Composite caps and bases, and portions of the shafts ornamented likewise; but their absence altogether—which was quite *practicable*, except where main walls exist in front building—would have materially conduced to the general effect.

The counters and stalls when added will radiate semicircularly, and on same floor is a strong room, 18 feet 6 inches by 10 feet 6 inches (carried up a short distance, affecting the general contour, but possibly impracticable elsewhere), manager's-office, &c., &c.; and slightly elevated above this level, and ascended by a wide flight of steps, are the runners' and other offices—communicating by a separate entrance with Anglesea-street—stairs to basement and floors above, &c., &c. On first floor spacious apartments are at command, but their general purpose are, as we understand, undefined as yet, and accommodation is provided for a resident clerk likewise. The basement is entirely fireproof (all buildings of this class might in prudence be completely so), and contains stores, porters'-rooms, warming apparatus, &c.

The work may be regarded as creditable to all concerned, and seems to be executed in first-class style. Mr. Charles Geoghegan, architect; Mr. William Crowe, builder; Mr. Doyle, superintendent. Messrs. Courtney and Stephens supply the iron work.

COMPETITION MATTERS—THE ULSTER HALL.

Thirty-eight professionals have entered the lists to compete for the office of architect to the Ulster Hall Company. It is said that the designs sent in will be publicly exhibited, and it has been suggested that they be numbered, and a book provided, in which each visitor may state his opinion relative to their merits or otherwise. We would add that, for various reasons, such opinion should be accompanied with name and address. The dimensions of the proposed hall are so limited that accommodation is only to be provided for 2,000 persons—viz., 1,500 on the ground floor and 500 in galleries. We anticipated a building capable of accommodating, at least, double this number. May-street Church, in same town—and an important structure of its character—is seated for 1,600 persons, and we have no doubt but that on many occasions 2,500 persons have been inside its walls at one time. Experience has shown that it is greatly too small to accommodate the numbers which might profitably be brought together in Belfast of the present day, which has hitherto doubled its population every twenty-four years, and will, no doubt, continue to do so in future. Taking all these circumstances into consideration, the erection of a building to accommodate 2,000 sitters appears to be a mistake, and will not remove the want now felt in Belfast of a structure capable of containing large assemblies. It will be a matter for regret if the directors of the Ulster Hall Company adhere to the dimensions in the instructions to competitors; we entreat them to consider the desirability of erecting a building on a larger scale, and commensurate with the wants, not only of Belfast, but of the province after which the proposed building has been named.

DEATH OF MR. ROBERT STEPHENSON, C.E.

Strange coincidence that the same space that was devoted in the last No. of our journal, "one little month ago," to chronicle the death of Mr. Brunel, the eminent engineer and designer of the Great Eastern, is occupied in our current publication to announce, that *he* who so recently, full of life, hope, and professional fame, followed the remains of his friend and brother professor to the tomb, has himself returned to the bosom of "MOTHER EARTH." And stranger still, that *each* should be called on the eve of the two grandest projects of the age—their own conceptions—being accomplished—viz., the Great Eastern, and the Victoria Bridge, Montreal, on the Grand Trunk Railway of Canada; both, too, if not of somewhat similar character, at least having an affinity of purpose. All honour to the noble deceased, noble in intellect and genius—nature's true nobility—has been gratefully paid him by his countrymen; perhaps with less pomp than might have been anticipated, but with all the sincerity of regret that England invariably feels for the loss of her great men.

Mr. Robert Stephenson's history, as well as the antecedents of his father, "George"—the first adapter of steam to railways—is familiarly known already, and needs no repetition, at least in a scrap biography; but as the father died, so has the *son*—"the noble scion of a noble house"—leaving names immortal, and stupendous monuments to register their fame to posterity.

METROPOLITAN IMPROVEMENTS.

Messrs. Ferguson and Co. are newly fitting up the premises, 105, Grafton-street (to which they are removing, from No. 108, owing to increasing business), under the direction of Mr. Lyons, architect; Mr. Meighan, builder; and Mr. Manning is about having a handsome front in the Flemish style—and corresponding with that of Mr. Higginbotham's establishment adjoining—together with internal alterations made to the last-named premises, from designs by Mr. Louch, architect. The Verdon hotel in Talbot-street is being newly fronted in cement, with Corinthian pilasters, entablature, parapets, &c., after drawings by Mr. Gribbon, architect, and doubtless will present a tasteful exterior; but it appears a matter of regret for the architectural contour of this important and rapidly progressing thoroughfare, that the proprietor did not deem it desirable to produce parallel with street, the front wall now receding angularly. The building up of the waste space immediately opposite, will also be a consummation devoutly to be wished for. Messrs. Marsh and Co., of Lower Sackville-street, are engaged in building operations of an important character, under the direction of Mr. M'Curdy, architect. Dr. Wilde is having an addition, containing a conservatory and other apartments internally, and presenting an architectural exterior, constructed at the flank of his house in Merrion-square—corner of Lower Merrion-street—according to designs, &c., by Messrs. Isaac and W. Farrell, architects; Mr. Meighan, builder.

AN ARCHITECT'S THOUGHTS IN BELFAST.

So much interest has been manifested by the Dublin Builder in architectural matters in this town, that I am encouraged to assume that the following crude thoughts may prove acceptable:—

We hear much talk about the industrial and the mining resources of Ireland, and we admit that a little has been done to develop those resources; but, unquestionably, much still remains undone. One of the prominent wants of Belfast is good building stone. This, we have no doubt, could be found in its vicinity if a sufficient depth were attained in some of the many sandstone quarries with which it is surrounded. The brick and plaster porticoes which ornament (?) many of the public buildings of Belfast and its neighbourhood, are anything but creditable to architectural taste, and should be altogether omitted if the funds will not admit of their being executed creditably in cut stone. As this part of the structure is designed solely for effect, and to afford pleasure to the mind of the beholder, they have very little either of taste or discrimination who expect that brick and plaster columns or porticoes will ever do so. It is to be hoped that a better architectural taste is spreading in the minds of the community, the effect of which will lead to increased efforts on the parts of committees and others to secure the services of efficient men.—[Communicated.]

ASSISTANCE TO INVENTORS—A NEW PROJECT.

So frequently have instances come under our notice—one very recently—of ingenious inventors being barred from giving to the world the benefit of their ability, and reaping for themselves pecuniary advantage, owing to lack of the *sine qua non* to bear them through the routine of Chancery-lane requirements—that we hail with pleasure the advent of a company, projected to take the poor man by the hand, and place his invention on an equally advantageous footing with that of the capitalist. Such, at least, is the avowed purpose of the Inventors' Assistance Company—whose prospectus appears in another portion of this journal—and we see no reason for anticipating anything either impracticable or mythical in the project, but doubt not it will achieve great things, if the primary details of management be carefully arranged and systematically carried out; to our minds the secret of success in all companies with *bona fide* intentions.

USE OF MACHINERY—PRECAUTIONS AGAINST ACCIDENTS.

Science progresses by experiment; and experiment must, to an extent, be attended with risk in testing probable consequences; but the greater the progress for the *general* weal, the greater the probability of *individual* sacrifice, yet

"All partial evil is universal good!"

Results have invariably proved this in every department of knowledge, and daily do further proofs present themselves. Mechanical labour gradually supersedes manual, and being as yet only in its infancy, it must ultimately eclipse it *in toto*. Engineers construct machinery to put time, the elements, and human labour at defiance; but "mercantile advancement" takes the lead of consideration for "human life," the latter being purely of secondary importance. *Such should not be!* The life taken by *design* is capitally punished; that lost by want of *foresight* and proper provision for its protection, is denominated a "mere accident." *Machinists, look to this!* exert your inventive faculties to place the requisite guards on your machinery, that incaution may not lead to *fatal* accident, such as occurred recently in this city and very frequently elsewhere. We live but "for the hour;" but we should live for our fellows as ourselves!

MEDIÆVAL MANUFACTURES IN ENGLAND.

The establishments of some firms in England—metropolitan and provincial—eminent in the manufacture of mediæval iron and brass work are worthy of a special visit, and present in themselves pleasing and instructive exhibitions. Some very beautiful illustrated catalogues containing varieties of designs for monumental brasses, coronæ, standards, lecterns, hinges, &c., &c., have been produced at considerable expense, and would form an acquisition to the library of every artist. Amongst the principal in this peculiar branch are Messrs. Hart and Son, of Wych-street and Cockspur-street, and Messrs. Johnston, brothers, of 190, High Holborn (both of whose manufactories we had a recent opportunity of personally inspecting), also Messrs. De Baufer and Co., of Old Fish-street, St. Paul's, London; and Messrs. Thomas Brawn; and Hardman and Co., of Birmingham, the latter firm being extensively engaged in fitting up ecclesiastical edifices in Ireland.

MR. SCOTT RUSSELL AND THE DIRECTORS OF THE GREAT EASTERN.

The arbitrators selected to arrange the matters in dispute are Mr. Fowler, C.E., on behalf of the former; Mr. J. R. Maclean for the latter, with Mr. Hawksley, C.E., as umpire. It is a matter for regret that differences have arisen to disturb the harmony that *should* exist between all concerned in such a project. We hope for a satisfactory adjustment.

Archæological Discovery.—A discovery has been made near Begerac, which tends to upset existing theories as to the signs of distinct periods of Celtic civilization. Some workman came upon a tomb, which contained, besides the bones of a man, a clumsy collar, composed of twelve round yellow wires rolled spirally, a bronze hatchet, a bronze sword, and a fragment of an earthenware vase. M. Labat, Curator of the Museum of Arms at Bordeaux, and the Viscount de Goargues, correspondent of the Bordeaux Academy, have arrived at the conclusion that the Celts were acquainted with the use of metals, at the same time that they employed flint hatchets, and that bronze and flint hatchets do not represent two different periods of civilization, but two contemporaneous trades.

HORSE RAILWAYS.

Some months ago we advocated the use of horse railways for Dublin and its vicinity, but owing to some opposition the Irish Tramway Bill met the fate of the "innocents" in committee. We have taken some pains to arrive at the working of the lines in New York, Brooklyn, Boston, and Philadelphia, which we subjoin for the information of our readers. In New York the lines were laid in 1852, meeting with great opposition from proprietors of houses and lands, shopkeepers, and residents along the lines, but now they are as popular as unpopular at first. The Philadelphia lines were opened in 1858; the citizens, seeing the good effect in New York, giving them every support to carry their grants. On this account their cost was one-third less than those of New York. In New York, in 1856, the dividends were from 8 to 12 per cent.; in 1858 the increase in passengers and receipts were over 20 per cent., so that they must have been much greater, though this was a year of universal depression in trade. The shares are all from 30 to 40 per cent. premium. About four miles each, fares 2½d.

COMPARATIVE BUSINESS FOR 1856 AND 1858.

Roads.	Passengers.		Receipts in Dols.		Capital in 100 dol. Shares.
Second Avenue	1856.	1858.	1856.	1858.	
Third	3,367,371	4,867,371	173,989	243,368	800,000
Sixth	7,131,881	8,105,515	376,392	405,275	1,170,000
Eighth	4,757,108	5,240,978	237,855	262,048	750,000
Fourth*	6,097,299	6,829,452	304,864	341,472	800,000
	No. ret.	2,014,486	No ret.	100,744	

* Belongs to Haerlem R. R. Company.

The increase in two years being in passengers on four roads 3,689,657, and in receipts 159,063 dollars.

In Brooklyn there are four trunk lines, averaging four miles each, with some branches. Passengers carried, 7,575,823; receipts, 388,610 dols.; capital of company, 1,000,000 dols., in 10 dol. shares; dividends, 8 to 10 per cent.; fares, 2½d.

In Boston, one company running two branches, five and three miles; dividends, 11 per cent.; passengers in 14 months, 1,948,410; receipts, 169,297 dols.

In Philadelphia the first road was opened in 1858, in nine lines running 80 miles through the city and suburbs. The shares in these companies are 200 per cent. over par, as their grants cost them nothing, there being no opposition.

In New Orleans lines are now laying through the city, with the support of the corporation and citizens.

We have not yet got returns from Baltimore, Cincinnati, Chicago, St. Louis, and the other large cities; but we think these are sufficient to show that the Corporation of Dublin, instead of throwing obstacles in the way of the Irish Tramway Bill, should on the contrary give it every support. The great landed proprietors, such as Mr. Sidney Herbert, Lord Palmerston, Lord Meath, Lord Miltown, Lord Howth, Sir Charles Domvile, Mr. Vernon, as well as the other landlords, villa-holders, and residents in the neighbourhood of the city, should see that no factious opposition be given, but that the interest of the many should be looked to.—*Evening Mail.*

Correspondence.

"DUST" (HOUSE REFUSE).

[We would direct the special attention of our readers—householders or others—to this very important letter, from a gentleman whose exertions in the matter of sanitary reform have been and are most indefatigable, and whose competency to deal with the subject in its various branches is unquestionable.—Ed.]

Sir—Under this heading your correspondent, "A Householder and Subscriber," complains that "ash-pit cleansing in Dublin is defective and expensive," and that "in London, Manchester, Liverpool, and other cities, ashes are asked for as a compliment, and removed gratis," whilst "here it is quite a compliment to get it removed at a price."

Permit me to say that in London the dust, ashes, and cinders in every house are the property of the authorities—not that of the householder—and were first made so by act of parliament, when the burning of brick for building purposes was accomplished on the spot where the houses were being erected, the "breeze" and cinders being used for that purpose. At that time the revenue produced by its sale was very considerable; but change of circumstances as regards brick-making, building, &c., in London, has lessened the demand so much that in many districts the authorities are obliged to pay for the removal of the contents of the ash-pits, in place of farming it out at a profit as formerly. But, up to the present day, all the matter of *cesspools, which is not corporate property*, is removed by a very wealthy body of *gentlemen!* called nightmen, one of whom was a recent Lord Mayor of London; and they may very well become wealthy, because the fixed charge for removing every *load* of such matter is *one guinea*, and a gratuity to the men.

In Manchester, Salford, and Liverpool, it is different. The Lancashire farmers well know the value of night-soil as a manure, and have used it for many years. The town councils, therefore, took care when passing their sanitary bills to possess themselves of the *entire* house refuse, soil as well as ashes, &c; and also the power to oblige the construction of out-offices in such a manner that ashes and soil might be made to amalgamate, and thus, to a certain extent, neutralize the noxiousness. The acts also oblige the arrangements to be such that the offices may be easily reached by a rear entrance; and the authorities collect the ashes, depositing the whole on the canal side in yards arranged for the purpose, from whence it is sold at a fixed rate, and the proceeds brought to the credit of the borough.

The householders have only to sign a requisition requiring the removal, and whenever necessary that is at once done. But if the sales do not realize profit, which is frequently the case, because of the staff and contractors being paid out of corporation funds, and the whole—ashes, cinders, and filth—being made into one hideous conglomerate unsuited either for the purposes of manure, or fuel, or brick-making—the loss occasionally exceeds gain; the deficit is, of course, debited to corporate charges, and the ratepayers, therefore, in fact, pay for the removal.

But, even so, this is a systematic proceeding, producing much sanitary good and great public convenience.

In Dublin, however, it is quite different. There is no system, and your correspondent truly says, "it is a compliment to get ashes, &c., removed at a price," but more than that, it is, in reality, a very hazardous operation as regards health and property, and the result is, that it is deferred by all parties as long as possible, frequently until the sanitary section of the police interfere, and then it *must* be done within a given time, no matter at what cost.

What is the result? There is in every locality a very despicable person, called "*a dusthole-man*," or "*a guinea-finder*." He makes it his business to know the places where the policeman's olfactory nerves lead him to, and when he gets a summons to attend there, he is perfectly satisfied another summons has been issued to attend elsewhere—consequently, he can almost insist on any terms he pleases for the job. The terms are sure to be complied with after a battle. The whole establishment is placed in quarantine upstairs, whilst below some one, who cannot refuse, is deputed to watch the "gold-finder," and a very miserable night or two is passed during one of the filthiest operations, performed in the filthiest possible manner; so that, in reality, it is no wonder every inhabitant of Dublin defers it as long as he possibly can.

Now, what is the proceeeding of the "dusthole-man?"

He follows the example of the cuttle fish. He hates observation, and he spreads around him such a cloud of filth that no one could or would see what he is doing. In due time, however, he declares "the job done," though only half done; he fills his cart or carts, they move on, the outer gate is locked by the unhappy being who has been obliged to attend the operations, and in the first convenient stable lane that the dustman finds, within a few hundred yards of the premises, he deposits the savoury contents of the carts, and proceeds home to bed and to laugh at the way he bilked the policeman on the bate, and how he "done" the master of the house by leaving one half of the contents in the cesspool, and depositing the other half in the stable lane close by, *to be removed by the corporation carts in the morning.*

Might it not be worthy of the consideration of the authorities whether some plan could not be adopted by "their honors," by which the inhabitants could be saved from the extortionate demands of the gold-finders (the satellites of the sanitary sergeants of police), and from the extra payment which falls upon the ratepayers under the head of "scavenging," paid by the corporation for removing the contents of the ash-pits, &c., deposited in the stable lanes?

Jasper W. Rogers.

STEAM PACKET COMPANIES AND PHILANTHROPY.

Sir—In your last impression you express a hope that our steam packet companies will next season—and in connection with the English railway companies—afford increased facilities for excursionists to the other side of the channel, and I trust your good wishes may be realized. But seeing the interest taken by the "Dublin Builder" in all that is calculated to raise the working man in the social scale, I make bold to draw your attention to a subject—as yet, I believe, unnoticed publicly—very important to all classes of the community who are not burthened with a superabundance of financial resources, and try to improve themselves by seeing *what is to be seen*, at the smallest possible cost. During the excursion period, I went on a "voyage of discovery" to Chester—a glorious old town—having obtained at the North Wall a through ticket via Holyhead—deck and covered carriages—for FIVE SHILLINGS, a very moderate and the general charge—with the option of paying 2s. 6d. extra to obtain first cabin accommodation. The weather being very inclement, I availed myself and turned in to a comfortable berth in an excellent saloon. Of my peregrinations thence I will not trouble you with a history, but returning by Liverpool I found everything very different. The cabin and deck fares are respectively 12s. 6d. and *five shillings*.—both, in my opinion, much *too high*, and presenting a great discrepancy when compared with those of the Chester and Holyhead Company. I could not afford the former, and paid for the latter, with, perhaps, some 300 reapers, their wives and children, horses and sheep all in a medley for my companions. At first starting, the attention is diverted by surrounding objects, but clearing the channel in a gale of wind, and with pelting rain, one naturally looks for shelter and *bon repos* till shore again is reached. Alas, there was none! No friendly covering over the deck passengers save heaven's canopy. Fifteen hours of martyrdom,—drenched to the skin by rain and spray—without a seat but the bare deck, rendered slimy, filthy, and nauseous by sea sickness; men, women, and children indiscriminately huddled together—are what must be endured by those whose means compel them to travel on the deck of the steamers plying between Liverpool and Dublin. Is there a country in the world but "the Irish" that would countenance such a demoralizing state of affairs? Is there a people but "the Irish" would *submit* to it? There is literally no distinction between *man* and *beast*; pigs, cows, and their owners are alike (probably the former have more the advantage than otherwise) important to the directors of these companies! But this is not all! In each boat is a set of fellows who cringe on those apparently the least likely to ruff a severe voyage, to secure them as tenants for their berths in miserable holes under deck, at the modest sum of *half-a-crown*, and no doubt reap a harvest thereby. This state of things should not be permitted by the *authorities*, as it is certainly a relic of barbarity and a national disgrace. Compare the arrangements on board steam packets elsewhere, north, south, east, or west, with ours, and the contrast clearly shows a very discreditable result; one, however, not too late to be rectified.

A MECHANIC.

Notes of New Works.

A schoolhouse is being built in connection with May-street Church, Belfast. The centre portico of it, owing to its being surrounded with buildings, and in close proximity to the church, is but one storey high, and lighted necessarily from the roof. It has two fronts, each two storeys high. The one in Little May-street is neat, and agreeably relieved with white brick quoins round door and windows. The other front, in May-street, is of a more pretentious character, with engaged columns and entablature, capped with a balustrade. We presume the style will be the same as the church itself—viz., Ionic.

Sites have been selected for the erection of model schools in Cork, Enniscorthy, Derry, and Sligo, for which plans were prepared at the office of Public Works.

A new organ has been erected in Kilmore Church by Messrs. Telford, of this city. An organ from the manufactory of Mr. W. Browne has been erected in the church of St. Joseph, Portland-row.

In addition to the many building improvements now going forward at Bray, the Dublin and Wicklow Railway Company are about erecting a large house and two cottages adjoining the station, and after plans by Mr. George Wilkinson, architect. The houses recently erected by Mr. Joseph Kelly, timber merchant, are of first-class character, and a feature of interest in the neighbourhood. We should be glad to see many others similar rising up. New domestic residences, however, are in contemplation for spring, and full particulars shall appear.

Adjoining the new cathedral of Killarney, now in course of completion, are to be erected schools for 500 children.

An independent company with limited liability has been formed to erect a marine hotel and floating baths at Kinsale harbour, to be finished contemporaneously with the opening of the railway.

Mr. Pearcey, an eminent engineer, engaged on Welsh railways, states that a company is at command who would erect a pier and breakwater at Galway, and also a line of railway direct from Ennis to Galway, so as to connect Waterford and Milford Haven with Galway direct, provided the county and town of Galway would guarantee three and a-half per cent. on the outlay of the pier and breakwater.

A new market-house and town-hall are to be erected at Navan, and the Duke of Bedford has granted a free site.

Messrs. Barker have completed the stockade fence round the magazine, Phœnix Park, a fortnight before the time allowed; and, it is stated, to the perfect satisfaction of all concerned.

An Irish cross is to be erected in Finglas churchyard, over the grave of Dr. Lanigan, the eminent author of ecclesiastical history of Ireland. Another, after a design by Mr. J. J. M'Carthy, architect, has been placed at Glasnevin Cemetery, to the memory of the late Rev. Mr. Ennis, C.C.

The tower and spire of the new church of Kenmare, Co. Kerry, is just completed for the Ecclesiastical Commissioners. Mr. J. Welland, architect; Mr. D. W. Murphy, of Bantry, contractor.

The works of a new church at Waterville, Co. Kerry, were commenced about five months since for the Ecclesiastical Commissioners. Same architect and contractor. The entire of the stone-cutting and carpentry, is nearly all prepared; yet, from the difficulty of landing the necessary building materials at Ballinskellig Bay, the masonry is very much retarded.

The same contractor is after completing the works of a bridge over the Auvane river, and has commenced—by grand jury presentment—the building of another bridge on the Coomhola river, both near the town of Bantry, Co. Cork, from designs of Mr. Jackson, surveyor.

The new Catholic church of Tipperary, erected by contributions, is now all but finished. The interior is entirely complete, and the steeple has reached as high as the base of the spire. Style, early English. The belfry will contain a peal of seven bells, to be cast in Dublin. The interior of the building is divided into naves and aisle by two rows of pillars of Drombane granite, supporting a double arcade of pointed and richly decorated arches. The windows are filled with outline stained glass patterns laid on a white ground.

A new Roman Catholic church, in the Gothic style, and consisting internally of nave, aisle, three chapels, and choir, roofed with open timbers, stained and varnished, and presenting externally pointed arches and traceried windows, main doorways, and a tower and spire, &c., &c., has been erected at Stranorlar, Co. Donegal, after plans furnished by Mr. William Nicholson, of Manchester, an engineer; Mr. M'Nemivin, the builder.

A new church is to be built in Tralee, according to drawings now preparing by Mr. J. J. M'Carthy, architect.

CANADIAN ITEMS.

The most remarkable edifice of Toronto is the new University, erected by government, and to be supported by it. The building itself is the finest in the country, except the capitol at Washington.

It is in the mediæval style, with tower and turret and battlement—the details of decoration are carried out with great apparent fidelity. The front is 400 feet in length; length of right wing 285 feet, and of left wing 273 feet. The towers are 110 feet in height, the pinnacle of the highest is 165 feet from the ground level. Sir Francis Head, the Governor General of Canade, laid the cap-stone. The material of the building is a fine grey stone, the larger part of which is from Cleveland, Ohio. The stone of which the finer carvings are wrought is from Caen in Normandy. The roof is covered with a handsome Canada slate, arranged in imitation of tile work. On entering the building by the main entrance, there is a magnificent vestibule, designed for the collection of students and their professors, and for morning promenades, &c. The floor is inlaid with encaustic tiles, costing only 5 dollars per square yard; and which were imported from Shropshire, in England, and laid by a workman sent out for the purpose from the manufactory. In the right wing is a magnificent apartment, known as the Convocation Hall, designed for exhibitions, and other gatherings of the entire University. It is finished and decorated in the finest style of the Gothic art, and the carvings with which it is profusely ornamented, are of stone. In the vestibule or entrance to it, are some exquisite carvings in stone, by a Swiss artist, representing objects in nature. The carvings and traceries throughout the building seem almost infinite in variety and design. There is no reproduction of the same conception, but a remarkable versatility of genius is observable. Next to the Convocation Hall is the Senate Chamber, designed for meetings of the Faculty of the University. In this apartment, as in many others, are magnificent stone fire-places, with stately carved mantels of the same material. There is a students' reading room and a public reading room. The library is a very large apartment finished with white oak. The museum of natural history is decorated with black walnut carvings. There is a complete surgery, a handsome laboratory finished with blue and gold in antique style. There are several large and handsome lecture halls and recitation rooms.—Quaint chambers lurk in the heart of the stony towers. Many students will be accommodated in the University itself, for whom neat quarters are being provided. An immense dining hall is provided, with a gallery, for the accommodation of the fair upon gala days of parting; the kitchen, cellars, &c, are below. The dean of the University has a suite of apartments appropriated to his residence. A botanical garden, yet in its infancy, belongs to the University. There is an observatory, in which a telescope is mounted. The grounds contain about 20 acres inclusive of a long avenue, leading to the main building, planted with trees. The cost of the building is said to be 500,000 dollars, but the guide book says 8,000,000 dollars. The former amount seems low, the latter very extravagant. The first must be much nearer the truth.

The normal and model schools of Toronto are under the patronage of the state, and located in substantial and elegant stone buildings, which are freely opened to the public. The grounds are well laid out and tastefully kept. There is a very large collection of busts, illustrative of character as expressed in physiognomy, and a large museum of plaster casts, drawings and models, of classical, mediæval and early English architecture. The building contains also a fine gallery of paintings, chiefly copies, well executed, of the masterpieces of the Italian, Spanish and Flemish schools.

The Milwaukee and Detroit Railway has been completed with the superior finish and solidity characteristic of the Canadian railways. The road-way is well constructed, the station houses are neat and comfortable, and the sleeping cars commodious. The terminal stations of Grand Haven and Detroit are conveniently arranged, and adapted to expanding business.

The Great Western is an admirably constructed railroad—its refreshment station houses are as complete as any in the country—and yet it is not in all respects a favourite railway.

The city of Toronto is about sixty years old, and has now nearly 60,000 inhabitants. Its growth has been rapid, and its prosperity great but in common with all Western towns, it is now suffering severely from the reaction consequent upon too great inflation and expansion of business. Whole blocks of stores are to rent, and business paper is submitted to a most exorbitant shave. The present suspension of work upon the railways and the recent removal of the government offices to Quebec, have proved disasterous. The city is a fine one—abounding in handsome churches and public buildings—decorated with fine stores, business blocks, broad and straight streets—with many very handsome shops. The English, Presbyterian and Catholic churches are very handsome buildings. The Catholic Cathedral, with its showy decorations, furnishes a remarkable contrast to the severe simplicity of Cathedrals elswhere. The Market House is very large, and is usually crowded with people, displaying all manner of wares and commodities.

Monthly Railway Memoranda.

We are glad to find the Directors of the Ennis and Limerick Railway patronizing an Irish house for the supply of their carriages, waggons, &c., though we do not profess to rank amongst those who disbelieve that mutual advantages arise from reciprocal business intercourse with the sister countries likewise, and that trade should be exclusively retained on Irish soil.

Connected with the various requirements of the iron road, there are manufactories in existence in Ireland possessed of all the capabilities for executing almost any amount of work, and with as great facility as many of importance in England; and we may add that a large proportion of their business emanates from the United Kingdom, as well as abroad, clearly establishing public appreciation. Amongst those firms we may mention the old-established and eminent house of Rogerson, Dawson, and Russell, of this city, coachbuilders, from whom the abovenamed company have largely purchased; and the carriages are said to be on the most approved principle of construction, and for comfort and spaciousness are unsurpassed.

The plans for the proposed Kilkenny and Roscrea Junction Railway are in progress; Mr. Nixon, chief engineer.

The contract entered into by the Cork and Kinsale Railway Company with Messrs. Trowsdale and Son, of Stockton-on-Tees, is to complete the ten miles of line, ready for engines and carriages, at £4,100 per mile—a remarkably low figure. Several stone bridges have been substituted in lieu of the originally intended level crossings.

It is stated that the Waterford and Kilkenny Railway Company have paid off the £7,000 due to the Public Works Commissioners, and consequently taken the letting of the railway out of their hands.

The Dublin and Meath Railway is progressing towards completion, nearly the entire being ready for laying the rails, the arches of Boyne viaduct centred and partly turned, and the Assye and Grange bridges open for public traffic. Messrs. Moore, contractors.

New Mode of Staining and Figuring Wood.—The deals, veneers, or planks, as they come from the saw, are placed on a solid frame, and fastened down; after which an engraved roller, heated to a temperature suited to the quality of the wood, is passed over them, the pattern being thus burnt in. The surface is then planed smooth and French polished, leaving an effect, it is said, equal to that of the finest painting or staining. To Mr. King, of Clayton-square, Liverpool, is due the merit of the invention.

Review.

British Timber Trees. By John Blenkarn, Agricultural Engineer. Post octavo, half bound. Routledge, Warne and Routledge, Farringdon-street, London.

When going to press we received this valuable work, and are so greatly impressed with the importance of the subject, and the admirable style in which it is treated, that we cannot omit a hasty notice in the present number. The growth of British timber may be said to have claims on the attention of all British subjects, and to none more than the landed proprietors of Ireland. This work, by a practical man (an agricultural engineer), is treated as but such a man could treat the subject. Essentially practical in all its bearings, it enters fully into the method of rearing trees from the seed and otherwise, their subsequent management in woods, groves, plantations, &c. The essay on the improvement of barren and mountainous districts, and that on the valuation of timber, are entitled to all praise. The work concludes in giving practical tables and useful memoranda relative to timber. It is well got up, and cheap; and we can cordially recommend it to the notice of our readers. We shall refer to the subject in a future number.

GLASGOW CORPORATION WATER WORKS.

The Loch Katrine aqueduct, for the supply of the city of Glasgow with water, is one of the largest works of the kind which has ever been constructed in this or any other country, either in ancient or modern times. The Act for the construction of this work was obtained by the municipal authorities, after much careful investigation into the best mode of improving the supply of water to the city, in the year 1855, and the works were commenced in the following spring. The money for defraying the cost is borrowed on security of an unlimited rate upon the houses and property within the city. The undertaking is specially distinguished by the great extent and beauty of the Highland lakes from which the water is brought—the excessive purity of the water—the difficult and rugged character of the mountainous country through which the works for its conveyance have been constructed—and the large volume of water, no less than 50,000,000 gallons per day, which will be obtained for the supply of the city. The lakes appropriated to the purposes of the water-works for the use of the city, and for the supply of the mill-owners, fisheries, and other interests on the rivers from which the water will be abstracted, are Loch Katrine, 8 or 9 miles in length, with a surface of 3,000 acres; Loch Venechar, 4 miles in length, with an area of 900 acres; and Loch Drunkie, with an area of about 150 acres; having altogether a water surface of upwards of 4,000 acres, and containing within the limits to which they may be raised or lowered about 1,600,000,000 cubic feet of water. The drainage area of Loch Katrine is 22,800 acres, and of Loch Venechar and Loch Drunkie, 23,000 acres, making a total of 45,800 acres. On this the average fall of rain is between 70 and 80 inches per annum. That which falls on the collecting ground of Loch Katrine is about 80 inches on the average of five years' observations. If all the water which flows from the rugged mountain sides into Loch Katrine were impounded, it would afford a regular supply of 80,000,000 or 90,000,000 gallons. The storeage which is provided by the works which have been executed is equal to 50,000,000 gallons per day for 120 days without rain. It is obtained by raising the water by proper masonry and sluice-gates at the outlet 4 feet above the ordinary summer level, and by drawing it down, if necessary, to 3 feet below that level, giving 7 feet in depth in all. In like manner the requisite storeage for compensation to the River Teith, which consists of a regular guaranteed quantity per day, is obtained by raising Loch Venechar 5 feet 8 inches above its ordinary summer level, and drawing it down 6 feet, giving 11 feet 8 inches in all, and by raising Loch Drunkie 20 feet. The works at the outlets of the lakes are interesting and important works, at Loch Venechar especially. Provision is made for the discharge of floods as well as for the daily regulated supply, and for securing the passage of salmon and other fish by properly constructed "salmon ladders." Loch Katrine is 360 feet above the tide at Glasgow, an elevation which allows for the loss of fall in the conveyance of the water, and still secures a pressure of 70 or 80 feet above the highest summit of land within the city. The aqueduct from Loch Katrine to the city is about 34 miles in length, 10 or 11 of which consist of ridges of rock of the hardest description, forming the spurs of Ben Lomond, which towers to 3,000 feet above the level of the works. Through these ridges, in a tolerably straight direction, the aqueduct is carried principally by tunnelling, the tunnels being 8 feet in diameter, and having a fall of 10 inches in the mile. Across three deep and wide valleys the water is conveyed by cast-iron pipes, 4 feet in diameter, with a fall of 5 feet per mile, and at the distance of about 26 miles from Loch Katrine, near Mugdock Castle, a large reservoir of about 70 acres in extent, and containing 500,000,000 gallons of water, has been constructed. From this reservoir, the top water of which is 311 feet above the sea, the water is taken to the city by two lines of cast-iron pipes, each 3 feet in diameter, one being 7, and the other 8 miles in length. Of the 26 miles which lie between Loch Katrine and the service reservoir, 13 miles are tunnelling. 3½ miles are iron piping, and the remainder, where the ground has been cut open, is an arched aqueduct of 8 feet in diameter. having the same inclination as the tunnels. Where the ground has been excavated, it is filled in again over the aqueduct, which is covered throughout, and the surface restored to its original condition. There are in the whole work 70 distinct tunnels, upon which 44 vertical shafts have been sunk for facilitating and expediting the completion of the work. The first tunnel commences immediately upon the aqueduct leaving Loch Katrine. It is 2,326 yards in length, 600 feet below the summit of the hill, and has been worked, in addition to the open ends, by twelve shafts, five of which are nearly 500 feet deep. This tunnel is in gneiss and mica slate. The last tunnel is at the southern extremity of the aqueduct, just before it enters the service reservoir. It is 2,550 yards in length, almost wholly through whinstone, at a depth of 250 feet below the summit of the hill. Besides these, which are the two longest tunnels, there are, at intermediate places, others of 700, 800, 1,100, and 1,400 yards in length. The rock tunnelled through was in most parts of the most obdurate description. For several miles along the side of Loch Chon, where the work passed through a succession of ridges of mica slate largely mixed with quartz veins, the progress did not exceed 8 lineal yards in a month, although the work was carried on day and night. In the Loch Katrine tunnel, and generally in the mica slate, the ordinary average progress was about 5 yards in a month In drilling the holes for blasting the rock with gunpowder, a fresh drill or chisel was required for every inch in depth upon the average. About 60 drills were constantly in use at each face, and the cost of gunpowder alone was from 27s. to 30s. per lineal yard. The character of rock, however (as had been clearly foreseen when the work was determined upon), was such that no water occurred in any of the tunnels or workings so long as they were in the mica slate and clay slate, and there was therefore none of the inconvenience, delay, and cost from the presence of water which usually attend extensive tunnelling. When the works left the slate rocks and entered the old red sandstone, tunnelling was avoided as much as possible from fear of water; but even in this formation it was met with in much less quantity than had been anticipated. Not to speak of smaller constructions, there are 15 important iron and masonry aqueducts over rivers and ravines, some 60 and 80 feet in height, with arches of 30 feet, 50 and 90 feet in span; and in addition to about 46 miles of new pipes within the city for distributing the water to the inhabitants, there are about 20 miles of large cast-iron pipes of 3 feet, 3 feet 6 inches, and 4 feet in diameter, for conveying the water to the city. The number of people employed, exclusive of iron founders and mechanics, has generally been about 3,000; and for the greater part of these huts and roads and all other accommodation had to be provided—the country for the most part being of the wildest and most inaccessible description. The accuracy with which the works have been executed is most creditable to the resident engineers and inspectors. The difference between the levels taken for parliamentary purposes and those subsequently taken when the works were set out for construction, was only 1-50th part of a foot, or about ¼ of an inch in the 26 miles between Loch Katrine and the Mugdock Reservoir; and so truly have the tunnels been driven, that the junctions can only be distinguished by the different directions of the drill holes. The works will be completed for the conveyance of water to the city within 3½ years of the time they were commenced, and within the time originally contemplated, and at a total engineering cost of about £630,000, being about 10 per cent beyond the parliamentary estimate, after allowing for some additional works.

The Atlantic Cable.—Messrs. Beardmore and Robinson, electricians, have visited Valencia this week, and set on foot a series of experiments on the Atlantic cable. Encouragement as to the success of the undertaking, both as regards the resuscitation of the old and the laying of a new cable is in the ascendant. These gentlemen found room, in the state of the cable, to disseminate new courage among its friends.—*Tralee Chronicle.*

Motion by Heat.—A Red-hot Railway.—A curious apparatus has been described in the *Philosophical Magazine* illustrating a new mode of producing motion by means of heat. It consists of a massive circular horizontal railway composed of copper. The rails are made red hot, and a thin ball of German silver is then placed upon them. Immediately the ball is placed upon the rails it begins to travel, and continues to be propelled in a uniform direction as long as the rails remain sufficiently hot.

Miscellaneous.

The Victoria Bridge, Montreal.—The Victoria Bridge, it is anticipated, will be ready for traffic by the end of this month. The last pier of the twenty-four has been completed. Its foundations having been laid only eight weeks ago, it has been constructed with great rapidity; and all that now remains to be done is to complete the laying of the tubing, for which the necessary staging is now being erected between the tubes not yet connected. It may be worth repeating that the tube connecting the two central piers contains upwards of 700 tons weight of iron. The weight of iron in the portion of the tube between any two of the other piers is about 350 tons. The distance between the two central piers, affording a channel for the passage of vessels, is 300 feet, and the height of the tube above the water, 60 feet. It is estimated that the cost of each pier is about £40,000. The grand inauguration of this stupendous enterprise will not take place till next year; but we understand that immediately on its completion the bridge will be open for regular traffic. A full description may be found at page 124.

Engraving without an Engraver.—One of the most curious of the many remarkable applications of photography is that of producing by its means copies of engravings and other works of art. The almost perfect reproduction of a drawing or an engraving, without the intervention of an engraver or copyist, would have seemed a few years back almost an impossible thing—yet we know that photography accomplishes it daily. But we have become so familiar with photography that we almost cease to wonder at its marvellous doings. Still the reproduction, true and beautiful as it is, is a photograph and not an engraving. We have now to introduce to the notice of our readers a new process by which it has been found possible without even the aid of photography, in fact, as we may say, by mere mechanical means, to make a perfect fac simile of an engraving—whether a copperplate or a woodcut—and not only to make a copy of it, but to produce a plate or block for surface-printing, that shall yield impressions by the ordinary printing-presses quite equal to the original. But even this is not all. Blocks can by this process be produced, without the aid of any engraver, which shall print these fac simile enlarged or reduced to any extent that may be desired. We have, for instance, seen a whole-page wood-cut from the *Illustrated News*, reduced to half, and enlarged to double the original dimensions, without any loss of sharpness or vigour, and without the smallest distortion being anywhere discoverable, even with a lens. So again with an old and imperfect map: and so with an impression from a steel engraving. But it is equally applicable to original designs made with a peculiar ink and paper. Without the assistance of an engraver, blocks for surface-printing can be prepared from them, either of the same or any larger or smaller size. But further, the blocks for printing can be produced of an altered form as well as of a different size. Thus the normal pattern for printing on a dinner service can be reproduced, say in its original size and round form for the ordinary dinner-plates, half, or any other proportion of the size for desserts or cheese-plates, and twice the size and oval for dishes, &c. All this we have said is a mechanical process, but it is also a scientific one, and to be properly worked out we need hardly say it will require artistic guidance. The textile and the ceramic manufacturer are almost equally interested in this invention with the publisher, but the range of its application seems to be commercially almost unlimited. The process is carried through by means of elastic blocks and electro-metallurgy: all that is required to be furnished the manipulator is an impression of the plate to be copied. The inventor is Mr. H. G. Collins, who has protected his invention by patents. A company called the Electro Printing-Block Company, has been formed for working it. That the invention is regarded by business men as thoroughly practical, may, we suppose, be taken for granted, since the names of some of our leading publishers of illustrated works and ceramic manufacturers are in the list of directors. When the scheme is more thoroughly in working order we may return to the subject, to notice the process itself somewhat more particularly.—*Saunders.*

Curious Property of Cast Iron.—Cast-iron dilates permanently by repeated heating. Cast-iron ferrules for locomotive tubes will remain tight where wrought-iron ferrules might leak, and for this reason the former are used generally in American locomotives.

The submarine telegraph between Malta and the opposite coast of Sicily, at Alga Grande, has been successfully laid. The mid-portion of the cable is of great strength, being equal to sustain a strain of from ten to twelve tons without parting, and the shore ends are of nearly double the strength. The depth of water throughout is within 80 fathoms, so that if any accident should ever occur it might be remedied without much difficulty.

The work of erecting a new Catholic church at Caryville, on Broadway, is being commenced The corner-stone of a new church was laid recently at Malone, N.Y.

A New Joint in Joinery.—The usual process in making boxes has been to dovetail the sides and ends together. Mr. Hine, the fancy cabinetmaker of St. John-street road, London, has completely superseded that process by his patent "improved self-supporting joint." Mr. Hine obtains his joint by making with circular saws two tongues or fillets at right angles to each other; one of these tongues being on the edge, the other on the side of any given piece of wood, thick or thin. By the same process he forms two grooves in another and similar piece of wood, also at right angles to each other. The two tongues are then run into the two grooves, a perfect joint is the result. strong and so complete that it is impossible to pull the two pieces of board apart laterally or in the plane of either one. By merely reversing the position of the tongued bond an angular joint is produced. The process can be adopted in the making of wooden or stone stairs, by which each "riser" would be locked into the "thread" that the stairs would be self-supporting, There is scarcely a thing in the whole range of building or cabinetmaking to which this joint could not be applied with a saving of labour truly surprising; so much so, that one man in making boxes can do as much in five minutes as by the ordinary means he could do in an hour. For ships' decks, railway platforms, flooring, &c., the joint would be invaluable. Mr. Hine thinks of applying his joint to window-sashes, doing away with beads and weights, at the same time preventing draughts and the disagreeable shakings of the sashes whenever there is a little wind. The whole of the process being of the most simple kind, not a plane or joiner's tool is required. Metal can be employed in the same way. Mr. Hine exhibited to us a brass box, air tight, made by his joint, without the aid of solder or rivets; the pieces being simply put together by placing the tongues in the grooves, and as easily taken to pieces. We understand the joint has been submitted to government inspectors, and favourably received.—*Spectator*.

A statue of Notre Dame de France, of extraordinary dimensions, is in course of erection on the Rocher de Corneille, near Le Puy (department of Haute-Loire). The statue is 53 feet high, and a staircase in the inside will give access to the head, whence there will be an extensive panoramic view. The statue is of iron, cast in pieces from guns taken at Sebastopol. The design is by M. Bonassieux.

The deposition of dew, on the glass of windows, arises from the air of the apartment—charged with aqueous vapour by the breath of those within—being cooled on account of contact with the glass, the temperature of which is lowered by the coldness of the external air.

Drinking Fountains.—Few of the social and sanitary movements which have distinguished the last twelve or fifteen years deserve greater attention and encouragement than that which has for its object the establishment in all our large towns of free public drinking fountains. Recently, a man, in passing along the streets, had few means of quenching his thirst, except by a resort to the public house. It might be said that there are the pumps; but pump water is notoriously impure to a frightful extent; besides, many pumps are not even provided with the rough accommodation for drinking of an iron bowl, such as we see in some cases. How often, in the hot days of summer, did we observe a crowd of errand boys and ragged youths clustered about the pumps, snatching insufficient and not very inviting draughts by means of their hands and caps! How eagerly were their solicitations for "a drink of water" addressed to any one who may have come to the spot with a vessel! These poor wanderers of the streets are deserving of consideration in a matter so important. The new drinking fountains are provided with a trough for cattle, and for the comfort of those wretched dogs which run homeless about the streets, and in the sultry weather of July and August not unfrequently go mad, and inflict mortal injury on human beings, for the want of the very fluid which, when rabid, excites their deepest horror. Free public fountains may safely be set against any number of Maine Liquor Laws for bringing people into habits of sobriety.

The electric telegraph has been extended to Tralee, which is now in communication with the metropolis.

The municipal council of Paris has decided on the building of ten new churches, which are to be completed in eight years.

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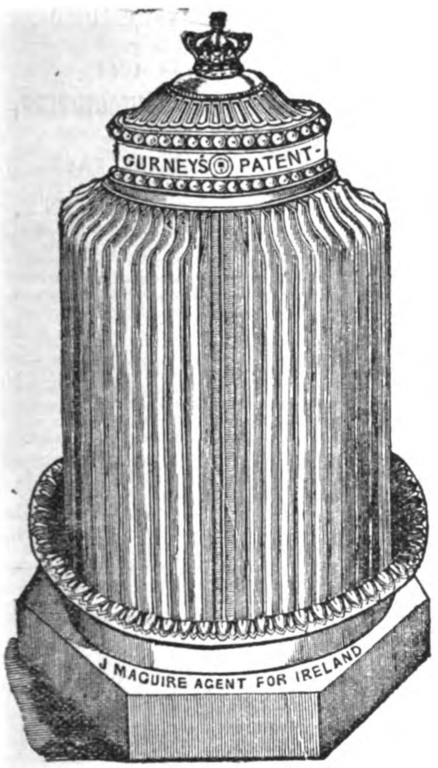
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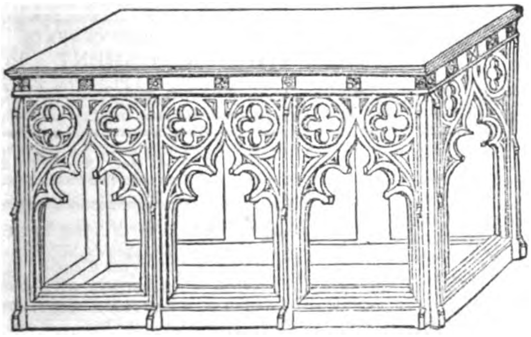

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The Dublin Builder.

VOL. I.—No. 12.

IRISH TRANSATLANTIC HARBOURS.

THE relative pretensions of "the Cove"—for such we must still term it—though, like others, "yielding to no man in loyalty to her Majesty"—and Galway, as a great Transatlantic seaport, have been urged with an earnestness and enthusiasm so nationally creditable—and, we may add, so nationally unusual—that, despite the political tendencies of the subject, being somewhat outside *our* province, we cannot silently permit the absorbing topic to pass without notice. Working, not talking, has characterized the respective promoters of these rival routes *ab initio*; and while the projects were deemed mere embryo possibilities throughout our kingdom, the machinery of good faith, enterprising spirit, and love for national advancement had matured them at home in a twinkling. Into all new undertakings occasional errors will creep—errors, perhaps, more the result of inability than want of foresight—and if there be a matter for regret so far, it is, that the test was not applied with sufficiently practical force to meet counteracting influences, and decide the championship definitely on the first trial. "Out of evil, however, sometimes cometh good," and, while harm is being repaired, a new field may be laid open as a stimulant to emulation in other quarters; and so it has proved in this instance. As yet the positive capabilities of Galway harbour have to be proved by a heavy outlay; she labours under disadvantages which may be lessened artificially but withal, and making just allowance for unavoidable mishaps, she has demonstrated facts in connection with this enterprize that *must* lead to great results.

With "Cove"—or Queenstown—it is different; her natural advantages, the perfect shelter afforded to vessels in severe weather by the hilly breakwaters enclosing her harbours; the facility of approach thereto under every circumstance, and the comparatively trifling outlay requisite to fit that port for transatlantic packet purposes, must bring their own weight to every mind; and her promoters, no doubt, will urge that, placing *these* in the scale with the facilities possessed by her rival, they infinitely counterbalance natural disadvantages, commanding geographical superiority. To competition the enthusiasm displayed in these projects may, to a certain extent, be traced, but now that the battle of the railways—the Midland Great Western and Great Southern and Western Companies—is fairly over, and all the points at issue amicably adjusted, it would ill become us to open up old sores or cast the apple of discord. Such is not our purpose, but *the reverse!* We believe that each may assist the other, and benefit its own interest simultaneously; for, once the principle is established that Ireland must, *de necessitate*, be the transatlantic highway, there will be opportunity enough for Cove and for Galway likewise to become important commercial depots. Whatever may result from *private* speculation towards the furtherance of these objects, there is one fact tolerably defined that little may be expected elsewhere. If the companies work hand in hand, there seems to us much greater probability of the goal being successfully reached, than should disunion and opposition prevail in the camps. We see no reason why Galway should not maintain an independent line of packets, by her Atlantic Royal Mail Steam Navigation Company, without clashing in any one respect with Cove as a port of call for the Cunard steamers. But these considerations we leave to heads more speculating than ours, for it suits us to adher to matters of fact.

The construction of the new line of railway from Cork to the harbour, the commencement of which was honoured with the prestige of his Excellency's manual assistance, "in truly workmanlike style," in turning the first sod, is a token of earnestness on the part of the Corkonians; and the proposed construction of the branch goods' line from the Broadstone Metropolitan Terminus to the shipping at the North Wall, so as to connect the English seaports direct with Galway at another side, also evidences a determination to secure a preference for the Western route. Let us hope that each are equally sincere; that no future misgivings may intercept the laudable emulation now manifested, and that to what extent energies may be taxed they will have but one end in view—viz., NATIONAL ADVANCEMENT.

Those who know the capacity of the Corkonians in matters of enterprise when once earnestly entered upon, cannot doubt but that every sinew will be strained by them towards the successful accomplishment of this end; and those who have heard—as who now has not—of the indefatigable Father Daly and the spirited Mr. Lever, will not entertain any apprehension that the capabilities of Galway will be put forward in such channels as may prove most likely to benefit the scheme, and be demonstrated by every possible practical experiment. The railway companies named above—the great arteries of traffic, South and West—will vie with each other to assist the respective projects, knowing full well that in so doing—taking the business view of the question, though allowing them some pretensions to nationality likewise—they enhance the value of their lines by a considerably augmented passenger and goods traffic. Poor as Galway may be at present, insignificant her buildings, her harbour works, &c., she can nevertheless point as an example for possibilities *in futuro* to Holyhead, which, when the new breakwater shall have been completed, may be fearlessly designated the greatest harbour in the world. But we hope to see Galway and Cove likewise more than mere packet stations *in transitu*, as they possess the elements for great commercial and naval depots *in situ*. The course now to be run, is wide enough for both ports to exert their energies in developing their respective capacities, and while the desired object is sought temperately and in the fair spirit of emulation, we repeat that the probabilities of success are *tenfold*. While writing these lines our notice is coincidently directed to an article in the last number of the *Cork Examiner*, the tone of which so singularly corresponds with our own views, that we give the following therefrom:—

> "There are, no doubt, persons who imagine that, here in Cork, we feel something like jealousy of our Galway neighbours, and that it would gratify us to find their efforts to establish transatlantic communication with their port abortive. We can assure them that no such sentiment is entertained here, and that the success of the Royal Atlantic line will be hailed with pleasure by our local community We want nothing for Cork but fair play, which we feel we did not receive from the late government. We could, however, attach no blame to Galway for her share in the transaction, and admit she was quite justified in managing as best she could, to advance her own interests. Now, that she has the subsidy, we wish her every success, and we are glad to find that the company which

is to derive the benefit of it is largely Irish, and has had so much of the Irish element infused into its directory."

As for ourselves we reserve our opinion upon the engineering topics connected with these respective projects for a future time, when matured circumstances will demand their more complete investigation.

We promise, however, that they shall receive in early numbers our impartial and special attention.

HORSE PASSENGER TRAMWAYS, AS IN AMERICA, APPLICABLE TO OUR LARGE TOWNS.

From the benefit to the public and profit to the proprietors of the American city railways, we are induced to give these statements, as the Corporations of London and Dublin opposed them, not being aware of their use and utility.

New York has five lines, about four miles long each, in operation since 1852 and 1853. At present the shares are 30 to 40 per cent. premium. In 1856 they paid dividends from 8 to 12 per cent., but as the increase in 1858 was 17 per cent. over 1856, with the same working expenses, the dividends or bonuses must be comparatively greater. From the *London Times* of 12th April, we find the number of passengers in 1858 were 27,057,802 (receipts, 1,352,887 dollars) in New York, and 7,575,828 in Brooklyn, making a total of 34,633,525; amount, 1,731,676 dollars, or £846,335; being a daily average of 94,882 persons, and of receipts of 4,744 dollars. The Dublin *Evening Mail* compared these lines, about 45 miles long, with the passenger receipts of all the Irish railways, 1,070 miles, for the same year, with the remarkable results that, at 2½d. fares, the receipts of the tramways are more than half those of the passengers of all our lines, while the number carried by them was as four to one.

Taking the Dublin and Kingstown, Cork and Passage, Waterford and Tramore lines—exclusively passenger—we find that the tramways carried eleven times the number, with nearly five times the receipts of these three railways. In Scotland, in 1855, all the railways carried 12,206,926 passengers, or less than one-half the number of the New York city lines.

The shares of the New York lines are 100 dollars, or £20 each; as the iron masters, timber merchants, car builders, and contractors took them at par, little ready money was required to complete them.

Four of them run 252 cars, have 1,857 horses, employ 826 persons, going over 4,222,855 miles per annum; starting from 2 to 10 minutes by day, and 15 to 30 minutes at night. Out of the vast number carried four were killed, the juries finding "no blame to the companies."

In the charters of some of the New York companies there was a reservation clause, to enable the city to purchase them, paying 10 per cent. over all cost; some parties are urging the corporation to do so, as they are 30 to 40 per cent. over par, but the propriety of this course is questionable though it may be legal, "*jus summum est sæpe summa malitia.*"

The Boston lines, about eight miles long, pay 10 per cent. dividends.

In Philadelphia the success has been most astonishing. The New York *Tribune*, of 27th May last, stating—"The first road went into operation sixteen months ago, eight or nine now running over 80 miles through city and suburbs, employing 250 cars, 1,600 horses, 1,000 men; most of them 200 to 300 per cent. over par. Fashionable women always shunned the omnibusses, but the ample passenger car gives room sufficient for adjusting the widest crinoline, hence all the women use them, these conveyances being filled with a different class from the omnibusses of five years ago."

It may be well here to give an extract of the *Times* on the New York rails:—"These, which are tracks laid down in the streets, are made of a peculiar form to avoid the objections to the ordinary rail, all concentrate in the business part of New York, and take most of the travel to and from it."

New Orleans—as well as many other cities—is now getting them laid, with the support of the corporations and state legislatures. In New York, in 1852, the opposition was very great, but the present state of public feeling in that city is well described by the secretary of one of the roads—viz., "As to the opposition to our road, it has entirely disappeared. During the three years I have been charged with the general business of the road, it has been steadily decreasing, and if the question of removing our rail were now mooted, almost every resident and property holder along our line would oppose it. They, on the contrary, annoy us and the other companies to extend our rails, with the view of developing and bringing into market for building purposes, lots lying outside, which would be valuable if accessible. We carry a man for 5 cents (2½d.), from his business to his home day after day, with the regularity of clock-work, and his ride in our car is as much a matter of course as his newspaper and his breakfast. On the question of the utility and advantage of city railroads, the strongest testimony we could give will be corroborated by every disinterested citizen, and they have only to be introduced in any city to be both popular and permanent."

Labour in the United States is double, and iron about 40 per cent. higher than in Great Britain, owing to the duty, freights, and other charges.

The Corporation of Limerick has been the first in Ireland to grant permission to lay them; Cork and Belfast are advocating their use, the latter city applying for a private bill. But as soon as the Irish Tramway Bill introduced by Sir Robert Ferguson, Col. French, and Col. Greville will become law, Dublin and the rest of the country will have the benefit of cheap communication; there is no measure so popular or likely to do so much good. No doubt Leeds, Manchester, Glasgow, Liverpool, Birmingham, and the other large towns, seeing the benefit New York, Philadelphia, Brooklyn, and other American cities, as well as Paris and Nantes, have derived from the horse passenger railways, will soon follow the example. The secretaries of the American companies do not act on the "no admittance except on business system," too prevalent here, but are willing to shew the advantages and profits of their lines to others, that they may benefit thereby. Mr. George Law, a prominent citizen of New York, and some years ago a candidate for the presidency, owns 9-10ths of the 8th Avenue tramway (capital, 800,000 dollars, paying in 1857 12 per cent. dividend, but now much more), and nearly all the stock of the 9th Avenue, a much longer line, running parallel with the other at a few hundred yards distance, which is now laying. The Paris lines were made by a French gentleman, long a resident of New York, who saw their benefits and profit in that city. The Nantes tramways run from the Orleans railway station to the quays, through the city, of which 1,370 yards are single, and 2,365 double lines, traversing the most crowded streets and crossing the bridges. The Dublin lines, with equipment of horses, cars, &c., and a double track, will cost about £4,000 a-mile, and single, £2,800; a mere trifle when compared with the Dublin and Kingstown Railway, of £62,000 per mile. The cars 25 feet long, 8 feet wide, and 8 high, carry 26 inside and 24 out. The one-horsed ones carrying 12 in and 12 out.

BABYLONIAN ARCHITECTURE.

An account of this style of architecture must needs be very imperfect, when the very situation of the ancient Babylon remains uncertain. This once vast city, the metropolis of one of the great empires of the world, is now but one mass of undistinguishable ruins. Herodotus gives us a very exact and lengthened description. He says the city was of a quadrangular form, four hundred and eighty stadia in circuit, divided into two districts by the river Euphrates; it was defended on all four sides by a deep trenchand wall. The wall on each side was 120 stadia in length, fifty royal cubits in thickness, and 200 in height: on the top, and on each side of it, was erected a row of houses of one story in height, facing each other, and leaving a space or roadway between them, wide enough to allow four horses to be driven along it abreast. Where the outer walls met the river, a return wall was carried along each opposite bank to fortify the city against attacks from this quarter, and behind this again another, but of smaller dimensions. In the four walls surrounding the city, were a hundred apertures or entrances closed by means of brazen gates, from each of which was continued a street to the corresponding ones on the opposite side, intersecting the roads which led from the transverse walls at right angles. Where the streets met the return wall along the banks, an opening was made down to the river, provided with brazen gates. The city was filled with houses of three and four storeys in height; and among the most remarkable buildings, were the temple of Belus and the palace, one in each of the principal divisions on either side of the Euphrates. The former is a very remarkable building on account of its supposed connection with the tower of Babel mentioned in the Mosaical account of the colonization of the earth. Herodotus gives the following description:—The tower was of a square plan, surrounded by a wall of similar form, having each of its sides two stadia in length: the sides of the structure itself were only half this length, or one stadium. He states that the tower consisted of eight tiers, which gave to it the appearance of being composed of eight towers, placed one above the other; but this in reality was not the case; such resemblance being occasioned by an inclined platform winding round outside the building, and thereby making eight revolutions: this platform formed the only means of ascent. About halfway up the incline, was a resting place, and at the highest extremity a large temple dedicated to the god Bel, or perhaps Baal: there was another chapel in this building, containing an image of the god, of which we have no particular description. Nitocris having temporarily diverted the waters of the Euphrates by a course outside the city, embanked a part of the river, and made a descent into it from each of the gates in the return wall. This embankment was constructed of baked bricks in the same manner as the walls; a different material, however, was used in the construction of a stone bridge or (perhaps we should more correctly say) piers of a bridge, as the road-way was formed of horizontal timbers, laid, as seems probable, from pier to pier. The beams were taken up at night, thus forming a kind of drawbridge. In the piers, hewn stones were employed, which were securely connected together with iron and lead. Another remarkable work of this reign, was the erection of a building over the principal gates, to be used as a place of sepulture. Let us now turn to the investigations on this subject by modern travellers, and in doing so we shall lay before our readers the account given by Mr. Rich, who has examined the ruins of this city with perhaps greater care than any other person. We must premise that the site of the ancient city is a matter of dispute, but is allowed to be situate somewhere in the neighbourhood of Hillah and Mohawill. This position has been determined upon, on account of the mounds and heaps of ruins which are found dispersed about this quarter, on or near the banks of the Euphrates. On taking a view of the ruins from south to north, the first object that attracts the attention is the low mound connected with the ruin on the south-west of the tomb of Amram: on it are two small walls close together, and only a few feet in height and breadth. This ruin, which is called Jumjuma, and formed part of a Mohammedan oratory, gives its name to a village a little to the left of it. To this succeeds the first grand mass of ruins, which is 1100 yards in length, and 800 in its greatest breadth; its figure nearly resembles that of a quadrant; its height is irregular, but the most elevated part may be about fifty or sixty feet above the level of the plain, and it has been dug into for the purpose of procuring bricks. Just below the highest part of it is a small dome in an oblong enclosure distinguished by the name of Amram Ibin Ali. On the north is a valley of 550 yards in length, the area of which is covered with tussocks of rank grass, and crossed by a line of ruins of very little elevation. To this succeeds the second grand mass of ruins, the shape of which is nearly a square of 700 yards length and breadth, and its south-west angle is connected with the north-west angle of the mounds of Amram by a ridge of considerable height, and nearly 100 yards in breadth. Not more than 200 yards from the northern extremity of this mound is a ravine, hollowed out by those who dig for bricks, in length 100 yards, and 10 feet wide by 40 or 50 deep. On one side of it a few yards of wall remain standing, the face of which is very clean and perfect, and appears to have been the front of some building. Under the foundations, at the southern end, an opening is made, which discovers a subterranean passage, floored and walled with large bricks laid in bitumen, and covered over with pieces of sandstone a yard thick and several yards long; the weight above has been so great as to have given a considerable degree of obliquity to the side walls of the passage; the opening is nearly seven feet in height, and its course is to the south. The superstructure over the passage is cemented with bitumen, other parts of the ravine with mortar, and the bricks have all writing upon them. The souterrain widens considerably as you proceed farther. This passage seems to form part of the *kasr*, or palace, and may have been perhaps the tunnel alluded to by ancient authors. The principal portion of this ruin, to which alone the term *kasr* is applied at present by the natives, is situate a little to the west of the ravine, and presents a remarkably fresh appearance. A mile to the north of the *kasr*, or palace, five miles from Hillah, and 950 yards from the river-bank, is a ruin called *Mujelibè*, meaning *the overturned;* its shape is oblong, and its height, as well as the measurements of its sides, irregular. The only ruin of any consequence to be found on the western side of the Euphrates is that which is termed by the Arabs the *Birs Nemrond*, and by the Jews *Nebuchadnezzar's Prison;* it is situate about six miles to the south-west of Hillah, and is perhaps the most remarkable of all the ruins. The Birs Nimroud is a mound of an oblong form, the total circumference of which is 762 yards. At the eastern side it is cloven by a deep furrow, and is not more than fifty or sixty feet high; but at the western side it rises in a conical figure to the elevation of 198 feet, and on its summit is a solid pile of brick, thirty-seven feet high by twenty-eight in breadth, diminishing in thickness to the top, which is broken and irregular, and rent by a large fissure extending through a third of its height. It is perforated by small square holes disposed to rhomboids. At a trifling distance, and parallel with its eastern face, is a mound not inferior to that of the kasr, in elevation, but much longer than broad; on the top of it are two *koubbes*, or oratories; round the Birs are traces of ruins to a considerable extent.—*Nicholson's Architectural Dictionary.*

We understand that Alderman James Martin, of the eminent firm of Messrs. John Martin and Sons, will be one of the aldermen to represent the Corporation at the Ballast Board after New Year's day, and that further civic honours are in store at no very distant period for this gentleman, "the noble scion of a noble house."

DOINGS AT CORK.

THE good people of Cork had some gala days last month on the occasion of the Lord Lieutenant's visit to their *ancient citie*, and right loyally and right hospitably did they welcome the representative of her Majesty, and the Dublin folk who accompanied his Excellency. Three important events came off with considerable *eclat*, and will redound to the credit and the commercial advancement of a people who yield to none in ability, acumen for business and enterprising spirit. Cork has produced some of the most eminent masters in every branch of art and science, and though many of them are now numbered with the dead, a few yet remain of whom she may justly be proud. The laying of the first stone of the new bridge across the northern branch of the river Lee, to replace the temporary structure placed there since the destruction by floods in 1853, of the old bridge, was the first ceremonial in the programme; the opening of a portion of the Cork and Youghal line *second;* and the turning of the first sod of the Cork and Queenstown railway *the third*, all of which his Excellency performed in his usual *suaviter in modo* and happy style, and to the extreme satisfaction of all beholders. We should not omit to mention that a banquet also took place, at which the "good things of this life" were discussed right jollily, and that the worthy mayor, now Sir John Arnott, M.P., was dubbed a knight. The new bridge will connect the city of Cork, by its main artery—St. Patrick-street—with the terminus of the Great Southern and Western Railway at the other side of the river, and with the important towns of Mallow, Fermoy, Middleton, Buttevant, Youghal, &c. No less than 50,000 foot passengers, and between four and five thousand vehicles of all kinds pass over this point within the space of twelve hours each day. The old bridge stood for sixty-four years, and the contractor for the new bridge, Mr. Hargreave, is the grandson of the man who built the former in 1789. The cost of the new structure will be about £16,000. It will have three arches, and be 62 feet 6 inches in breadth, with a carriage way forty feet wide, and an ample footpath at either side; it will thus be one of the widest bridges in Great Britain. The material principally employed is local white limestone, the portions only most constantly exposed to the action of the water, and those requiring to be constructed with stones of a larger size, will be of Foynes limestone; but the superstructnre will be of Cork stone. The foundations of the piers are fourteen feet below low water spring tides. For the purpose of sinking the foundations of the abutments, which was performed by Sir J. Benson, assisted by Mr. Hargrave and Mr. Barnard, excavations were made to a depth of ten feet below low water mark, and a huge iron casting was lowered down into the cavity, and the exterior and interior filled and surrounded with hard concrete. The iron casting, which weighed nearly ten tons, is of a shape adjusted to that of the piers, the interior being strengthened by transverse bars. This is packed with concrete, and the same material is filled in tightly around the exterior, so as to render it perfectly firm and solid, and capable of sustaining the superincumbent masonwork, the outside concreting bringing it up to the future bed of the river. Sir John Benson engineer; Joshua Hargrave contractor; William Barnard clerk of works.

The first sod of the Cork and Queenstown railway being turned, so far establishes the earnestness of the promoters in making this project *un fait accompli*, though without the accessory transatlantic traffic it would hardly prove a lucrative investment for a time—a question still open for decision, and likely to remain so for some time as far as the Government are concerned, if we may judge from his Excellency's diplomatic words—"it certainly affords room for speculations of far wider extent and significance, and I leave it to them to decide how far they may safely indulge their hopeful anticipations." We shall shortly revert to further doings in Cork, after an expected personal visit.

MAGEE COLLEGE, LONDONDERRY.—This beautiful edifice rapidly approaches completion. When finished, it will be one of the handsomest architectural edifices in the North of Ireland, and will reflect much credit on the designer, Mr. Gribbon, of Dublin, and on the builder, Mr. Matthew M'Clelland, who has so efficiently carried into execution the details of the plan. It is expected the building will be open in July next. The trustees, we observe, had a meeting lately, to arrange as to the laying out of the College grounds. As to the building itself, they look to the Irish Society to endow it liberally, and we have no doubt that honorable body will give due attention to the subject.—*Derry Journal.*

THE INVENTORS' ASSISTANCE COMPANY AND PATENT AGENTS.—This company, whose prospectus appears in the advertisement columns of this journal, has notified to us by special circular, to prevent misunderstanding, that, "the object of the company is simply to grant assistance to the inventor, so as to enable him to carry his designs into practice through the medium of its manufactories," &c.; and not in the capacity of patent agents, or "to infringe that branch of professional business;" and neither to purchase patents, nor lend money to patentees.

THE GOLDSMITH MEMORIAL.

The committee of this memorial have unanimously decided that the execution of the statue should be confided to Mr. J. H. Foley, R.A., an artist who, we believe, graduated in Dublin, and has acquired a well-earned reputation, by his beautiful work of "The Boy at the Stream," the equestrian statue of Lord Hardinge, and figure of "Caractacus." Mr. Foley has now a glorious opportunity of adding to his fame by a successful effect to perpetuate *faithfully* the *personnel* of "poor Goldie," whose early career was so intimately identified with the precincts of the "Alma Mater," where his effigy is now to occupy a conspicuous place.

THE CALORIC ENGINE.

These engines are largely used in the United States, for saw and planing mills, printing-presses, thrashing mills, and almost all purposes, varying from two to twenty horse power. They are easily heated, require little fuel, take up small room, any one can work them, and, having no boiler, are not liable to burst. In this country, where gas is cheap, small engines could be worked by it. In large mansions, dairys, &c., they would be found very useful. Mr. Ericson is the inventor; the patentee and agent for the United States, Mr. J. B. Kitchen, of New York.

GAS IN THE PROVINCES.

It is proposed to erect gas works at Tuam. It is said that the railway company and the town commissioners are pressing the project warmly and liberally.

Mullingar has been lighted with peat gas obtained from the material in the bogs of Rathconnell, Marlinstown, Wooddown, &c., under Mr. R. L. Johnson's patent; the first application of this valuable invention to public purposes, and said to be eminently successful.

THE ARCHITECTURAL INSTITUTE OF SCOTLAND.

We feel pleasure in directing the attention of our readers to an announcement that appears in our advertisement department from the council of management of this institute, as evidencing an earnestness in pursuit of its mission, and a practical application of the means at command to foster art education amongst the younger branches of the profession; means equally available in this country, and if turned to account by kindred societies, much good to the cause might have been effected.

Obituary.

It is our painful duty to announce the death of Mr. Mahony, artist, which took place at Cork recently, where, for some time past, he had been suffering from severe illness. Cork has lost another of her talented sons, gifted with a high order of genius as an artist. Mr. Mahony for some years past had resided in Dublin, where he held the honourable position of consul for Monte Video and Honduras, and was an associate of the Royal Hibernian Academy.

Monumental.

The friends and admirers of the late Mr. Brunel propose to determine immediately on the steps to be taken for erecting a suitable monument to his memory.

A monument is about to be raised to the late Dr. Lanigan, and the subscription list is rapidly increasing, Dr. Lanigan died in 1828, at Finglas, since which time his remains have been permitted to remain interred in the parish graveyard without even "a single rude stone to mark the place of their deposition." Dr. L. was a distinguished ecclesiastical scholar and archæologist.

The New Corn Exchange in Dundalk.—We observe the steady progress of this important building towards completion. The second roof is now being put on, and all that seems necessary to bring this undertaking to a successful issue is a vigorous effort on the part of the company. The stone used for the dressing of this structure is the same as that adopted by the Board of Public Works for the practising schools in Lower Gardiner-street, in this city; and is from the quarries of the Crowhill, Milton, and Kenmuir Company, of 51, Renfield-street, Glasgow, who are also supplying the same for alterations at Brownlow House, Lurgan.

Competitions.

THE ULSTER HALL, BELFAST.

The first prize (50*l.*) for the best plan for the building of the Ulster Hall, in Belfast, was awarded to Mr. W. J. Barre, of Newry; the second prize (25*l.*) to a London firm, Messrs. Finch, Hill, and Paraire. There were in all forty-one competitors. As a view of this building will be given in an early number, we reserve descriptive particulars to accompany illustration.

The Board of Superintendence of the gaols and bridewells, Co. Monaghan, offer a premium of £40 for the best plan to adopt the county gaol to the carrying out of the separate system. Time limited to first Monday in January.

THE SHANNON AND THE GRAND CANAL.

Canada may boast of her noble St. Lawrence, and the United States of the Mississippi; but Ireland for its superficies has a river equal to either—navigable for steamers from Lough Allen to the ocean, and connected by the Royal and Grand Canals with the metropolis and the south, and by the Erne and Ulster with Belfast, Newry, and the north. The government have expended nearly one million to improve it, and yet with almost free tolls, owing to the monopoly of the Royal and Grand Canals, under the blighting influence of the Midland Railway Company and their prohibitory rates, the finest river in the United Kingdom is comparatively useless, and the million of money thrown away. Let the Grand Canal be freed from all railway management and monopoly, and worked independently, with moderate freights, steam-tugs, and all modern improvements, and then this noble river would be the highway of Ireland, as intended by nature. Petitions against the lease of the canal to any railway must be sent to the legislature. We are glad to find the town commissioners of Ballinasloe first in the field, to be followed by Limerick, Parsonstown, Tullamore, Boyle, Carrick, and most of the towns in the west and midland districts. Poorlaw boards and all public bodies should exert themselves at once. For agricultural and mining produce, the canal is superior to the railway, which has its stations at nine or ten miles distances, while the farmers can load and unload their stuff at any part of the canal; besides their freights ought to be only one-sixth or one-fourth of that by rail. Why should the citizens of Dublin pay double the price for potatoes here, compared with the inhabitants of Carrick, Boyle, and Athlone? Both producers and consumers suffer. The Royal Canal is become a ditch under railway rule. The boat-owners and others interested in the trade of the canals and west ought to be up and stirring, the Chamber of Commerce taking a leading part, against this injurious monopoly.—*Dublin Evening Mail.*

A prospectus has been circulated of a project termed the City of Dublin and Suburbs Tramway Company, with a capital of £100,000 to establish a series of tramways in the city. We rather apprehend, though the plan may be successful in large cities like New York, no parallel can be drawn between them and a small compact city like Dublin, which only affords a feeble support to about a dozen omnibuses. At any rate, the feeling of the several governing bodies is strongly against the idea; that formerly projected to Rathmines having been opposed alike by the corporation and by the Rathmines commissioners. We think it exceedingly probable that a moderately-constructed line along the quays might be successful in relieving the streets of a good deal of heavy traffic, and we would like to see the principle tried there in the first instance.

A practicable project, and one that would become very desirable if the proposed through transmission of the mails to Cork and Galway be carried out, would be a circular railway, similar to the successful North London line in that city. For example, to commence at the Kingstown line at the Grand Canal docks, and following the course of the canal round the city to King's bridge station, then crossing the river to the Broadstone station, and forming a junction with the new line from thence to the quays.[*] A short branch to Amiens-street station and another to Harcourt-street would complete the union of all the existing lines of railway, and as peace is now to reign among them all, the cost would, by mutual co-operation, be moderate. A train could then proceed direct from the steamer at Kingstown to the steamer at Galway or Queenstown.—*Freeman.*

The idea of connecting Calcutta with London by an electric wire, is about to be realised, a portion of the cable 900 miles in length, having already reached Table Bay.

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[*] This would appear to obviate the necessity of constructing the proposed Liffey Branch line for locomotives, as the trams could be arranged along these routes for "goods" traffic likewise.—Ed.

THE WATER SUPPLY OF DUBLIN.[*]

OUR readers are already aware that the Corporation have abandoned the whole of their plans, and are about to commence *de novo*. Five or six years have gone by since their proposition for the catchment basins in the Dublin mountains was promulgated officially, by an elaborate and expensive report printed and circulated widely. Reports have since succeeded reports; but the whole have gone to "the tomb of the Capulets," at the cost of some £1,000 or £1,200.

About £300 of this was paid to the consulting engineer, Mr. Hawksley, for a report specially recommending the plan of "the Sanitary Association," for taking the supply from the Grand and Royal Canals, which he condescendingly proposed as his own. We believe, however, as expressed in our last article, that the Corporation did not like to avail themselves of Mr. Hawksley's plagiarism; and after an attempt to amalgamate their original proposition with the canal supply, and thus avoid the wrong, it was thought better to submit to the loss of the money and the time, than to persevere in the amended project, which could not be justified.

Hence, we imagine, the cause of the present proposition. But we confess our fears that "it is only out of the frying-pan into the fire;" and if the preliminary expenses of the abandoned plans cost £1,000 or £1,200 (which is about the mark), the citizens will get off well indeed if the parliamentary and other preliminary expenses of the present plan come to less than *three times* that amount. Our full conviction also is, that the supply will be eventually drawn from the canals, notwithstanding the proposed act of parliament to take it from the Liffey. This, in fact, appears to be the *arrière pensée* of those at least who proposed the notice for the Bill; for they have introduced into it powers to treat for and take the waters of the Grand and Royal Canals. If the Liffey be so super-excellent, why legislate respecting the canals? But doubly why? when the existing Canal Acts give the directors absolute power to deal with the waters as they please, without the interference of parliament.

But how much it is to be regretted that the £1,200, now totally lost, had not been devoted to improving the present supply, by filtration and other means within easy reach, in place of seeking for another. Had a simple *charcoal* or *hair-cloth* filter been erected within each of the present reservoirs—which might have been done at the cost of some £500—the impurities now complained of would have been intercepted. *Hair-cloth* alone — a substance almost imperishable in water — would have checked, if not prevented, the ingress of that special organic matter which deposits itself within the pipes, to receive and germinate the seeds of spongelli, and to which, in fact, the complained of *taste*, &c., of the pipe-water of Dublin is due. But the bogs of Ireland could have supplied charcoal at but little cost, to perfectly purify the water of the canals, even when taken from their present impure points of supply.

We are indebted, so far back as 1849, to the Sanitary Association for the promulgation of Mr. Jasper Rogers's patented plan for "upward filtration," the principle of which has been recently brought forward at the Chemical Society by Dr. Rawdon Macnamara—and the effect cannot be doubted; but it is an Irish plan, proposed by an Irishman, and the material is "*Irish!*" Hence probably why the Corporation would not adopt it. So we shall possibly have to wait for the benefits of *upward filtration by Irish charcoal*, till some English engineer calls it *his* plan, and proposes its adoption.

We shall now endeavour to contrast the *last* plan of the Corporation with the *first* and only plan of the Sanitary Association, and nothing extenuate, nor set down aught in malice.

The Corporation propose to take their supply from the Liffey, at Coyford. The natural waters of the Liffey are exceedingly pure, and quite deserving of the very favourable analysis given by Dr. Apjohn; but it is to be recollected that that analysis is of the *natural water*, which is derived entirely from powerful springs, and which is only to be found in the river at such periods of the year as the committee and Dr. Apjohn made their surveys, and took it for analysis. It was then, in fact, a stream of spring water, scarcely to be exceeded in purity.

But let Coyford be visited, as we have recently, after some days of rain, and the water then analyzed. We found it, as for years we have known it under such circumstances, a muddy mountain stream, filled with organic impurities; and perhaps it is not far from the fact to say, that for six months of every year it is turbid and impure. Hence the imperative necessity for the vast "settling basins" recommended by the engineers, and without which the water could not be used as a source of city supply. Then come "the filtering beds of sand and gravel," several acres in extent, and, finally, "reservoirs"—for all of which, land must be purchased at a considerable cost.

Now, what are the sources of supply recommended by the Sanitary Association? 1st — Lough Owel — it may be said inexhaustible — itself a magnificent "settling basin," where almost all organic impurities are deposited before it gives its water to the canal. The canal is also a settling basin; whilst, as the water passes along the line, the atmosphere *softens* it throughout the entire course; and as it dashes down from the lock to the level below, each descent makes it still softer and purer. In this way it traverses, in easy motion, some 20 miles, leaving its impurities behind; and then (according to the proposition of the Sanitary Association) a purifying basin, similar in construction to the canal itself, within the canal boundary, and needing no Act to make the purchase, would finally receive it. There a very moderate share of scientific knowledge might divest it of any objectionable inorganic matter, if such there be; but which, in our belief, would be found to exist infinitely more in the imagination of the opposers of the proposition, than in the water itself, if taken at *Blanchardstown* on the Royal Canal, and above the 11*th Lock* on the Grand Canal.

Now, whence the source of the latter?

It is nature's purest—best—the brilliant spring which gushes up, sparkling in its brightness, till one longs to drink of it. Could we have a better proof of its fitness for our use?

St. James's Well — so called — one amongst the many springs which supply the Grand Canal, like other of Nature's munificent gifts, if not now sufficient, requires but a little help to make its own bounties alone more than so for the whole water supply of the south side of Dublin; the other supplies being more than ample for all the traffic of the canal.

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[*] See page 141 *ante*, and previous numbers.

And as if to show the needlessness of expenditure elsewhere, in constructing reservoirs, there lies between the 11th and 12th Lock, at either side of the Grand Canal, an extent of land belonging to the company, now excavated to a depth averaging some 7 feet, and in breadth about 60 feet, extending to about 300 yards of *two miles.* This, by a little addition, could be made available, at a comparatively inconsiderable cost, as a store basin, to hold a supply of water for five or six weeks, at the maximum quantity *assumed* to be necessary for the city, but which we believe is infinitely beyond the reality.

Such a reservoir and the canal itself, extending from St. James's Well to the 11th Lock, a distance of about 15 miles, we need scarcely say, would present more than ample space for the settlement of organic impurities; and within the reservoir a filtering chamber, such as we have named, would, we believe, readily accomplish perfect filtration.

Thus it would appear that so far as sources of supply, and means for settlement and purification of the water, the canals possess the superiority, vastly, over the Liffey.

In our humble judgment, it would be about as wise to insist that we should purchase our porter from the vat in fermentation, and bring it home to fine and settle in our cellars in vats provided by ourselves, as to take the turbid waters of a mountain river, to be made pure by settling basins, and filtering beds, and reservoirs, contrived at some enormous cost; whilst water, originally pure and wholesome, deposited in settling basins already provided, and needing but the simplest filtration to rid it of inorganic impurity, is offered to us almost at our doors. And with this conviction, we would hope that before further expense be gone to, the whole question will be reconsidered.

In our next publication we hope to give estimates of the cost of each proposition, and such details as will enable our readers fully to judge for themselves. We cannot but feel that the Corporation, as a body, has been placed in a very awkward position, by naturally relying on propositions coming from their constituted authorities, which have proved erroneous.

Unhappily, when the steps taken by the Sanitary Association brought out facts which opened the eyes of some members of the Corporation, the question was made a party one, and the direct recommendation, subsequently, of the consulting engineer, to adopt the canals, was, as it would appear, considered to be a full acknowledgment that the Sanitary Association was right and the Corporation wrong. This was certainly hurting—*amour propre* was offended; and—just like what we see in individuals and public bodies every day—although knowing themselves to be wrong, they would not admit it. It is, we believe, our nature, which is much to be regretted. If we could only, in this case, as in all others, calmly investigate and ascertain what are the real facts, and admit them whatever they be, it would, we think, be the wisest and best course.

In proof of our sincere desire "to practise what we preach," we throw open our columns to all who may desire to show that we are wrong in anything we have written on the subject; and if we be, we shall honestly admit our error, and make all amends within our power.

We said in our last article on the subject, that the public owe a deep debt of gratitude to Dr. Gray and Mr. Codd, for saving them from the infliction of the catchment basin plan. We believe that as regards cost it would have been a public waste of money; as regards purity and extent of supply, a thorough failure; and as regards science, a public discredit. When those gentlemen took up the question they had much to contend against. They found on record the reports of their own and their consulting engineer, unequivocally stating that, under all circumstances, the supply from the canals was the best that could be adopted. They, of course, knew the feelings of the Corporation as to the Sanitary Association plan, and still their better judgment made them condemn the catchment basins. What could they do? The directors of the canals solved the problem. They refused to be bound under heavy pecuniary penalties to supply to the city of Dublin ten million gallons of water daily, *whether it pleased Providence to grant that supply or not*; for that was the literal meaning and wording of the demand of the Corporation.

The directors could not assume a power beyond that of mortals at the bidding of the corporate authorities; and as they did not, the door was opened, out through which Dr. Gray and Mr. Codd most cleverly led the whole Corporation. That body, therefore, as well as the public, owes them deep gratitude. But somehow we have the feeling that the public will still be more indebted to those gentlemen. We have the *presentiment* they will yet be satisfied that the canals *have* the power to give an ample supply to the city; and if the directors but prove that fact, as we believe they can, we do not for a moment doubt that either Dr. Gray or Mr. Codd, *if convinced on that point*, would for one instant hesitate to support, in place of oppose, that source of supply. Men of really independent minds fear not to allow themselves to be convinced, and thus do honour to their independence and probity.

AMERICAN NOTIONS OF WHAT STEAMSHIPS MAY YET ACCOMPLISH.

A PUBLIC lecturer, at Buffalo, by name Germain, stated, that seeing the steamer Oregon plying on the Sound, he felt convinced that her superior velocity was not due to superior steam power, but to her model—and that 19 or 20 miles an hour was not the maximum of velocity to be obtained; that the only limit of velocity was the principles of steadiness and strength—and that limit could not be fixed at 50, 60 or even 100 miles an hour. Therefore economy should follow velocity, when velocity was the result of this cause.

He made long and elaborate calculations, and numerous drawings; consulted with experienced engineers, steamboat and vessel captains, and all commenced the examination with the greatest incredulity, but they found in the designs a corroboration of their own experience, and all have come to his conclusion in reference to the practicability.

He stated that a steamer can be constructed that can run over *one hundred miles an hour*, and so strong, that the oceanic forces cannot destroy her equilibrium or peril her safety. The economy of movement also, will be such, that that which would cost for the same power and strength *one dollar*, in this would cost but *twenty cents.* She would not draw more than twenty feet—a draught less than the Great Eastern when light—and could carry a large amount of freight and passengers, with coal enough to bring her around the world. He then exhibited diagrams by which he explained the decrease of resistances of bodies moving in fluids, in the ratio of the square of the sine of the angle of inclination. The great resisting force to bodies moving at high velocities is *friction*—in low velocities, *inertia*—and the amount of these forces is not known. Fish overcome friction, not only with their smooth covering, but with a perfect lubrication. Birds also spread over their bodies an oleaginous substance, to overcome this force in the air. The great Architect in this exhibited the importance of smooth surfaces in bodies that attain rapid velocities. By making vessels smooth and polished, we also, in a measure, overcome the friction to be met with under other circumstances."

HINTS FOR WORKMEN.

The faults of well-paid workmen are not deficient industry, but excessive, or at least irregular, exertion. When liberally paid by the piece, they are tempted to overwork themselves, and to ruin their health and constitution in a few years. This is the case of porters, coal-heavers, and many common labourers in London, Dublin, and elsewhere. A carpenter is not supposed to last in his utmost vigour above eight years (?). The double wages paid to country labourers during harvest, or to tailors during a general mourning, are frequent sources of permanent injury, from the inducement they offer to over-exertion. Almost every class of artificers is subject to some peculiar diseases, occasioned by excessive application to their peculiar species of work. Ramuzzini, an Italian physician, and Thackrah, an English surgeon, have written treatises concerning such diseases. Excessive application during one part of the week is frequently the cause of the idleness complained of during the remainder. "Great labour," Dr. Smith remarks, "either of mind or body, continued for several days together, is in most men naturally followed by a great desire for relaxation, which, if not restrained by force or some strong necessity, is almost irresistible. It is the call of nature, which requires to be relieved by some indulgence," or change of occupation. Relaxation does not always imply idleness, but, as Locke expresses it, "easing the wearied part," by exchange of employment. If not complied with, the consequences are often dangerous, and sometimes fatal; and such as almost always bring on, sooner or later, the infirmity of the trade. If masters would be more humane, and journeymen more reasonable, both would see the utility of temperate exertions of industry. The man who works so moderately as to be able to work constantly, not only preserves his health the longest, but, in the course of the year, executes the greatest quantity of work. Labour, without reasonable intervals of rest for meals and relaxation, exhausts the energies of both body and mind, and is of the two more hurtful than low wages, which abridge diet and physical comforts.

Mr. Thackrah, to whom I have just alluded, from his residence in Leeds—which is literally one great manufactory, subdivided into various departments of industry, places of refreshment, abodes varying in their comforts, according as the occupiers are masters, overseers, or workmen—has had favourable opportunities for observing not only the effect of different occupations on the human constitution, but also of different degrees of exertion. Some of this gentleman's conclusions in his work on *The Effects of Arts, Trades, and Professions*, are contrary to what might have been anticipated. For instance, wet, vapour, and changes in the humidity of the local atmosphere, appear not so detrimental to health as is generally supposed; in temperate persons these agents produce little injury. Sudden transitions from heat to cold, as experienced by smiths, iron-founders, and glass-men, are not productive of acute disorders. The exhalations from vegetable matter are not found uniformly injurious; but on this point the writer declines giving a decided opinion. The natural odours of manufactured vegetables, with the exception of coffee, are little noxious. Tobacco workers do not sensibly suffer from the fumes of their material; and the crushers of rape and mustard benefit by the odours which these seeds exhale. Members of parliament and persons of fashion will be gratified to learn that the influence of change in the hours of sleep is less than might be expected: millers, watchmen, and coachmen are not sensibly affected by night-work. Horses, however, suffer from nocturnal labour, and men, too, I apprehend, unless the change, by perseverance, has been made habitual.

Some agents or circumstances connected with employment are favourable to health. Such are the animal exhalations to which slaughtermen, butchers, poulterers, fishmongers, gluemakers, buckram-stiffeners, tanners, tallow-chandlers, curriers, and grooms are exposed. Oil or grease applied to the skin is a preservative, as experienced in slubbing, carding, and pieceuing, in the woollen manufacture.

The chief agents included under the denomination of deleterious, or unfavourable to health and longevity, are excess or deficiency of food, bent-sitting posture, long standing or sitting, great muscular efforts in lifting weights, steam, artificial heat, impure air, dust and gaseous impurity of the atmosphere, anxiety and mental application, and delay of micturition, compression of the chest, bending of the head for long periods, close application to minute objects, as in watchmakers, engravers, tambourworkers, and dressmakers; poisonous substances acting through the skin, as lead, printers' type, and mercury; or on the eyes or ears, as scarlet-colour, lime-dust, and the noise of machinery.

One satisfactory result may, I think, be safely deduced from the inquiries of Mr. Thackrah—namely, that there is hardly any employment which is not compatible with the enjoyment of tolerable health, when exercised subject to the three following conditions:—1. Moderate hours of labour, according to the greater or less exhausting nature of the employment; 2. Temperate, wholesome, and regular living; 3. Reasonable meal-times, and holidays occasionally, for purer air and exercise.

Next to keeping up the price of labour and the preservation of health, a cardinal point with the working classes is to establish and maintain a high standard of comfort and enjoyment in their habitations, clothing, and food; to eschew whatever brings them to the verge of existence, to their last resources in diet, dress, and lodging; and as casualties of health and fluctuations in employment are inseparable from every occupation, a provision should always be made, if possible, for slackness, sickness, old age, and infirmity.

It is a disadvantage to the industrious orders that they cannot more easily adjust the supply of labour to the demand. When wages are depressed by competition for work, they are compelled to submit to coarser and scantier fare; and the danger is, that a mode of life at first repugnant to their feelings, and forced on them by necessity, may become habitual. Should this be the case, it is not likely they will make an effort to check the over-supply of labour which has caused their degradation; and as a lower rate of wages is found sufficient for their maintenance, an evil that might have been temporary is made permanent.

Labour, like gold and silver, can be made valuable by its scarcity only, and no other contrivance. All the acts of legislation, all the combinations and devices among workmen themselves, must fail in rising to a high price that which is redundant, which every where abounds, and which may be indefinitely, and by any one produced: we might as well seek to give a value to water or the atmosphere that surrounds us. A scarcity of the employed, and abundance of employers—a population that follows, and not precedes, the augmentation of national wealth, is the great secret of popular amelioration. Without this, the advantages of increasing opulence, civilization, and commerce, can never be participated in by the working classes; social improvements, in every shape, may advance over the land, but it will never touch the low and stagnant pool in which they are immersed.

As the high price of labour produced by scarcity of workmen is the fortress that protects all their comforts and conveniences, they ought never to yield an inch of the "vantage ground" without dire necessity. The remarks of Mr. M'Culloch on this point are dictated by sense and humanity, and well worthy of attention. "The example," says he, "of such individuals, or bodies of individuals, as submit quietly to have their wages reduced, and who are content if they get only the mere necessaries of life, ought never to be held up for public imitation. On the contrary, every thing should be done to make such apathy esteemed disgraceful. The best interests of society require that the rate of wages should be elevated as high as possible—that a taste for the comforts, luxuries, and enjoyments of human life should be widely diffused, and, if possible, interwoven with national habits and prejudices. Very low wages, by rendering it impossible for any increased exertions to obtain any considerable increase of comforts and enjoyments, effectually hinders them from being made, and is, of all others, the most powerful cause of that idleness and apathy, that contents itself with what can barely continue animal existence."—*Principles of Political Economy*, second edition, p. 394.

The father of economical science had inculcated the same philanthropic doctrine. "Is this improvement," asks Smith, "in the circumstances of the lower ranks of the people to be regarded as an advantage, or as an inconveniency to society? The answer seems at first abundantly plain. Servants, labourers, and workmen of different kinds, make up the far greater part of every great political society. But what improves the circumstances of the greater part can never be regarded as an inconveniency to the whole. No society can surely be flourishing and happy of which the far greater part of the members are poor and miserable. It is but equity, besides, that they who feed, clothe, and lodge the whole body of the people, should have such a share of the produce of their own labour as to be themselves tolerably well fed, clothed, and lodged."—*Wealth of Nations*, b. i., ch. 8.

Government is interested not less than the people in the diffusion of such sentiments. It can never be the pride of authority to rule over an ignorant, ill-fed, and degraded population. The diffusion of political power has assimilated society to the nature of a joint-stock association, in which the rulers and ruled have a common interest. Government cannot be rich while the body of the community is indigent; it cannot be safe, while that on which it mainly rests cannot be depended on for support. It is not the opulent who demand legislative attention; they are exempt from want, and as they assume to be educated, they ought to be exempt from crime; they form that part of the social waste which has been reclaimed and cultivated; but the poor, if not still in the wilderness, are only on its verge, and require to be brought forward by the application of those practical truths I have endeavoured to explain and enforce.*

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* From "History of the Middle and Working Classes." London: Effingham Wilson.

OUR SECOND YEAR!

THE PROPRIETOR TO HIS PATRONS.

Few who plunge into the Rubicon of newspaper speculation ever attain the opposite bank in safety; so rapid is the current of *distrust*, and tempestuous the sea of *opposition* to be contended with. Those so favoured must, therefore, *doubly* appreciate the encouraging kindness of all, who, "throwing oil on the troubled waters," and contributing the wherewith to float them freely on their perilous voyage, enable them successfully to accomplish a task originally deemed impracticable. Such *was*, and such *is* now our position; and we cannot allow the *first year* of our vitality to pass without thanking our patrons—*which we do most heartily*—for the substantial aid afforded, without also submitting a brief *resume* of past proceedings, and saying a few words respecting our intentions for the future. In starting this journal—after the premature cessation of previous similar attempts—we had more than ordinary distrust to combat; but nothing daunted by untoward circumstances, and bracing up all our energies for a determined push, we have, with your co-operation, succeeded in establishing one fact, which, however, *we* never doubted—viz., *that there is not only ample room, but positive necessity for a journal in Ireland devoted to Architectural, Engineering, Building, and kindred pursuits.* We preferred rather to creep at first, and feel our way cautiously, than to embark in too much; but we point with some degree of satisfaction to the manifest and progressive improvement in each succeeding number of the present volume.

In evidence of the success attending past operations we may state, that although our subscribers' list was unusually important during the first three months, IT HAS SINCE DOUBLED; our advertisements have TREBLED IN VALUE, and with our fourth—the May—number we were necessitated to ENLARGE the journal by ONE HALF—viz., 8 pages. If our anticipations be correct, we *expect* that with an early number we shall be enabled again TO ENLARGE FURTHER from the present 24 PAGES to 32 PAGES, exactly double the original size. "THE DUBLIN BUILDER" is largely and steadily patronized in the advertising department by some of the most eminent hardware, cement, and fire-clay manufacturers, machinists, &c., &c., in both England and Scotland (as may be noticed by reference to our advertising pages), and our subscribers' list embraces, with very few exceptions, all the Architects, Civil Engineers, Surveyors, Builders, Clerks of Works, Foremen, Mechanics, &c.; likewise Reading-rooms, Hotels, Mechanics' Institutes in every town in Ireland, very many throughout the United Kingdom, and in the Colonies; the Officials in the War Departments of London, Chatham, Aldershot, the Curragh, Glasgow, Dublin, &c., &c. In addition to these, our free list embraces numerous firms in the manufacturing towns of Glasgow, Paisley, Leeds, Bradford, Bolton, Manchester, Liverpool, Sheffield, Stafford, the Potteries, Birmingham, Wolverhampton, Bristol, &c., &c., thereby securing an extensive and choice circulation not obtained by any periodical out of London.

On the 1st January, 1860, we commence a new era, and "THE DUBLIN BUILDER" shall appear as an ILLUSTRATED JOURNAL (a course which, from prudential motives, we refrained from *this* year), for which purpose blocks, with a variety of subjects thereon, are at present in our engravers' hands, and will be produced in a style commensurate with the *resources* at command. Lithographs will also be occasionally substituted for woodcuts, and irrespective of the copies thereof circulated with the journal, proofs on superior paper, and suitable for framing, will always be obtainable from our Publisher. To meet the expense attendant on these arrangements we have resolved *slightly* to increase the price, to which, no doubt, in consideration of the greatly-increased advantages derivable, all will approve and gladly accede.

The Proprietor hopes shortly to wait on *all* his subscribers in the metropolis and the chief provincial towns, as also on his local and English and Scotch advertising patrons, with a view of personally acknowledging *past* kindness and further enlisting their support.

Meantime his Publisher shall thankfully receive at the Office orders for, and amounts of, renewal subscriptions—PROMPT *commands being respectfully requested.*

RATHFARNHAM.

This village, in the environs of our metropolis, so celebrated for its pure air and mountain scenery, and formerly the residence of most of Dublin's gentry, is again retrieving the position it lost by the rapid rise of Kingstown neighbourhood. A new episcopal church and schools are in progress in the parish, and a road from these buildings to Willbrook, passing Rathfarnham village, is contemplated, with a bridge over the Dodder, already noticed. The new Scots church of Rathgar will be in this parish, and an intended Catholic church is likewise spoken of. New residences are being built, and older ones improved; conspicuous amongst the latter is Fonthill Abbey, formerly Willbrook House, the property of Mr. E. P. Gribbon, architect, and government surveyor, who has considerably enlarged and improved the building, raising the tower, and adding a carriage porch to the front, rebuilding a postern, and improving the gate entrance and offices, &c. The house forms a pleasing feature in the landscape. The new road, if made, would pass through Lord Justice Blackburn's demesne, and render part available for building ground, but without cutting up this demesne; likewise another road might be made by following the river bank from the proposed new bridge to Willbrook chapel, avoiding Rathfarnham Hill and village, and opening up the neighbourhood; and Sir Robert Shaw might run a new road across the end of Bushy Park from Rathfarnham, to meet this and present desirable villa lots. Another great improvement would be a good modern road or avenue direct from Willbrook to Dundrum, starting above Willbrook village across the end of Mr. Gribbon's ground from the Ballyboden-road, and crossing Whitechurch-road and the Grange-road, it would keep clear of Mr. Hodgens' park and of the convent, and passing Nutgrove-school, two miles of villa sites to Dundrum would be obtained, and a branch railway or tramway might in time be added; Rathgar-road also could run on across the Dodder and intersect with this Dundrum-road.

OUR MONSTER HOUSES.

Tenders are being received for further additions and improvements to the monster warehouse of Messrs. Todd, Burns and Co., according to plans prepared by Mr. E. P. Gribbon, architect. Messrs. Cannock, White and Co. are still adding to their premises, every inch of available room being apparently eagerly caught at; Mr. Anthony, architect; Mr. Wm. Hughes, builder. The façade recently erected by Messrs. Pim, Brothers and Co., South Great George's-street, after designs by Mr. Symes, architect, and excellently executed in the plastering department—which is very elaborate and consistently ornamental without being too pretentious—by Messrs. Hogan and Son, is a handsome addition to the locality, and might fairly stand the test of comparison with the architecture of many warehouses in cities of greater commercial importance. Enemies to the monster house system must in justice admit that, as far as the building profession is concerned, there is some truth in the proverb "it's an ill wind that blows nobody good."

PRESBYTERIAN CHURCH, ORMOND-QUAY.

This building being found too small for its increasing congregation, Mr. E. P. Gribbon, the architect, who designed and superintended its erection, is making plans for additions, by removing the schoolhouse at the rere in Strand-street; and for altering the internal arrangements.

ARCHITECTURAL PHOTOGRAPHIC ASSOCIATION.

On the 23rd ultimo this body held a special general meeting at their rooms, Conduit-street. Mr. Haywood moved the adoption of the report, and Mr. Lockyer seconded it. Mr. W. Lightly was appointed honorary secretary in the room of Mr. R. Hesketh, resigned, whose valuable services the Association deeply regretted. There will be no exhibition of photographs this year. Another special general meeting will be held to receive the report of the Committee of Inquiry into the accounts and present position of the association.

FIRE ! PRECAUTION AGAINST ACCIDENTS.

The recent fatal occurrence in Mary's-lane, in this city, as well as the many others elsewhere from time to time, furnishes a salutary lesson to those engaged in house building, of which however, though at the cost of the lives of their fellow creatures, they seem ill-disposed to take advantage. Our architects, in designing buildings, usually pay strict attention to internal accommodation, external effect, aspect, sanitary arrangements, &c., &c. ; but not *one* out of one *hundred* ever thinks of guarding the lives of the intended occupants against the possible outbreak of "fire," so fearful in its consequences. Sooner or later—surely *too late* in many instances !—the authorities *must* make a move in this matter ; why *not at once ?* why not peremptorily insist that the plans of all proposed structures of a commercial and domestic class especially—and however insignificant—should be subjected, under penalty, to the inspection of a competent surveyor, whose chief duty would be to see that a facile means of egress be provided in case of fire. In various cases this could be effected most inexpensively, and *in all* for an outlay that would be amply reimbursed by the security afforded, and the pleasurable reflection of saving even *one* life annually. Hereafter the applicability of precautions under *any* and *every* circumstance shall form a subject for special treatment in our columns.

AIR-TIGHT DOORS AND WINDOWS.

Many of the fatal maladies "to which flesh is heir," are traceable originally to colds ; and "colds" again in *their* turn are almost invariably to be attributed to incautious or unavoidable exposure to draughts of air, damp clothes, &c. In the latter instance, prevention is not always as easily obtainable as in the former ; for, by a very simple and comparatively inexpensive invention, doors and windows "through which the wind whistles," causing a draught terrible and treacherous, may be made perfectly air-tight in their joints and arises. Badly-executed carpentry work, and fresh timber employed in doors and windows, soon develop their defects, and a proprietor discovers that his building which has *pretty well lightened his purse*, is not habitable by those whose constitutions will not stand proof against perpetual perishing and sharp cutting draughts playing about their persons. Being recently invited to inspect a model of Mr. Greenwood's patent india-rubber stops and slides, at the establishment of the patentee's sole agents, Messrs. Ferguson and Co., 103, Grafton-street, and, having examined it, we can testify to its effecting perfectly the desired purpose. Though we should much prefer that our readers would personally inspect the model, and judge for themselves, we may, for those unable to do so, add that the invention consists simply of a narrow vulcanized india-rubber slip, fixed angularly in a moveable beading, to be screwed and hinged to the door or window frame or casing, so as to press closely to the door or sash when shut, and prevent the possible ingress of air or dust. To French casements—so unusually constructed water or air-tight—this invention appears peculiarly applicable. Self-acting slides, either in oak or mahogany, with brass plates and springs, are likewise applied to the bottoms of doors, and make the saddles perfectly air-tight. The invention must, from its importance and simplicity, command extensive adaptation.

RESPONSIBILITIES OF ARCHITECTS.

The new Town Hall at Folkestone, which we had an opportunity of inspecting some months ago, is an attractive looking building, but being discovered to be insecure in its construction, the Town Council have ordered that the architect, at his *own expense*, shall deliver up the ground very nearly as he found it—viz., that the side walls are to come down to the sills, the back wall altogether, and new walls with foundations ten feet deep—and three instead of two bricks in thickness—to be substituted. We learn from the *Building News* that "the architect has been under the painful necessity of tendering his resignation."

Church-road.—In addition to the domestic dwellings already noticed as in course of erection for Mr. Philip Brady in this locality, Mr. Bollands, an English resident, is about building six cottages on his property adjoining Wharf-road. Mr. Lyons, architect.

"STRING" *VERSUS* "CALLIPER."

The *vexata quæstio* of the day appears to be timber measurement ; the memories of the strike have been consigned to oblivion, or have dwindled into comparative nothingness, in the face of the controversy recently commenced, by the advocates of the *string* versus the *calliperites*, and which has already assumed proportions which savour strongly of the ever-memorable "big endian heresy of Blefescu." As *we* may be considered impartial observers between the belligerents, we flatter ourselves our remarks may in some measure tend to smooth differences between the contending parties.

It has always been the custom in this market to purchase timber by string measure, which, to the uninitiated, requires some explanation. String measure consists in girthing the log in the centre, and multiplying a fourth of this dimension by the length, which gives the cubical contents ; this mode is generally correct, but it is not so in all instances, as may easily be proved by trying it with unequal-sided logs ; but as these form the exception, and not the rule, string measure has been invariably adopted in Dublin, both by importers and purchasers as the heretofore best mode of sale.

We are no sticklers for antiquated customs, because they happen to be in use for time immemorial, nevertheless we freely acknowledge "string" measurement as open to little disputation, as we shall presently show.

Timber importers never purchase by string measure. In America the sales to them are by calliper, and in Europe by the running foot ; freights are charged to them by the same mode, and duty exclusively by calliper. As the objection to calliper measurement applies chiefly to American wood, they not unreasonably suppose their customers should suffer the same inconvenience as they do themselves.

Shipowners charge by calliper because an unsquared log takes up as much room in the hold of a ship as a squared one. The Government charge duty by calliper, because, in the first place, it involves by far a less amount of trouble in measuring—which is almost invariably done while the timber is in rafts upon the water, and easily adjusted to the calliper, whereas it would be extremely difficult, nay, almost impossible to girth it—in the second place, because they are not unwilling to make the most of the duty.

If all imported timber arrived in the market squared, it occurs to us that calliper measurement would afford the nearest possible mode of ascertaining the contents with accuracy ; but as only Memel, Dantzic, and European red woods, with American oak, are fully squared, we think builders and retailers of timber have much reason in their preference for the string. Pine, both red and white, birch and mahogany, are never squared, or so partially so, as to be designated what is technically called "wany"—that is, they are of much less dimension on the outsides than in the centre ; so that in sawing up the timber, the outer planks vary very considerably in depth from the central ones, often as much as from four to six inches. With these descriptions of timber, how can the calliper give the correct contents ? Timber of this description measured by calliper in contra-distinction to string should be sold at a reduction in price, varying according to circumstances which, in many cases, may amount to a difference of from ten to twenty per cent.

Impartially speaking, the change in measurement contemplated by importers would appear to arise wholly or in part from the great competition of the present day. Merchants are naturally anxious to spare themselves trouble, and save the additional cost of remeasuring, which amounts to nearly an additional shilling per ton, and which must eventually fall on the consumer. But the remedy, if such be required, lies in the purchasers' own hands. By far the greater amount of timber sold is purchased at the periodical auction sales, and here the builder and retailer can act as he sees fit. If the importer insists upon selling unsquared logs by calliper, we see no reason why he should not do so, no more than a builder should insist upon making a contract according to his own views. Here the judgment of the purchaser is at once called into requisition, and we will not so far libel him as to say he cannot bid according to the average squareness of the lots offered, and how much easier is it for the small consumer to purchase his single log, according as it may be squared or unsquared.

We freely give place in the present number to all the correspondence which has appeared on this subject in the local journals, anxious that *both* sides of the question may be calmly and fairly considered. In giving our own views we admit it is more for the purpose of inviting discussion than of eliminating opinions in opposition to our own preconceived ideas.

The following is the correspondence alluded to as having taken place in the local journals, and which probably may be assumed to represent the tone of feeling at present entertained by the respective bodies on the question at issue:—

SIR—I see by this morning's *Saunders's News-Letter* a resolution was passed at the "Monthly Council Meeting of the Builders' Association" disapproving of the mode of measuring timber by calliper. The proper mode of measuring timber is one of great importance to all consumers of it, and some years ago the government adopted calliper measure as the best mode for levying the duty upon it. Contracts for freight are made for the same measurement, and the government have adopted a system of check on the measurement by a superior officer remeasuring about every tenth piece of wood, which is calculated to insure accuracy. In every market in Ireland, that I am acquainted with, calliper measure is that used in selling to the consumer, excepting in the city of Dublin, where the old system of string measure was retained for the local trade. Now, the importer of 1,000 tons of timber pays duty and freight by calliper measure, he pays nothing for obtaining this measurement save the trifling expense of keeping a smart boy to attend the custom-house officer, and make up his book of numbers, lengths, squares, and contents, as called out by the officer as each piece of wood is measured. On the contrary, if he sells by string measure, he has, when the cargo is landed, to get it remeasured, at a cost of about one shilling per ton, including porterage, thus increasing his cost of landing 1,000 tons by a sum of £50, which, of course, the consumer has to pay. It is said that there is more wood in a ton of timber by string measure than by calliper; if so, the selling price will be higher, as if a cargo of 1,000 tons calliper measure turn out only 900 tons string measure, the seller must have as much for the 900 tons of one measure as the 1,000 tons of the other, plus the cost of remeasurement. The advocates of string measure say there is a gain of 10 per cent. by that mode, but I never got an importer yet to guarantee me over 5 or 6 per cent., whilst they always asked 8 or 10 per cent. more money, and on remeasure I found the usual difference to be about 4 or 5 per cent. Parts of feet in the contents are charged in string measure, and no parts of feet are charged on sales by Queen's calliper measure. It is obvious to anyone who reflects on the subject, that calliper measure is the best mode to obtain the cubic contents of timber, and let all timber be properly squared. There is no doubt that if an importer of timber has to pay one shilling per ton for remeasuring his cargo, he will charge this indirectly to the buyer, and that if his 1,000 tons calliper measure timber should, on remeasure by string, turn out only 900 or 950 tons, that he must get the larger price for the smaller number of tons than for the greater. The true question, then, for the consumers of timber in Dublin is, whether they will take timber by calliper measure or continue to pay one shilling per ton for its remeasure by string.—I am, sir,

A LARGE BUYER OF TIMBER IN THE DUBLIN MARKET.

SIR—Having read a letter on the subject of the measurement of balk timber, in your paper, signed "A Large Buyer," &c., and believing that the statements contained therein are incorrect and calculated to mislead the public, I wish to make a few observations in reply. From time immemorial, the uniform rule of the trade in the port of Dublin was, and is, to take the girth of each log in the centre with a string, and to multiply the length by one-fourth of this girth to ascertain the true cubic contents. A very slight amount of consideration is required to see that this is the fair and honest mode, and charges the purchaser with only what he actually receives. The measurement, by calliper, which is an instrument made to register the largest width and depth of a log, would be honest, if all the timber imported had been sent over die square; but such is very far from being the case; every piece is more or less round, and the calliper taking the breadths and depths, charges the purchaser with what would have been the contents had the timber been truly squared to the largest dimensions From the above considerations, it is evident that calliper measure, along with being unjust, can never be steady or uniform, but must vary in proportion as the several logs are square or round. It is only those who pay particular attention to the return of the timber they cut up who can form any adequate judgment of the injury inflicted by calliper measurement; and, therefore, I think I am safe in hazarding the opinion that the person styling himself "A Large Timber Buyer," must be one whose large purchases little affect himself, and have not to be cut up for building or retail purposes. In any case, his statement that the difference between calliper and string measurement is only from 4 to 5 per cent. differs greatly from my experience for fully 20 years. I have found that the difference, even in the best squared timber, amounts to from 6 to 8 per cent., while on badly squared logs it amounts to from 25 to 30 per cent. As to the cost of measuring the timber properly, surely it is better for the purchaser to pay even a shilling per ton more than to pay for one-eighth or one-fourth greater measurement than he receives. Further—the government measurer generally takes the measurement while the timber is in the water, where no allowance can be made for defect or unsoundness; nor is there any responsible person to act as measurer between the buyer and seller The fact mentioned, that the government has adopted calliper measurement as the best mode of levying duty proves nothing as to its justice. They found it the best and easiest way they could devise for charging a large amount of duty, and string measurement was impossible when much had to be measured in the water. I should also mention that in Liverpool, where the largest timber trade is carried on, string measurement is the rule, and liberal allowances made for defects. It seems strange that any merchant would think it wise to run counter to the wish of the whole local trade. The builders have already published their opinions and intentions, and the retail timber merchants and cabinetmakers are about to have a meeting of their trades to protest against this innovation. So universal is the disapprobation expressed by every branch of the timber dealers, that it is hoped the established rule will remain undisturbed; but should this hope fail, the public and the trade may rest assured that there is sufficient private enterprise and public spirit to prevent the beneficial rules and customs of this port being at the mercy of any parties who would change them to suit their own convenience.—I am, sir,

A BUILDER.

SIR—"A Builder" has replied to my letter, which appeared in your paper a few days ago, but he has not attempted to overturn a single statement contained in it. He simply confines himself to general assertions, based in his experience of 20 years, and a general denial of some of my statements as to the gain on measurement between string and caliper measure. I reiterate my assertion, that I never got a seller of timber to guarantee me more than 5 or 6 per cent. gain, and that I usually found it to be from 4 to 5 per cent. I shall by a few lines make my former letter a perfect "Reading made Easy." An importer of 1,000 tons of crown Memel, calliper measure, can sell his cargo at say £4 per ton (£4,000). If buyers require to have this timber by string measure, the importer has to get it remeasured at a cost of say 1s. per ton, and the measurer returns him by string measure a quantity of tons less than calliper measure. I shall assume this to be 950 tons. The importer stands thus—he can sell his cargo of 1,000 tons calliper measure for £4 per ton—£4,000. He has 950 tons of string measure, to obtain which result he had to pay £47 10s.; and in order to obtain his £4,000 for the cargo of timber, and to be re-couped his £47 10s. paid for remeasure, he must get £4 5s. 2d. 10-19ths per ton, string measure. Having now shown the commercial advantage to the consumer of buying timber by calliper measure, let me show the correctness of the calliper for ascertaining the cubic contents of a log of timber. "A Builder" says, "A very slight amount of consideration is required to see that string measure is the fair and honest mode, and charges the purchaser with only what he receives." Notwithstanding "A Builder's" assertions and experience of "fully 20 years," I must say that measuring timber by calliper, when fairly squared, is mathematically correct, and that measuring by string is mathematically incorrect when timber is not equal sided. For instance, a log of 40 feet long, 12 inches by 18 inches, contains 60 cubic feet, the one-fourth of the girth of such piece gives 15 inches, called the square by the "Builder's" indispensable measurer, and gives a result of 62½ cubic feet. This incorrectness must always exist where timber is unequal sided and measured by string. "A Builder's" experience may be very large, but his consideration of the true mode of measurement of timber is very small indeed. As to the "Builder's" statement about the measurer by string making allowance for defects and unsoundness, I maintain this allowance should be made in price as well as where timber is defective in square. The intelligence of buyers and sellers can readily adjust this without the intervention of a third party at the cost of 1s. per ton. I do trust that calliper measure, as the just and true, will soon be the only measure for timber known in any market; and any old-fashioned buyers of timber wishing to pay for its remeasure by string, at a cost of 1s. per ton, and a nominally higher price for it, will, no doubt, find plenty of intelligent sellers to meet their views, but they will take care to have the same amount of money for the wood as if it was sold by calliper measure.—I am, sir,

A LARGE BUYER, &c.

SIR—With the greatest deference to "A Builder's" experience of 20 years in the measurement of timber, I do not think the difference between string and calliper so great as he states, and I am quite sure the change, if accepted in a proper spirit, will be found to work fairly for merchant, builder, and retailer. Though my experience does not extend beyond seven years, I can safely say that very few persons have had more experience of the two modes of measurement, or more opportunities of ascertaining the difference between them. The result of that experience enables me to say, that on timber in general the difference between string and calliper averages 7½ per cent.; on well-squared timber it does not exceed 4 per cent., and in no case does it exceed 15 per cent. It is very easy to test the accuracy of the "Builder's" experience with mine, and I am quite satisfied the result of such a test would be to establish the truth of my statements. Taking the extreme case of timber badly squared, and where the difference is greatest, is not the "Builder" aware that the merchant selling by calliper measure takes the difference into consideration, and regulates his price accordingly? If the sale of timber by calliper measure be so disadvantageous to builders and retailers as "A Builder" states, how is it that the builders and retailers of Belfast, Cork, Waterford, and Limerick tolerate calliper measure, though no other is used in these ports?—and I think he can hardly say they are less deficient in public spirit and attention to their own interests than their Dublin brethren. I submit that their experience of calliper measure has shown them the advantage of it, and that the favourers of it in the Dublin market are entitled to the thanks of the trade and public in establishing one uniform mode of measurement for timber throughout Ireland. Travellers in petty German States are annoyed with the different systems of coinage in each, and I think the Irish public have no reason to be pleased with the system that allows one mode of measurement in Cork and Belfast and another in Dublin.—I am, sir,

ONE IN THE TRADE.

SIR—In reply to the letters on this subject, signed "One of the Trade," and "A Large Buyer," both of which call in question my statement in a former letter—viz., that the difference between string and calliper measure amounts from 6 to 8 per cent. on fairly-squared cargoes, while on badly-squared ones it reaches from 25 to 30 per cent. I am sure it will please both the builders and the retail trade to have an early opportunity of submitting the question to the best opinion in Ireland on the subject. There is advertised an auction of a cargo of timber, to take place on the 1st of December, on Sir John's quay. Mr. Barcroft is to be the broker and measurer (thereby proclaiming that all the trade are not going to be bound down by one firm). No one in Ireland has had so great experience, having measured nearly all the timber coming into this port for more than 30 years, and his straightforward conduct has gained for him the confidence of the trade. Let them, "The Large Buyer," or "One of the Trade," ask him to state publicly what has been his experience of the difference between string and calliper measure, if they dare to put their assertions to so fair a test. Neither of the answerers to my letter have tried to prove that calliper measurement does not charge the purchaser with a greater quantity than he receives, and is therefore dishonest. Nor have my statements as to variability and want of check been controverted. Since my first letter I have had frequent opportunities of ascertaining the opinions of the leading and independent members of the trade, who are unanimous in their disapproval of the change, and indignant that an attempt should thus be made by any one party to tyrannise over the whole. In fact, to such a pitch has this feeling arisen, that several have determined to import, and, even though late in the season, some cargoes may be expected, which will be sold and measured according to the established rule of the port, and orders have been forwarded for the earliest cargoes possible in spring.

A BUILDER.

The Amsterdam Crystal Palace is to be completed and opened in the year 1861; it will be 400 feet in length by 200 feet in width, and the central dome will be 200 feet in height, at the junction of which will be a transept, and the nave of the edifice. The structure is to be of iron and glass; but as Holland is not famous for iron, it will be supplied by England.

Correspondence.

SIR—With regard to the latter portion of "An Architect's Thoughts in Belfast," in page 145 of the DUBLIN BUILDER, permit me to suggest that it contains subjects for the three following observations:—

I have not visited Belfast, and do not know whether the porticoes of the public buildings of that city and of its neighbourhood "are anything but creditable to architectural taste" as matters of *design*. On reading the next sentence of the original, it would seem to me that they are creditable designs, but discreditable in your correspondent's opinion because built of brick and plaster; for he says that "they should be altogether omitted if the funds will not admit of their being executed creditably in cut stone." Here is an exhibition of a fallacy which I should have hoped had been confined to England. It is one of Mr. Ruskin's pet theories, and it only requires this answer—If brick and plaster will do the work required cheaper than, and as efficiently as, stone, what is there in the materials that vilifies the design? Your correspondent seems to hold the opinion (which is not held by the most uncivilized races, but has been reserved for Mr. Ruskin and the Ecclesiologist) that the value of the *design* is enhanced by the cost of the *material*. Every architect ought to know that a plaster cast from his decorations in stone might be quite as beautiful as the original. A wax model for a silver candelabrum is not necessarily more beautiful than its first cast in plaster of Paris. Would your correspondent think a gold or a silver column more beautiful than a stone one?

I am not aware that "this part of the structure" (the portico) "is designed solely for effect, and to afford pleasure to the mind of the beholder;" on the contrary, I always imagined that porticoes, which had a visible service, had a charm beyond that of a mere exhibition of means of procuring a broken surface, light and shade, &c., and I do not believe that all the porticoes in Belfast and its neighbourhood are useless. But even if these porticoes are all useless, what is there to justify your correspondent's assertion, that "they have very little either of taste or discrimination who expect that brick and plaster columns or porticoes will ever" afford pleasure to the mind of the beholder. Here again is a Ruskinian theory, that what has originally been done in one material should always be of the same for the future—*i.e.*, there should never be columns of metal or of brick. But as plaster is *stone* worked by a particular treatment, is it not really within the Ruskinian limits? and as the marbles, &c., are stones originating from varied treatment, which is the one to be adopted as a standard? and further, as nature does not make stone columns, what taste is there in working them otherwise than of basalt blocks? The pleasure to the reasonable beholder of a portico does not arise from construction in stone, but from skill in the composition and details. Bricks are sham stones; why, then, does not your correspondent attack the present system so popular in England, of building in brickwork of varied colours, or in brickwork at all. Lately the Ecclesiologist (I think) did not object to plastering if it were not scored to imitate the joints of stonework. If this authority be right, your correspondent cannot justly find fault with the plastered column for representing to the uneducated eye a monolith.

The connection of the last paragraph ("It is to be hoped," &c.) with the subject here treated does not occur to me, unless your correspondent, thinking that the question of plastering is one of taste, wishes to brand as "inefficient men" all those who are not of his (self-confessed) crude opinion. I beg you to say that, with all deference to his capabilities of forming an opinion, I humbly conceive the foregoing points may be much more forcibly urged; indeed so much so as to convert him to a sense of their truth, and that it is to be regretted that "crude" thoughts should be handed to a periodical and therein get a place, which, if they were not refuted, give them an air of authority. People cannot pass their lives in looking everywhere for these errors. With best wishes for the success of the DUBLIN BUILDER, I am

AN OCCASIONAL READER OF ITS CORRESPONDENCE.

London.

DOES ARCHITECTURE IN DUBLIN IMPROVE?

SIR—Recognizing the "DUBLIN BUILDER" as a careful exponent of architectural progress, and feeling an interest, perhaps acknowledging it as "a hobby," though not being identified with such pursuits professionally—I trust you will courteously permit insertion of the following crude remarks. I am sufficiently national to admit, that Dublin may pride herself on her beautiful buildings, but "the proverb becomes somewhat stale" when we reflect, that her chief architectural boasts are the works of those long since laid under the sod—"upon whose like we ne'er shall look again." If we except the Four Courts, Custom-house, Bank, and Inns—without advancing an opinion too confidently—it appears to me that her recommendations are "but few and far between," and that since the period of the erection of those named, architectural taste—at least such as has been substantially exemplified—has considerably *digressed* instead of *progressed*. I should deem it unbecoming to use your columns as a medium to criticize individually the works of *ye* modern architects, who doubtless are your warmest supporters, and that personal offence may not be taken to my remarks, I prefer treating the subject *generally*. In the matter of local ecclesiastical art, I must in justice admit that "ye Gothicists and Mediævalists" take the lead in attractiveness and imposing grandeur; but, Sir, though a modern Gothic edifice may display fair proportions, commodious arrangements, elaborately traceried windows and doors, decorated pinnacles and gables, &c., so many venerable subjects have been provided by ancient architects for the modern to graft on, and so voluminous are the models placed at command in standard works, that a modern architect—at least the disciples of the system observed here—can claim little merit for their adaptation to circumstances. The proverb, "there is nothing new under the sun," seems to hold good here, for the most costly Gothic edifices in our city display few features that may not be traced to the stereotyped forms with which an architectural eye becomes familiar, in visiting various towns in the United Kingdom, and on the European continent. A little less rigidity, absence of sticklerism, for reproducing the works of *masters*, and a little more boldness and originality of treatment would, to my mind, effect a most desirable revolution in *our* ecclesiastical architecture. Turning to the miscellaneous buildings now in progress or recently completed, we have little to congratulate the memory of Chambers and other masters upon the paltry adjuncts made—by way of improvement, no doubt—to their venerable realized conceptions, which ornamented our city in no small degree.

In official departments, I apprehend from what I learn, that the mysteries of red tapism are carried to such an extent as to ignore the development of national ability, and advance favourites at the public expense. Be this as it may behind the curtain, I only advance my opinion on what I see amongst the audience—and seeing is believing - viz., that there is lack of architectural taste and suitability to existing works in some public buildings now erecting and lately finished in Dublin. Where, however, novelty of style, details and materials have been adopted by other gentlemen, who have rightly cast aside the monotonous hum-drum features prevalent, I trust the result as anticipated may prove successful, though I have some doubt that the new *regimé* prescribed will for a while prove palatable to the million.

Our commercial and domestic architecture—though efforts are made occasionally in the former—to rebuild dilapidated premises, or doctor them up with patched and tawdry ornamentation, they are indeed but *efforts* generally; and some newly-erected suburban residences aping Gothicism, Orientalism, but effecting barbarism most successfully, are objects of ridicule to every man of taste. The greatest building of antiquity which I had the happiness of traversing from foundations to summit—viz., St. Peter's, at Rome, suffered materially in its parts by change of architects—a necessary consequence, however, owing to the magnitude of the work, occupying the ages of generations to execute—and to this fact, at home, may be attributed, I presume, the mongrel productions as displayed in some of our largest commercial-house fronts.

The most eminent ancient masters were such imitators of nature that they introduced the lotus, the acanthus, and various other plants into the decorative parts of their buildings; likewise heads, wreaths, grotesque figures, &c., &c., which were both consistent, and contributed, where judiciously employed, much to the general effect: but, may I ask, sir, is there any consistency or propriety in "ye modern architects," by way of novelty, introducing plaster *spitoons* into their friezes and model *cramp plates* as substitutes for pilaster caps? The above are plainly my crude reasons for considering that architecture in Dublin does *not* improve, and are respectfully advanced by

ONE WHO LOVES THE ART FOR ITS OWN SAKE.

JUVENILE ART EDUCATION.

SIR—Can anything be more palpably defective than the condition of our *ree-raw* home-grown young architects generally when their term of probation expires? Paterfamilias naturally desires to give his sons professions, and if one juvenile displays an ingenuity in raising mock fortifications, steam-engines, bridges, &c., he is marked out for an engineer; or if another's hand seems freely adapted to building sketches, and his taste to lie amongst "bricks and mortar," the promising youth is taught to foresee the path of a Wren or an Inigo Jones "looming in the distance," and is destined to be dubbed "an architect." Now, architects require *smart fees* with their pupils, and a five years' apprenticeship, but do they, as a body, fulfil the engagement of the indentures—viz., "to teach and instruct said apprentice in the same art which he useth, by the best way and means that he can"? If they did, there would not be such a scarcity of competent assistants, who, unless imported from England, are not to be had for love or money; and young architects (?) just turned out have imbibed during their apprenticeships so much of the mannerisms and peculiarities of their masters, that they prove next to useless when put to fresh work. Some of your readers will probably advance, "there is the Royal Dublin Society school, where Gandon and others graduated who afterwards proved ornaments to their profession, and why should not the same source of instruction prove sufficient for the present generation? The Royal Dublin Society School, no doubt, possesses the elements for instruction in *copyism*, and some very excellent specimens and models for students; but *practical* instruction, such as may hereafter assist a lad in weathering the storm through life, is as deficient here as it is in the generality of architects' offices, where graduates are left to shift for themselves, and *find* out instinctively what it is clearly the duty of their masters to *teach* them. In one of your contemporaries, I think the *Building News*, I noticed some time since an excellent article on an "architectural college;" and though the scheme, however desirable, is quite inapplicable to the resources of this country at present, I think the suggestions might advantageously be carried out forthwith on a smaller scale. An academy for graduates directed by competent professors, whose experience embraces various styles, and wherein a good fundamental preparatory education should be afforded, would seem not only to prove a desideratum to the pupils themselves, but to the masters likewise, who could be saved the drudgery of initiation.

Subscriber.

Sir—Lest an erroneous impression should be conveyed to your readers by the notice kindly accorded in November number to *Wilme's hand-book for mapping, engineering, and architectural drawing*, viz., that early application for copies is *indispensable*; permit me to state that the re-issue will *not* be made before *January* next, due notice of which shall be given by advertisements in your Dublin Builder, and the other professional papers,

London. B. P. Wilme.

Notes of New Works.

METROPOLITAN.

Important alterations and improvements have been made to the establishment of Mr. A. F. Macdonald, in South George's-street, which may be fairly regarded as one of the monster houses. Mr. J. Quin was the contractor for the first section of the works, and Mr. R. Farrell for the latter portion; architect, Mr. E. P. Gribbon.

The necessary buildings for a timber steaming apparatus are about to be erected and fitted with boiler, &c., in connection with the new graving dock at North Wall point, after plans, &c., by Mr. George Halpin, C.E., engineer to Ballast Board; Mr. Bindon Stoney, C.E., assistant engineer.

Considerable additions are being made to the new steam mills of Andrew Todd and Co., at Clonliffe Bridge, on the Royal Canal. Mr. S. H. Bolton is contractor for the present works, which have been carried on with great spirit. The mills were erected about twelve months ago by Messrs. Cockburn and Sons, contractors, at a cost of about £15,000, They are in line with the new brewery of Messrs. Findlater and Co., the canal passing between, and approaching them by the canal are seen to good effect. Messrs. Beardwood were the builders of the brewery; and both buildings, including the present additions, were erected under the inspection of Mr. E. P. Gribbon, architect.

Extensive improvements and alterations have been just completed for Mr. Berry, Arran-quay, from designs by Mr. J. J. Butler, architect; William Hughes, builder.

The builder's work of Mr. Robert Gatchell's new premises in Dawson-street (previously noticed as having been commenced), is now complete, and the establishment about being opened. This structure is an elegant and effective acquisition to the commercial architecture of the city. The works were executed by Mr. J. Quin, builder, from the plans and under the directions of Mr. Gribbon, architect.

The new range of law courts and offices of the judges of the Landed Estates are nearly completed, and will be ready for occupation by the first day of Hilary Term next. There shall be two courts in the new buildings, which are to run rectangularly to the range just completed—viz., a Court of Probate, and a third Landed Estates Court. The buildings about to be opened are fire-proof throughout. In the basement storey are receptacles for documents, records, &c., and on the ground floor are suites of spacious, well-lighted, and well-ventilated offices. A grand staircase, lighted by a glass dome, conducts to the second floor, where the new courts are. The courts are dome lighted, and the stucco work is elegant in design and execution. They were planned by the architect to the Board of Public Works; Mr. Meade, builder.

Plans have been prepared by Mr. E. P. Gribbon, architect, for erecting warehouses and sheds on Sir John Rogerson's-quay, for C. Connolly, Esq.

The cost of effecting the necessary rebuilding of the store belonging to the City of Dublin Steam Packet Company, at the North Wall, will be £400, covered by insurance.

A new house for law chambers has been erected on the premises No. 2, Lower Ormond-quay, for M. Dooner, Esq. Architect, Mr. E. P. Gribbon; builder, Mr. T. Murphy.

Messrs. T. Heiton and Co., coal and iron merchants, are about roofing over another of their coal yards on Georges-quay, under the inspection of their architect, Mr. E. P. Gribbon; Mr. Thomas Paul, contractor.

Messrs. S. Vincent and Son are about rebuilding the front portion of their extensive foundry in Church-street, and forming large show-rooms for patterns and castings, &c.. Same architect; Mr. Bolton. builder.

The new monster establishment for ironmongery, plate glass, cements, and builders' furnishing, &c., of Mr. Maurice Brooks, at Sackville-place, was until recently the large factory of Dawson and Co., coach builders, which has been remodelled under the direction of Mr. E. P. Gribbon, architect. The coach yard roofed over and floored, &c., forming the central apartment, larger than an ordinary church.

THE SUBURBS.

Tenders have been sent in for the erection of a baptist church at Rathmines, from designs by Messrs. Carmichael and Jones; the contractor has not yet been declared.

The new Presbyterian congregation of Rathgar (who now occupy at a rental the building formerly Rathmines school-house) are about to erect a new church and schools in this rising neighbourhood, for which their architect, Mr. E. P. Gribbon, is preparing the plans.

Building works still proceed with rapidity within the boundaries of the Rathmines Commissioners, and on through Rathgar and Rathfarnham parish; passing the omnibus station, an elegant villa has recently been raised by Mr. W. Vincent, facing Sir Robert Shaw's demesne, with a beautiful unique gate-lodge and handsome terrace. Mr. E. P. Gribbon, architect; the builder, Mr. T. Robinson.

PROVINCIAL.

At Bray, Co. Dublin, a terrace of twelve dwelling houses of a very superior class, and with oriel windows to each, carried up the full height, is being erected on the beach by Mr. Brennan, Mr. Gregory Murphy, builder; and close by, the semi-detached cottages called "*Wave Crest*," recently erected by Mr. Anthony O'Neill, are to be raised an additional storey, under the direction of Mr. Lyons, architect.

Extensive additions are being made to Portmahon House, Co. Dublin, the residence of Mr. A. M'Donald. Mr. E. P. Gribbon, architect; Mr. Robert Farrell, builder.

The foundation stone of a new convent has been laid at Bantry, Co. Cork.

Loans for the erection of "farm buildings," under the Landed Property Improvement Act, have been applied for to the Board of Public works by Mr. John Blakeney (£627), and Mr. F. A. Knox Gore (£800), in the respective counties of Galway and Mayo.

We learn from the *Western Star* that the Earl of Clancarty has expressed his intention of advancing money, at a moderate rate of interest, to approved tenants, for building a range of villas between the workhouse of Ballinasloe and the railway station. The tenant may choose his own architect and contractor. The project seems to be a most desirable one, for the town is cabable of much improvement. Mr. Madden, a local builder, has built some cottages in Upper Dunlo that are an acquisition, and owns an excellent limestone quarry there. Mr. T. H. Carroll, of Baggot-street, Dublin, has likewise another quarry, yielding superior building material.

Additions are to be made to the handsome railway station in this town. Mr. George Wilkinson, architect, Mr. Madden, builder, who was declared contractor in a limited competition with Messrs. W. Crowe and J. W. Carroll.

An excellent building in limestone is being erected at the Stephen-street gateway of the Clonmel Infantry Barracks, by the Messrs. Corcoran, contractors. It is intended for the purpose of a sergeant's messroom.

The building at the Brow of the Hill, Londonderry, in which the Christian Brothers reside, was paid for by the clergymen of the diocese; and the new schools close to the Catholic Church, Great James's-streeet, cost £1,000. In Strabane, the Christian Brothers have an excellent school, in a building purchased for them by the Catholics of that town at a considerable cost. Great exertions have been made at Omagh to provide school accommodation, and one benevolent individual has given a sum equal to £1,000 towards expenses; also ground for the schools, a parochial house, and other buildings required for the use of the parish.

The foundation stone of a new church at Ballymote, Co. Sligo, has been laid.

A handsome porch and additional offices are being erected at the county Tipperary Infirmary, Cashel, by Mr. J. Fitzgerald, contractor; when finished the new buildings will be a decided improvement.

The church of Tamlaght Finlagan, at Ballykelly, Co. Derry, is to be enlarged, according to plans. &c., by the Ecclesiastical Commissioners' architect.

The War Department are about having a school-room erected at Athlone Barracks, and redoubts constructed on Carrig and Scattery islands on the River Shannon.

The new Scots' church at Athlone is nearly completed, and is said to be much admired; it will probably be opened for service before Christmas. The architect is Mr. Gribbon, of Dublin; the builder, Mr. Smith, of Athlone

The stable buildings destroyed by fire at the Palace, Armagh, are to be immediately restored, under the direction of Mr. W. J. Barre, architect, Newry.

It is proposed to erect a new Roman Catholic church at Castlebar.

A new glebe house is to be built in the parish of Timahoe, diocese of Leighlin, Queen's County.

The Saintfield Gas Company have advertised for tenders to erect the iron work portion of their new buildings.

A new Roman Catholic church is about to be erected at Knockbridge.

A further addition is being made to Breslin's Marine Hotel, Bray, under the direction of Mr. G. Wilkinson, architect.

The foundation stone of the new Roman Catholic Church at Ballybay has been laid. The building itself, which is to occupy a very conspicuous situation, will consist of a tower on south elevation, through which will be the principal entrance; a handsome porch on north side, and transepts on north and south elevations, lighted by tall double lancet windows with quatrefoil above. The chancel is to include the entire of the transepts, in which will be two handsome side chapels, lighted with elaborately traceried windows; and that occupied by the grand altar will be approached through a majestic chancel arch, and will contain sedilia, piscina, sacrarium, &c., and be lighted by a triple lancet window on the east, and a single lancet on the south. The west elevation will contain a triple lancet of great height and beauty, and a double lancet on the north aisles, both aisles being lighted by double lancets in the pointed style, as is the nave. All the opes, doorways, and windows are of cut stone. The principal doorway through the tower is richly and elaborately moulded. The outer walls and the walls of the tower are supported by cut stone buttresses, as are all the gables. The interior of the roof of the chancel and side chapels is to be handsomely pannelled, the nave and side aisles to have the timber exposed and neatly stained. The church is in the early Gothic style. Mr. William Hague, Cavan, designed it, and Mr. George Burnett superintends the working out.

Monthly Railway Memoranda.

A new line of railway is proposed from Athenry to Ennis by a point of junction with the Midland Great Western Railway at the former place, terminating at the latter with the Ennis station of the Limerick and Ennis Railway.

It is proposed to vest the several existing works and property of the Waterford and Limerick Railway in the Great Southern and Western, and to dissolve the former company.

A new line of railway from Kells to Oldcastle is contemplated. The Dublin and Drogheda Railway Company have consented to give 55,000*l.* towards the undertaking, and the Drogheda Steam Packet Company 25,000*l.* The entire sum calculated upon as sufficient to complete the line to Oldcastle is 80,000*l.*

It is proposed to construct a line of rail at the St. Johnston Station of Derry and Enniskillen Railway, running close by the towns of Raphoe and Manor Cunningham, within three miles of Convoy, and terminating in Letterkenny town, the distance of which from Derry is 23 statute miles. Mr. Peter W. Barlow, F.R.S., the consulting engineer, and Mr. Bower, V.P. Institution Civil Engineers in Ireland, the acting.

The Finn valley line is proposed to start from Ballybofey, and passing through the towns of Stranorlar, Killygordon, and Castlefin, to form a junction with the Derry and Enniskillen rail at Strabane station. Mr. Barlow, engineer in chief; Mr. Bower, resident engineer.

A direct railway route is proposed from Cork to Limerick by a junction with the Great Southern and Western Station at Charleville, and 16¾ miles in length. It will have a short branch from Foynes line into Limerick at Patrick's Well, and have an independent terminus. Sir John Benson, C.E.; The Earls of Dunraven and Cork; Hon. Major Vereker, Sirs David Roche, John Arnott, M.P., Cusack Roney, W. B. Hackett, and a number of influential gentlemen, are on the list of provisional directors.

The Cork and Youghal Railway has been opened, and trains are now running thereon.

RAILWAYS IN IRELAND.—At the recent banquet to his Excellency, at Cork, Sir Edwd. M'Donnell stated "that nearly £15,500,000 had been expended on the 1,200 miles of railway now in existence in Ireland, and that while £15,000 per mile was the average expenditure in this country, it was £20,000 in Scotland and £39,000 in England. Also that the dividends for Irish railways averaged 4½ per cent., while the English were only 3¼."

The terminus at the Downpatrick end of the Belfast and County Down Railway is nearly completed, and said to be a handsome building, reflecting much credit on the architect. The interior is at present undergoing the process of painting, and in a couple or three weeks it is expected to be open to the public.

BALLINASLOE AND PARSONSTOWN RAILWAY.—We are glad to be able to announce that the formation of a company to construct this line is in active progress, and that a prospectus will appear in the course of a few days. When this connecting link is made, Waterford will be within four hours of Galway.—*Western Star.*

ATHENRY AND TUAM RAILWAY.—The ground about our docks has during the last month or better been crowded with materials for the construction of the above railway. The huge piles of timber imported for sleepers, &c., have been already conveyed to their destination, and now immense quantities of rails are in readiness for removal to Athenry.

Reviews.

British Timber Trees. By John Blenkarn, Agricultural Engineer. Post octavo, half bound. Routledge, Warne and Routledge, Farringdon-street, London.

AN important work deserves more than the passing notice—which owing to its arrival at the eleventh hour—we were only enabled to give this book in last publication. A glance, however, sometimes proves sufficient to convince of the merits of a composition, and we are gratified to announce that on investigating the contents more minutely, our favourable opinion—hazarded we may say—is fully justified. The cultivation of timber in these countries has been from time immemorial so sadly neglected—with the single exception of British oak, in the rearing of which also there is much room for improvement—that we are compelled to send to foreign countries for the very *material* of our carpentry and joiner's work, though possessing at home the facility for producing an article equivalent in value, if we only *took the trouble* to rear it.

The author, in his preface, truthfully says, "It frequently happens that proprietors of large estates have not the slightest idea of the value of timber growing upon them; and by preconceived notions incorrectly formed, noblemen and other great land owners whose time is otherwise much occupied, seldom give but little attention to what they consider to be the minor concerns of their estates; many indeed being in the habit of regarding timber merely as an ornamental accessory, little supposing that possibly it may be worth more *than half of the property*, as estimated on the basis of the rental;" further that "An acre of oak woodland containing 100 loads of timber (which is a very low estimate) is worth £650 at a moderate computation, and fifty acres of such property would thereupon yield £32,500 worth of timber."

Mr. Blenkarn is clearly a practical man, and eminently so; his work embraces timber from its germination to the felling, and the respective quality and adaptability of each kind in ordinary use, concluding with valuation and measurement, tables and rules, simply set forth but evidently founded on reliable data, such only as experience can afford. In his notice of the "horse-chestnut tree," which the author states is little inferior to the oak in durability, he takes occasion to mention that "the late Welby Pugin was often at considerable pains to make out this wood when he found it in roofs and joinery, and in many of the engravings in his works both of English and foreign buildings it will be found distinguished by having the name 'chestnut' written upon it."

In treating of the improvement of "hilly and mountainous districts," we must express a regret that the author—though alluding to England and Scotland—should have passed over Ireland in toto, where probably the services of the practical agricultural engineer is comparatively even more needed, and where the extensive perusal amongst landowners of this truly practical little work would prove a national desideratum. But we must assume that it did not come within the sphere of his experience! *Quel dommage*, say we! The author has faithfully fulfilled his mission, and his work must command extensive appreciation.

Skyring's Builders', Contractors', and Manufacturers' Diary for 1860.

In acknowledging the receipt of this book, we can speak of its merits with the confidence that experience always gives, having had that for 1859 on our office table during this year, and finding it most conveniently arranged for memoranda of appointments, payments, receipts; besides having an almanack, postal regulations, building memoranda in the various departments, forms of agreements, tables showing prime cost of deals, planks, and battens, the Metropolitan Building Act, &c., &c. It will be found useful to the professional as well as the tradesman.

A Handy Book on Villa Architecture.. By C. Wickes, Architect. London: Thompson & Co., 111, Strand, W.C.

The arrival of this work at the last moment, when preparing for press, precludes comment as to its merits in current No.: but the name of the author is so favourably known to the profession, that we doubt not after opportunity for examination shall have been afforded us, we shall be enabled—as on former occasions—to pronounce an approving opinion. *Au revoir!*

We may take occasion respectfully to mention that it would be desirable if London and other publishers, forwarding works for review, would bear in mind, that we go to press at farthest on the 29th or 30th of each month, and that a clear week before would be the *minimum* period to command a careful perusal.

Miscellaneous.

Royal Dublin Society and Affiliated Bodies.—The opening meeting of the session took place on the 25th ultimo. Surgeon Fleming occupied the chair in the Council Room, and Drs. M'Donnell and Walker read papers respectively on "The Habits and Anatomy of the Lepidosiren Annecteus" and on "The Phenomena connected with the existence of Fresh Water Ice in the Arctic Seas." Mr. Pollard Urquhart, M.P., occupied the chair in the Statistical Society's room, where Mr. Conway Dobbs read a communication entitled "Observations on Mr. Caird's pamphlet on Prairie Farming in the United States;" and Dr. Hancock a paper on "The Bothy system of lodging Farm Labourers in Scotland." The Photographic Society was held as usual in the Fine Arts Gallery: Captain Henry, V.P., in the chair, and Sir Jocelyn Coghill, Bart., read a paper on "The Relation between Photography and the Fine Arts," and exhibited some excellent illustrative pictures. The several societies then adjourned to discuss the "tea and cakes."

The Breakwater in Galway.—Mr. Percy, who is about to accept the contract for constructing the proposed works in the harbour, arrived in town accompanied by some other gentlemen, and held a conference with Father Daly and S. U. Roberts, C.E., on the subject of the intended improvements. Mr. Percy also contemplates the laying down of a line of rail from Ennis direct to Galway, to be continued on to the end of the pier to be constructed in our harbour. It will be a convenience of paramount importance to have a railway reaching thus to the side of the packet. And as steam communication between Ennis and Galway, directly or indirectly, must prove of vast benefit to this town and to the transatlantic line, we earnestly hope some arrangement may be made between the two parties interested in uniting this town by rail with Ennis through Athenry, and those who are in favour of a more direct communication with Galway.

Telegraphs to the East and Australia.—The line is complete to Aden; from Aden to Kurrachee the line is contracted for, and the cable ready for laying down in the next month. This will complete the line to Calcutta—or rather to Rangoon—for the telegraph has been for some time at work between the two last-named places. From Rangoon (proceeding south), the Indian government have already engaged to complete the line down the west side of the Malay peninsula, by Tennasserim and Penang to Singapore, and thence by Banca Island to Batavia. The Dutch Government, too, has a line at work along the whole length of Java to its east end, Cape Sedana, to which point electric communication may be said to be provided for. It is proposed to proceed from the east end of Java in an easterly course to Copang, in the Island of Timor, thence to Port Essington, thence to Cape York, thence down the Australian coast to Cleveland Bay, and thence further to Moreton Bay. There the line will terminate, and very properly so, for there is no doubt that long before the above grand scheme can be carried out the New South Wales and Moreton Bay governments will have established intercolonial communication. The whole distance from Java to Moreton Bay is calculated at 3,024 miles, and the estimated cost, which seems based on reliable data, is £720,000, or to be on the safe side, £750,000. The construction of an electric telegraph between Russia and China appears to be assuming a character of reality, and nothing now seems likely to interfere with the accomplishment of a plan which will give to China and to Europe the marvellous means of instantaneous communication.

The New Club in Dublin.—We hear that a handsome and commodious house has been taken for the new club that is now forming in this city. We are informed that it will be conducted upon a system of liberality that will ensure every possible comfort, and that the entrance-fee and yearly subscription are so reasonable as to at once do away with exclusiveness. There are new features in this club which cannot fail to recommend it to notice, particularly to country gentlemen. There will be sleeping accommodation and a social house dinner for a stated number of members at a convenient hour daily.—*Communicated to Freeman.*

Japanese Baths and Bathers.—The bath house is situate in a narrow street, running from a main street, a short distance from the custom house. We entered a low porch, first putting aside a hanging screening of matting, and passed into a spacious room divided into three compartments. On the right was a dark division with benches around for resting or smoking upon. A youth sat upon a small table with a cash-box before him, for the receipt of bath money; the price for each bath being five copper cash. On the left the apartment retired far back, the floor gradually inclining downwards for about six feet, and again ascended towards a screen, behind which some good people were enjoying the luxury of a warm bath. A channel passes through the room to carry off the water. Near the screened apartment, but exposed to public view, was a broad and shallow bath of cold water in the angle of the double inclined floor, and here *men*, *women*, and *children* squatted down, on issuing from the hot bath, and splashed the *cold water over their bodies;* they use it unsparingly. Nothing abashed by the presence of strangers, the work is carried on vigorously; and the exhibition is looked upon by the Japanese in every respect consistent: it may be from an Adam-and-Eve like simplicity on their part. We, with our artificial habits and customs, are astonished at the primeval simplicity of the Japanese, and would imagine that such exposures would have a demoralizing influence. The bath is a capital studio for artists and anatomists, admirers of faultless forms or muscular development, and affords a good opportunity of inspecting stature. On leaving the bath, they scrub themselves dry with coarse towels, then dress, and leave the establishment, or retire to a small room, where they can be provided with a refreshing cup of tea.

County Hall for Mullingar.—At a recent meeting of the committee of the Westmeath Farmers' Club, the president, W. J. Levinge, Esq., stated that he had been in communication with Col. Greville, M.P., relative to an agricultural hall, and he was happy to inform them that he had evinced the warmest interest in the project. A public library, a reading and a ball-room, might form part of the structure. Col. Greville, who was now a member of the club, had fully agreed in the view that the building should be for more general purposes than an agricultural hall only, and had most kindly promised to consider the whole subject, in order that everything might be done to meet the wishes of the county as far as possible.—*Westmeath Guardian.*

THE DRAMA.

Of such artistes as Mr. and Mrs Charles Kean, whose transcendent talents have placed them at the highest pinnacle of professional fame, a critique is unnecessary; and we, in common with our press brethren, can only record in our pages on their behalf another of those triumphs in histrionic display at our Theatre Royal, of which their career may be said to present a continuous and uninterrupted series. Amongst the novelties introduced to a Dublin audience was the tragedy of Louis XI., in which the acting of Mr. and Mrs Kean may be said briefly to be "perfection." The accessary parts in this, as well as the others embraced in the *repertoire*, were creditably sustained, and the scenery and appointments excellent.

The Queen's Theatre still maintains its well-earned success under the existing management, which avails itself of every available source to produce novelty and attraction. We are informed that the pantomime season close at hand will bring to light some embryo treasures for our young folk, and develop some strange hilaric incentives. In the scenic department pantomimes furnish a good field for artistic ability, let us hope that it will be guided by consistency as well as effect.

BANKRUPT BUILDERS.

John Quin, Upper Stephen-street, in the city of Dublin.
C. M. Stephens, of Wexford-street, in the same city.

NOTICE.

Orders for Subscriptions to, and Advertisements for, The Dublin Builder, *will be received at the Proprietor's Office,* 17, Lower Gardiner-street. *Wholesale Agents*—Messrs. W. H. Smith & Son, *Sackville-street (from whom* "The Dublin Builder" *may be had at every Railway Station), and* George Mason, 24, *D'Olier-street.*

Post-office Orders and Remittances should be made payable to Mr. Peter Roe.

☞ *NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the* Dublin Builder." *All other Communications should be addressed to the "Editor."*

INVENTORS' ASSISTANCE COMPANY, LIMITED.

Capital £25,000, in Shares of £1 each (with power to increase it to £100,000).

Incorporated under Joint Stock Companies' Acts, 1856–57–58.

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(With power to add to their number.)

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Secretary—Sitwell Harris, Esq.

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Nos. 1, 2, and 3, Gough-street, North, Gray's Inn Road, W.

ABRIDGED PROSPECTUS.

THE leading feature of this Company is, that it investigates the merit of any invention submitted to it, by the aid of scientific and practical men, selected with special regard to their qualifications, as impartial judges. Such inventions as are approved are patented or registered, and manfactured by the Company, for sale, on a scale sufficient to establish their value, without cost to the inventor, who will share, under agreement, in all profits arising therefrom.

As an earnest of these intentions, the Managing Committee have secured a long lease, on most advantageous terms, of extensive premises, containing a spacious Manufactory, provided with suitable plant, where models can be made and tried, and patented articles manufactured for sale.

Valuable patents, already arranged for, are now being so manufactured, at a nett profit of 300 per cent.; while several very promising inventions are under consideration.

The advantages thus enumerated justify the Directors in recommending the undertaking to the notice of small capitalists, as an investment well worthy their special consideration.

That the large mass of inventors are unable to carry out their designs, is a fact patent to the most practical observers. It is equally true that a great number of cases only require the judgment and kindly assistance of scientific and practical men to render them productive of immense public benefit. It is incontrovertible that our national importance and wealth have been more promoted by inventors than by any other class of men. Arkwright, Watt, Cort, Stephenson, and others scarcely less eminent, have produced an amount of wealth almost beyond calculation, though their inventions were received at first with coolness and incredulity. In short, all the improvements for our convenience and comfort, dating from a state of barbarity to one of high civilization, are but the cumulative results of inventive ingenuity.

It must not be overlooked by the Shareholder that a patent gives an exclusive trade with the customers of the world, and that this Company will possess in no common degree such advantages as will, on the average, be immensely productive, and ensure a dividend that may surprise, and must satisfy all investors.

Applications for Shares, and full Prospectuses giving the fullest information, to be made, personally, or by letter, to the Secretary, at the Offices, as above.

Building Materials.

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HAVING nearly completed the extensive Buildings and Machinery for Sawing, Planing, Moulding, Tenoning, Grooving, &c., Timbers at his new works, begs to inform his friends and the public that he has REMOVED his business from Westland-row. In conjunction with his business as Builder, he has now opened a new department for the sale of all descriptions of Materials used in Building. Timber, Deals, Laths, Prepared Flooring, Skirtings and Mouldings of all Sizes and Patterns always on hand. Doors, Sashes, Sash Frames, Shutters, Architraves, &c., made to order on the shortest notice and most reasonable terms. Being the *only* Manufactory of the kind in Dublin, it offers an advantage to persons Building which has not hitherto presented itself in this country.

From M. M.'s long practical experience in the working of all descriptions of Timber, persons requiring their Timber sawn or planed will find a great advantage in sending it to the above Mills.

SUPERIOR Red Fronting BRICKS, also Prime Stock Bricks, delivered at any Station on the Dublin and Wicklow Railway, at Kingstown, Dublin, &c., can be had from

BENTLEY AND SON,
110, GRAFTON-STREET, DUBLIN.

Samples lie at our office.

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N. J. ANDERSON, is now discharging at his Wharf, 28, Sir John Rogerson's-quay, Two Cargoes of BANGOR SLATES, *ex the Lady Buckley and Maria*, of Beaumaris; Two Cargoes of superior English Red Fronting BRICKS and TILES, *ex the Elizabeth and Cannel*, Bridgewater; Two Cargoes of FIRE BRICKS and TILES, *ex the Chester and Shifty*, from Flintshire; Doulton's Glazed superior Sewerage Pipes, Bends, Chimney-top Windguards; also for Sale, 30 Tons of best American Ash Mahogany Planks, 30 to 36 in breadth, suitable for Counter Tops; Oak, Birch, &c. Lowest Cash Prices.

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From our facilities for despatching materials by private Railway to Forth and Clyde Canal, Builders in Ireland will find this a cheap and ready mode of supplying themselves.

Any orders with which we may be favoured, shall receive our best attention.

WILLIAM GRAY, Secretary.

Note—We refer for sample of our stone to the new National Practising Schools, at Lower Gardiner-street, Dublin, and new Exchange, Dundalk.

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BUILDERS' IRONMONGERY, at REDUCED PRICES.

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Agents for Perry's Patent Fire Proof Safes; quality considered, they are *the* cheapest in the market.

Builders are invited to inspect our Stock previous to purchasing.

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KENNY'S PATENT.

The undersigned beg to call the attention of Engineers and the Public to the above description of Opening Bridge, as now being constructed for the entrance to the St. George's Dock, Custom-house Quay, Dublin, for the Board of Works, which will be found superior to the ordinary Swivel Bridge, both in point of simplicity of Construction and Cost.

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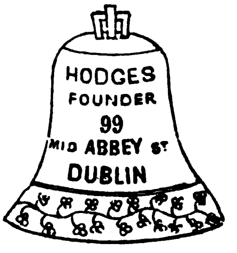

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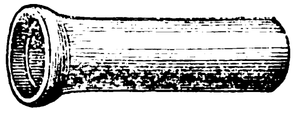

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JOSEPH KELLY is landing at his Stores, Sir John's-quay, a large Cargo of Dungannon Fire Clay Field Draining Pipes, consisting of 1½, 2, 3, and 4 Inch, which will be sold at moderate rates.

CITY SAW MILLS 66 and 67, THOMAS-STREET.
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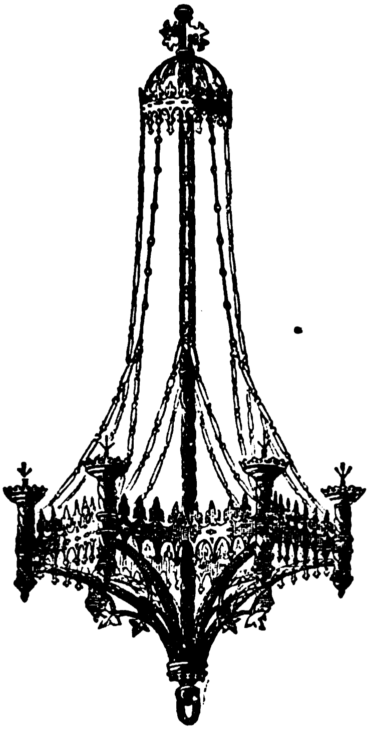

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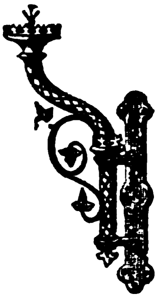

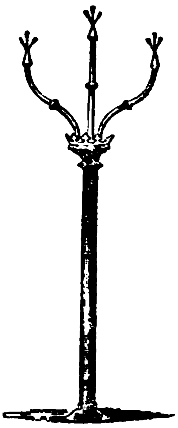

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"We are disposed to think they will be largely used, both for shop-fronts and private houses. Much of the difficulty now often found in providing shutters for large bow windows may be obviated by their use, without extra cost."—From the *Builder*, June 26th, 1858.

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POWIS, JAMES, AND CO.,

Engineers, Patentees, and Manufacturers of all kinds of Machinery for working in Wood.

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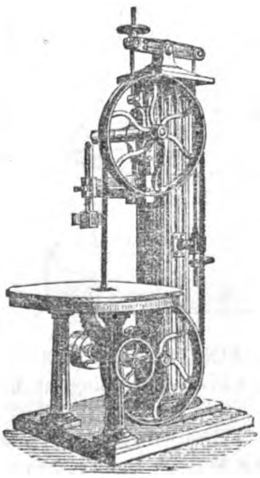

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The Dublin Builder.

VOL. II.—No. 13.

SCHOOLS.

AS the twig is bent so the tree inclines," and as the child is reared, physically and morally, so the outward and the inward man are shaped. Hence the paramount importance that schools, where, in these countries, the rising generation—or at least such of them as to whom any education is imparted—spend on an average one-half of their waking hours, should be constructed both with a view to the physical requirements of the occupants, and the presenting of facilities for a system of a sound moral training being pursued. That it is *not* so, is a palpable fact, as regards the *general* minor schools through Ireland, in localities stated to be too poor to raise and support with the necessary appendages a suitable building for scholastic purposes; and some of these establishments though assumed to be under the wing of Government patronage, are little removed from the hedge-schools of old, and as long as permitted to last will remain a libel on our civilization and philanthropy. From sharing in this condemnation we freely except the important buildings erected of late years in the chief provincial towns, which are distinguished by commodious arrangements, and architectural features; but they are few and far between, and we hope now that as the buildings department of the Commissioners of National Education has passed to the Board of Public Works, that body will revise the existing petty school structures, both as regards arrangements and effect. The Enniscorthy, Newtownards, and Derry model schools, together with some others of their class for which plans have been prepared and preliminaries arranged with contractors, are a credit to the country, and all details ably and carefully digested.

The District Model buildings at Cork, Belfast, Limerick, and Waterford—the two formerly especially—together with a few others of lesser importance, are admirably adapted for scholastic purposes, though still beneath the acmè of perfection in many respects; yet we shall record with pleasure the projection of many others of a similar stamp, for which much necessity still exists. Throughout England, though "schools" are generally the most conspicuous, and probably among the handsomest architectural features in every town, village, and hamlet, their internal arrangements are not unfrequently sacrificed at the shrine of the architect's vanity to produce quaint effects and a pleasing *toute ensemble.* The Commercial Travellers' Orphan School at Pinnar is both a handsome artistic building, and a complete establishment of its class in all its internal arrangements. In Liverpool, Manchester, Birmingham, Bristol, and other chief towns, "schools" are to be found in every district, and of every class, from the humblest—invariably neater, more substantial, and suitable in character than ours—to the most costly structure with elaborate ornamentation.

In the United States of America some few handsome and well-arranged buildings for scholastic purposes—especially in those of Massachusetts, Wisconsin, and Minnesota—have been erected, yet, by the reports published in 1846, of the secretary to the Board of Education, the superintendents of common schools, the special visitors, &c., &c., we find the general schools, whether Primary, Grammar, Public, High, Intermediate, District, or State Normal—they are divided into these classes—universally condemned as unsuitable. From these reports many valuable hints may be collected as regards what schools ought to be, and attention is directed to many truths which come home to ourselves at the present day. From what we learn, the condition of the American schools, though partially improved since that date, is still most faulty.

• The Hon. Horace Mann says that

"For years the condition of this class of edifices, throughout the state of Massachusetts, had been growing worse and worse. Time and decay were always doing their work, while only here and there, with wide spaces between, was any notice taken of their silent ravages; and, in still fewer instances, were these ravages repaired. Hence, notwithstanding the improved condition of all other classes of buildings, general dilapidation was the fate of these. Industry and the increasing pecuniary ability which it creates, had given comfort, neatness, and even elegance to private dwellings. Public spirit had erected commodious and costly churches. Counties, though largely taxed, had yet uncomplainingly paid for handsome and spacious court-houses and public offices. Humanity had been at work, and had made generous and noble provision for the pauper, the blind, the deaf and the dumb, the insane. Even jails and houses of correction,—the receptacles of felons and other offenders against the laws of God and man, had, in many instances, been transformed, by the more enlightened spirit of the age, into comfortable and healthful residences. The Genius of architecture, as if she had made adequate provision for all mankind, extended her sheltering care over the brute creation. Better stables were provided for cattle, better folds for sheep, and even the unclean beasts felt the hand of reform. But in the meantime the school-houses, to which the children should have been wooed by every attraction, were suffered to go where age and the elements would carry them."

The Hon. Samuel Young says:

"The expense of constructing and maintaining convenient buildings, and all other proper appliances for the education of the young, is a mere trifle when contrasted with the beneficial results which inevitably follow. Of all the expenditures which are calculated to subserve the wants or gratify the caprices of man, there are none which confer such important and durable blessings as those which are applied to the cultivation and expansion of the moral and intellectual powers."

Further, the Hon. Horace Eaton remarks that

"In the construction of the school-house—embracing its material, style of architecture, and finish—as little care and taste are exhibited, as might be expected from the indifference manifested in regard to its location and surrounding circumstances. Cheapness of construction seems, in most cases, to be the governing principle, which decides upon its materials, its form, and all its internal arrangements. No complaint on this score could justly be made, if the general condition of these buildings were clearly and fairly attributed to want of ability. But while our other edifices, both public and private, have improved in elegance, convenience, and taste, with the increasing wealth of our citizens, our school-houses linger in the rear and bear the impress of a former age. Low walls might be instanced as *one* of the prevailing defects in school-house architecture. The quantity of air contained in a school-room of the usual height, is so small as to be soon exhausted of its oxygen: and the dulness, headache and depression which succeed to this result, are but too well known and too often felt, although they may fail of being attributed to their true cause. And why should our children be robbed of a comfortable supply of that pure and wholesome air, with which our Creator, in the largeness and richness of his bounty, has surrounded the earth and filled the sky? But if the condition of the house is such, as in part to prevent the injurious effects arising from deficiency of pure air, by means of broken windows and gaping crevices—then colds, coughs, and as the ultimate and crowning result—consumption—(and of this disease, what thousands of cases have had their foundations laid in the school-house!) must be the consequence of this sort of exposure. This is true in regard to *all* classes and conditions of pupils. But it should be distinctly kept in mind, although it is ordinarily overlooked and forgotten, that children accustomed to be comfortably protected against cold or vicissitudes of temperatuer at home, will inevitably suffer the more when exposed to them in the school-house. And here is an additional reason why these structures should be improved, as our dwelling houses are generally becoming more comfortable."

By arrangements now in progress we hope shortly to present our readers with some illustrations of American schools, when we shall resume the subject.

THE RIVER LIFFEY.—The name "Anna Liffey" is sometimes given to the river which runs through Dublin. It is an Anglicised representation of three Irish words, *Amhan na Life;* the first word, *Amhan*, pronounced *auicon*, signifies a river. It is cognate with the Latin *amn-is*, and the Sanscrit *aub*, and is the name still borne by our English river the *Aron.* The second word *na* is the genitive case of the definite article, and signifies *of the.* The third word is the proper name of the great plain through which the river flows. Thus *Amhan na Life* signifies *the river of the Life*, that is the river of the plain called the Lifé or Liffey. By "the Liffey," no ancient authority ever meant the river, but only the extensive plain, anciently so called, in which Dublin stands. Hence, when they spoke of the river, they called it Amhan-na-Lifé (Anglicised into *Anna Liffey)*, the river of this celebrated plain.—*Notes and Queries.*

Monthly Railway Memoranda.

GRADIENTS ON IRISH RAILWAYS.

THE Banbridge and Lisburn Railway is now making, with a gradient of 1 in 80 miles over 3 furlong curves.

The Dungannon and Omagh Railway, is nearly all composed of gradients of 1 in 80 and 1 in 100 over half-mile curves.

The Dublin, Wicklow, and Rathdrum Railway, with gradients of 1 in 80 over counter curves of 8 chains for 4 miles.

The Newry and Omagh Railway, now constructing, has the following gradients:—

9 Furlongs at 1 in 66.
15 " at 1 in 75.
6½ " at 1 in 100.

81½ or nearly 4 miles continuous.
8½ Furlongs at 1 in 100.
2 " at 1 in 100.
4 " at 1 in 75.
7 " at 1 in 100, with curves of 1½ furlong radius on inclines of 1 in 75 and 1 in 100, with a tunnel and heavy cuttings and embankments of above 46 feet in several places. These figures I have taken myself from tracings of the plans in my possession, and if these examples, and those of the latter four lines, so recently sanctioned by Parliament, do not satisfy those who have put faith in the absurd oracular judgment pronounced against the Letterkenny Railway, I would prefer them to the North-Eastern lines, with their enormous mineral and rapid passenger traffic—to the Whitstable line, and the Folkstone branch; and I am quite prepared to add numberless other similar cases in all parts of the world where railways have been introduced, especially in Spain; I may add that our estimates are ample to cover the cost of construction. The earth works are calculated at 2d per yard above the *actual* cost of several similar works *recently* executed in Ireland, and at 2d per yard above the estimates of other lines about to be brought before Parliament. There is no heavy mason work on the whole line, but a common double arched bridge, over the Swilly, and the geological features of the strata are peculiarly favourable, being *mica slate*, and even more friable than that through which the Machenlloth railway is executing in North Wales.—J. VANDELEUR STEWART.

* * *

DONEGAL RAILWAYS.—We have been informed that the Directors of the Londonderry and Enniskillen Railway Company have agreed to clauses being put in the Letterkenny Railway Bill, empowering the Company to subscribe £30,000 to the Letterkenny Railway, and £20,000 to the Finn Valley Line.

An experimental trip on the first section of the Great Northern and Western Railway—which extends from Athlone to Roscommon, has proved successful. The section is about twenty miles in length, and runs into the Athlone station on the Midland Railway. There is at present but a temporary station erected at Roscommon. The railway was constructed by Smith and Knight, English contractors. The line is not yet certified by the government inspector. It is not expected that the line from Athlone to Roscommon will be open for traffic till the 1st of February. The promoters presented Lord Crofton with a handsome silver candelabra of 24 lights, as an acknowledgment of his services in aiding their project.

At a recent meeting of the Dublin and Drogheda Railway, it was stated that the proposed extension line from Kells to Oldcastle, would follow the valley of the Blackwater for about six miles, and then proceed by another small stream up to Oldcastle. Its length would be twelve miles three-quarters. The gradients were perhaps as good as any to be found in the country, the worst being 1 in 200—though there might be a short one a little greater—which was singularly favourable. The works on the line would be exceedingly light. The estimate made out by Mr. Blackisson was slightly under £6,000 a mile; and there is little doubt but that the line would be contracted within that estimate.

Petitions have been deposited for the subjoined Irish private bills:—

Ulster Railway, Limerick and Ennis Railway, Athenry and Ennis Junction Railway, Belfast and County Down Railway, Waterford and Limerick Railway, Letterkenny Railway, Dublin and Wicklow Railway, Bagnalstown and Wexford Railway, Belfast and Ballymena Railway, Dublin and Drogheda Railway, Banbridge, Lisburn and Belfast, and Ulster Railway Companies, Carrickfergus and Larne Railway, Wexford Free Bridge, Dublin Corporation Water, West Cork Railways, Lough Foyle Embankment and Reclamation, Galway Harbour, Athenry and Tuam Railway, Kells and Bailiborough Railway, Dublin and Meath Railway, Londonderry and Lough Swilly Railway, Grand Canal, Midland Great Western of Ireland and Great Southern and Western Railway Companies, Newry, Warrenpoint and Rostrevor Railway, Portadown, Dungannon and Omagh Junction Railway, Banbridge Junction Railway, Belfast, Holywood and Bangor Railway (inland line); Ulster Railway and Corporation of Belfast, Railway Clearing House (Ireland), Galway Pier Junction Railway, Cork and Limerick Direct Railway, Dublin and Kingstown, and Dublin and Wicklow Railway Companies; Midland Great Western Railway of Ireland, Great Northern and Western (of Ireland) Railway, Waterford and Limerick, and Great Southern and Western Railways; Kilkenny Junction Railway, Kilrush and Kilkee Railway, and Pouluasherry Embankment; Moy River Navigation, Dublin (City) Steam Packet Company, Waterford and Kilkenny Railway, Fergus River Navigation Improvement and Embankment, Ennis and Galway Junction Railway.

The necessary forms for the Cork and Limerick Direct Railway have been complied with, and the deposit money is ready for lodgment. The mercantile importance of this project, as connecting the two greatest cities of the South of Ireland, has commanded the support of all practical men of business; and speculators are already looking upon it as a favourable investment.

THE EXTENSION TO MOUNTRATH.—This project has received a large amount of support in Waterford, and we understand that the principal proprietors along the line are most anxious to promote it. Mr. Hemans is the engineer in chief, and has been over the proposed line.

The conference just held in London, between representatives of the Great Southern and Western and the Midland Railways, has terminated by a final arrangement of the whole question regarding the Grand Canal. It has been agreed—the directors of the canal being consenting parties—that the holders of the stock of the canal shall be entitled to receive £50 for each £100 of stock—that each company shall contribute a moiety of the purchase money; and that the canal shall be managed, for the interest of the two railway companies, by a board consisting of directors nominated by both in equal proportions. In anticipation of some such final settlement, the stock of the Grand Canal has risen very considerably, having reached £47, within £3 of the price now agreed upon by the railway companies.

VENTILATION OF SCHOOL-HOUSES.

EVERY apartment of a school-house should be provided with a cheap, simple, and efficient mode of ventilation, by which the air, which is constantly becoming vitiated by respiration, combustion, or other causes, may be constantly flowing out of the room, and its place filled by an adequate supply of fresh air drawn from a pure source, and admitted into the room at the right temperature, of the requisite degree of moisture, and without any perceptible current. These objects may be attained by attention to the following particulars:

1. The location of the school-house must be healthy, and all causes—such as defective drains, stagnant water, decaying animal or vegetable substances, and manufactures, whose operations evolve offensive and deleterious gases—calculated to vitiate the external atmosphere, from which the air of the school-room is supplied, must be removed or obviated.

2. The means provided for ventilation must be sufficient to secure the object, independent of doors and windows, and other lateral openings, which are intended primarily for the admission of light, passage to and from the apartment, and similar purposes. Any dependence on the opening of doors and windows, except in summer, will subject the occupants of the room near such points to currents of cold air when the pores of the skin are open, and when such extreme and rapid changes of temperature are particularly disagreeable and dangerous.

8. Any openings in the ceiling for the discharge of vitiated air into the attic, and hence to the exterior of the building, or by flues carried up in the wall, no matter how constructed or where placed, can not be depended on for purposes of ventilation, unless systematic arrangements are adopted to effect, in concert with such openings, the introduction and diffusion of a constant and abundant supply of pure air, in the right condition as to temperature and moisture.

4. All stoves, or other heating apparatus, standing in the apartment to be warmed, and heating only the atmosphere of that apartment, which is constantly becoming more and more vitiated by respiration and other causes, are radically defective, and should be altogether, without delay, and for ever discarded.

5. Any apparatus for warming pure air, before it is introduced into the school-room, in which the heating surface becomes *red-hot*, or the air is warmed above the temperature of boiling water, is inconsistent with good ventilation.

6. To effect the combined objects of warming and ventilation, a large quantity of moderately heated air should be introduced in such a manner as to reach every portion of the room, and be passed off by appropriate openings and flues, as fast as its oxygen is exhausted and it becomes vitiated by carbonic acid gas, and other noxious qualities.

7. The size and number of the admission flues or openings will depend on the size of the school-room, and the number of persons occupying the same; but they should have a capacity to supply every person in the room with at least five cubic feet of air per

minute. Warm air can be introduced at a high as well as low point from the floor, provided there is an exhaustive power in the discharging flues sufficient to secure a powerful ascending current of vitiated air from openings near the floor.

8. Openings into flues for the discharge of vitiated air, should be made at such points in the room, and at such distances from the openings for the admission of pure warm air, that a portion of the warm air will traverse every part of the room, and impart as much warmth as possible, before it becomes vitiated and escapes from the apartment.

These openings can be made near the floor, at points most distant from the admission flues, provided there is a fire-draught, or other power operating in the discharging flues, sufficient to overcome the natural tendency of the warm air in the room to ascend to the ceiling; otherwise they should be inserted in or near the ceiling.

Openings at the floor are recommended, not because carbonic acid gas, being heavier than the other elements of atmospheric air, settles to the floor, (because, owing to the law of the diffusion of gases among each other, carbonic acid gas will be found equally diffused through the room,) but because, when it can be drawn off at the floor, it will carry along with it the cold air which is admitted by open doors, and at cracks and crevices, and also the offensive gases sometimes found in school-rooms.

9. All openings, both for the admission and discharge of air, should be fitted with valves and registers, to regulate the quantity of air to pass through them. The quantity of air to be admitted should be regulated before it passes over the heating surface; otherwise, being confined in the air chamber and tubes, the excessive heat will cause much injury to the pipes and the woodwork adjoining.

10. All flues for ventilation, not intended to act in concert with some motive power, such as a fan, a pump, the mechanism of a clock, a fire-draught, a jet of steam, &c., but depending solely on the spontaneous upward movement of the column of warm air within them, should be made large, (of a capacity equal to at least 18 inches in diameter,) tight, (except the openings at the top and bottom of the room,) smooth, (if made of boards, the boards should be seasoned, matched, and planed; if made of bricks, the flue should be round, and finished smooth,) and carried up on the inside of the room, or in the inner wall, with as few angles and deviations from a direct ascent as possible, above the highest point of the roof.

11. All flues for the discharge of vitiated air, even when properly constructed and placed, and even when acting in concert with a current of warm air flowing into the room, should be supplied with some simple, reliable exhaustive power, which can be applied at all seasons of the year, and with a force varying with the demands of the season, and the condition of the air in the apartment.

12. The most simple, economical, and reliable motive power available in most school-houses is heat, or the same process by which the natural upward movements of air are induced and sustained. Heat can be applied to the column of air in a ventilating flue—

1. By carrying up the ventilating flue close beside, or even within the smoke flue, which is used in connection with the heating apparatus.

2. By carrying up the smoke-pipe within the ventilating flue, either the whole length, or in the upper portion only. In a small school-room, the heat from the smoke-pipe carried up for a few feet only in the ventilating flue before it projects above the roof, is a motive power sufficient to sustain a constant draught of cool and vitiated air, into an opening near the floor.

3. By kindling a fire at the bottom, or other convenient point in the ventilating flue—

If the same flue is used for smoke from the fire, and vitiated air from the apartment, some simple self-acting valve or damper should be applied to the opening for the escape of the vitiated air, which shall close at the slightest pressure from the inside of the flue, and thus prevent any reverse current, or down draught, carrying smoke and soot into the apartment.

4. By discharging a jet of steam, or a portion of warm air from the furnace, or other warming apparatus, directly into the ventilating flue.

Any application of heat by which the temperature of the air in the ventilating flue can be raised above the temperature of the apartment to be ventilated, will cause a flow of air from the apartment to sustain the combustion (if there is a fire in the flue,) and to supply the partial vacuum in the flue, which is caused by the rarefaction of the air in the same.

In all school buildings, when several apartments are to be ventilated, the most effectual, and, all things considered, the most economical mode of securing a motive power, is to construct an upright brick shaft or flue, and in that to build a fire, or carry up the smoke-pipe of the stove, furnace, or other warming apparatus; and then to discharge the ventilating flues from the top or bottom of each apartment, into this upright shaft. The fire-draught will create a partial vacuum in this shaft, to fill which, a draught will be established upon every room with which it is connected by lateral flues. Whenever a shaft of this kind is resorted to, the flues for ventilation may be lateral, and the openings into them may be inserted near the floor.

13. With a flue properly constructed, so as to facilitate the spontaneous upward movement of the warm air within it, and so placed that the air is not exposed to the chilling influence of external cold, a turncap, constructed after the plan of Emerson's Ejector, or Mott's Exhausting Cowl, will assist the ventilation, and especially when there are any currents in the atmosphere. But such caps are not sufficient to overcome any considerable defects in the construction of the ventilating flues, even when there is much wind.

14. The warming and ventilation of a school-room will be facilitated by applying a double sash to all windows having a northern and eastern exposure, or on the sides of the prevailing winds in winter.

15. In every furnace and on every stove, a capacious vessel well supplied with fresh water and protected from the dust, should be placed.

16. Every school-room should be furnished with two thermometers, placed on opposite sides in the room, and the temperature in the winter should not be allowed to attain beyond 68° Fahrenheit at a level of four feet from the floor, or 70° at the height of six feet.

17. The necessity for ventilation in an occupied apartment is not obviated by merely reducing the atmosphere to a low temperature.

18. No apparatus, however skillfully constructed or judiciously located, can dispense with the careful oversight of a thoughtful teacher.

Although much has been said and printed on the principles and modes of ventilation, there is much to be done by educators, committees, and teachers, to enlighten and liberalize the public mind and action on this important subject—not only in reference to school-rooms, but to halls of justice and legislation, to churches, lecture rooms, and workshops,—to all places where human beings congregate in large numbers, for business or pleasure.

Mr. D. Leach, one of the agents employed by the Board of Education in Massachusetts, to visit schools and confer with committees in regard to the construction of school-houses, remarks:—

"In a large majority of school-houses, there are no means of ventilation but by opening the windows and doors. And where attempts have been made, it has been but imperfectly accomplished. The ventilating tubes have almost invariably been too small. As the result of my investigations, I would make the following suggestion. To ventilate a room properly containing fifty persons, the ventilating tube should not be less than fifteen square inches inside. The tube should be made of very thin boards, well seasoned, with a smooth inside surface, and it should be perfectly tight.. It should be wholly within the room, and opposite to the register or stove. There should be an opening at the top and bottom. The ventilating tubes should be connected in the attic, and conducted through the roof, and furnished with a suitable cap. Another method, which is far preferable, is as follows: The smoke pipes may be conducted into a cast iron pipe resting on soap-stone in the attic floor, instead of a chimney built from the bottom of the cellar. This cast iron pipe may be surrounded by a brick chimney, into which the ventilating tubes should lead. The space in the chimney should be equal to the spaces in the tubes, after making suitable allowance for the pipe, and the increase of friction. By this arrangement, the air in the tubes will be rarefied, and a rapid current of air produced. All attempts to ventilate rooms with tubes in the wall, or of less size than fourteen or fifteen square inches for fifty persons, have, so far as I have examined, failed. No artificial means will secure good ventilation when the temperature of the room and that of the outer air are nearly the same, without the application of heat to the air in the tubes. Unless the air is heated before being admitted into the room, it should be let in at the top, and not at the bottom, and always through a large number of small apertures. The quantity of pure air admitted must always be equal to that which is to be forced out."

VALUE OF TIMBER—THE OAK.—Three thriving oaks growing on a hard gravelly and poor soil were felled in Nottinghamshire, which on an average girted 15 feet at three feet from the ground, and each tree contained about 430 cubic feet of timber. The trees were planted in 1692 or 93, and were above 149 years old when felled. As these trees were perfectly sound and yearly increasing in size, it is probable that had they been suffered to remain another century, their bulk and cubical contents would have increased fully by one-half. The value of the trees when cut down was more than £120, a sum equal to thirty shillings per acre (without taking interest into account) for the land they occupied during the 149 years of their growth—a reply to such as state without consideration, that timber will not pay the rent for the ground it occupies or injures by its shade.—*Blenkarn's British Timber Trees.*

TEMPERANCE HALL.—The able prize essay by Mr. Macfie, on "The Advantages of Integrity in Working Men," was read by that gentleman at the meeting on Saturday evening last, and was favourably received by the audience. Mr. George D. Leathem presided.—*Derry Journal.*

Reviews.

Transactions of the Architectural Institute of Scotland. Session Eight, 1857–58. Vol. V., Part II.

THE last publication of the transactions of this institute—though somewhat less copious than might have been expected—is nevertheless creditable in every particular; and contains, together with two excellent papers—viz, on "the water works of the ancient Romans," &c. (portion of which we reprint in another portion of this journal), and on "the application of architecture to the commemoration of distinguished persons, with some remarks as to the completion of the National Monument, Calton Hill"—well executed accompanying lithographs, by Edinburgh artists, and illustrative of the amphi prostyle Doric temple on Calton Hill; sections of Roman aqueducts, piscinæ, leaden water pipes, elevations of the Claudian and Neronian Aqueducts, monuments, fontana, plan of the Diocletian thermæ, &c., &c. It affords us always much gratification to record these well-directed efforts to encourage art, and we feel convinced that much may be accomplished through such associations as this by a few individuals zealous and energetic in purpose.

Headstones, Tombs, and Monuments. By D. A. Clarkson, Architect and Sculptor. Atchley and Co., London.

THE second volume of this work being now complete before us, we can review its claims for patronage more definitely than when it was first introduced to our notice in *parts;* but in the main we have no reason to alter a previously expressed opinion, viz., "that the author's forte lies more in the designing of headstones than tombs or monuments." In the former department there prevails generally a pleasing variety, boldness, and freedom of outline; and many of the author's designs would prove an acquisition if erected in our cemeteries in lieu of the mongrel productions usually distributed there. The monumental slabs are especially noteworthy, and on the whole many suggestive ideas deserving of being perpetuated are introduced throughout.

Handy-book of Villa Architecture. By C. Wickes, Architect, author of "The Spires and Towers of the Mediæval Churches of England," &c., &c. London: Thompson and Co., 111, Strand.

So many books of designs for buildings of various classes have issued from the press, the majority displaying very little merit, and some much better consigned to oblivion; and so great has been the detriment effected thereby, not only to the professional man by usurping his legitimate calling, but on the national taste by substantiating monstrosities, that we confess ourselves to a certain extent prejudiced against *any* work of this character professing to instruct the million. Casting this feeling aside, however—at least for the moment—we judge the book before us on its merits, and this we may do without any effort, as we have the productions of a distinguished professional architect and author, and not those of an experimentalist or amateur to deal with. Mr. Wickes' work—which by the way is only the *first* series, the second of corresponding size and price being announced to be in progress—contains five sets of designs and specifications for villas, at cost varying from about £1,150 to £3,500, and in different styles and materials. The arrangement of the plans is decidedly commodious, and well adapted to the respective classes of probable occupants. The sections are practically explanatory, and the elevations, those of No. 2 especially, present some noteworthy features. We must, however, remark that Mr. Wickes seems happier in the designs of Gothic than Italian character. The volume is nicely produced in quarto form, and the lithographs in Day and Son's usual excellent style.

STEAM ON COMMON ROADS.—Now that a British steam-carriage is in actual and regular service in the United States, while not one American carriage is in such service in this or any other country; now that English machinists are supplying not only the roads of South America, India, and Australia, but districts all over the world that have no roads, with traction engines, while American mechanics, whose plans are already proved to be the better, have not secured the least liberal encouragement; now that steam vehicles are employed in the streets of London to haul loads which horses cannot conveniently draw, while the more practicable carriages which sometimes venture in our streets draw only the anathemas of our progressive people; now that steam waggons are in the actual service of the British government, while the authorities of our own city have refused to license public steam vehicles to run within its limits—it is time for us to glorify ourselves on a second stride in national progress and wealth. The first was the surrender of our transatlantic trade to the iron screw ships of foreign countries. We are wont, in everyday phrases, to style ourselves a "smart people," and the English "plodders" and "old fogies;" yet it somehow happens that our neighbours are a trifle in advance of us chronologically, if not intrinsically, in the little matter of steamships in the minor item of steam agriculture, in the trifling sundries of puddled steel and coal-burning locomotives. Our prowess in the manufacture of clocks, tools, and Yankee notions is indeed unquestioned, and our sailing vessels may be counted by the hundred (in our docks), but people are so exacting now-a-days that they will doubt our entire pre-eminence in the art of engineering if we allow the Europeans to slip ahead of us in any particular; let us, therefore, devote a passing thought to the subject of steam on common roads, to see if there is really anything in it worthy of our distinguished consideration. Steam-carriages ran successfully on common roads in Great Britain before railways were introduced, and were driven of by the extreme and unrelenting opposition of the land and stage owners, backed by the House of Lords. Railways evaded and by more brilliant promises overcame this opposition, and succeeded the common road service of both steam and horse coaches. What was the result? In attempting to cover the whole ground their proprietors have saddled themselves with 1,500,000,000 dols. worth of way and equipment, two-thirds of which have been sunk because the traffic was not in proportion to the outlay. The conclusion, therefore, that railways at 170,000 dols. per mile, and capable of a regular speed at 50 miles an hour, are hardly necessary for a traffic which may be economically accommodated at fifteen miles per hour on the public highway, and at a less working cost than that of horses at six miles per hour—this conclusion is not sufficiently outrageous to evoke legislative opposition in England. Meanwhile, in the United States, the stock of railways that penetrate the wilderness of new States for hundreds of miles has not been above par in all cases. Even in well-settled New England districts short branch roads have not been found to pay interest, even at slow speeds. Railways between cities and through populous towns are indeed the foundation of our national wealth; but the accommodation of small, short, stage-coach traffic, and the feeding of main lines by splendid, level, and costly roads of iron, have been found to pay about as well as would be the running of the Great Eastern between New York and Staten Island. Shall our rural districts—*i.e.*, several hundred thousand miles of highway—depend for ever on horse-power at six miles an hour, or can this speed be doubled, or quadrupled, and that at a reduced expense? Here are boundless regions cut off from the progress, isolated from enterprise, and dammed out of the channel of wealth by the simple want of cheap and rapid communication with great steam highways. Is it totally impossible to open up this comparative wilderness by any known means short of railroads at 40,000 dols. a mile?—*New York Times.*

AMERICAN ITEMS.

TORONTO.—The new University building is the finest in the country, except the Capitol at Washington. It is in the Mediæval style, with a frontage of 400 feet, a right wing 285 feet, and a left wing 273 feet. The towers are 110 feet in height, and the pinnacle 165 feet, above ground level. Externally it is built of fine grey stone, mostly from Cleveland, Ohio; and the dressings, &c., are of Caen stone. The roof is covered with Canada slate, and in tile fashion. Interiorly the building contains a main vestibule for entrance, promenades, &c.; a convocation hall in right wing, elaborately decorated with traceries and carvings by a Swiss artist, and floor inlaid with encaustic tiles from Shropshire (we presume Minton's); a senate chamber for meetings of the faculty, with magnificent stone fire-places, and stately carved mantlepieces; a public and a students' reading room; a library finished in white oak; a museum of natural history, decorated with black walnut carvings; a surgery; a laboratory, finished with blue and gold in antique style; lecture-halls, recitation-rooms, an immense dining-hall, with culinary offices, &c. below; students' quarters, suite of apartments for Dean of the University, &c. The grounds contain about twenty acres, and there is a botanical garden, and an observatory, with mounted telescope attached. The cost is said to have been 500,000 dollars.

The state Normal School Board have established the first school of Minesota at Winona, and the prudential committee are authorized to contract immediately for the requisite buildings—which are expected to be an ornament and pride to the city. Quite a number of substantial buildings of various shapes are being erected at Winona.

The amount of money expended by the State of New York, for internal improvements, has been as follows:—

	dols.
For the New York Canals	8,401,403
For the construction of the Lateral Canals ...	14,719,713
For the New York and Erie Railroad ...	3,000,000
For the Ithica and Oswego Railroad ...	315,200
For the Canojoharie and Catskill Railroad ...	200,000
For the Hudson and Berkshire Railroad ...	150,000

These sums granted to railroads have been either given outright, or have been lost by the failure of the railroad.

THE WATER SUPPLY OF DUBLIN.*

WE are now about to terminate with the year 1859 the *fifth* year of the water campaign in Dublin, which, like most wars—originating in the thirst of some few for personal aggrandizement—has drawn from the pockets of the many the supplies for *materiel*, &c., under the pretext of some wondrous advantage, never to be realized. The Corporation, *en masse*, with all their watery officials, have, after five years' battle amongst the bogs of the Dublin mountains, descended to the plain basin, and have, for the fifth time on the one question, "unanimously" stultified themselves; led to that act by the sound common sense of their generals (of two divisions), Gray and Codd. Like

> "The king of France, and all his merry men,

They (the Corporation)

> "March'd up the hill, and then march'd down again."

Not "with banners flaunting in the air," but to the tune of twelve hundred pounds, played out of the pockets and some of the mouths of the citizens of Dublin.

It is usually the case that "those who lead the dance should pay the piper," but their honors came four times to the "unanimous" decision, that it was the duty of the citizens to pay for corporate pastimes; declaring in each instance that nothing could be more conducive to the health of the poor citizens than the agreeable occupation they (the corporation) were engaged in. What a happy chance that in place of a *maestro de dance* they at last met men of common sense to lead them from their steps amongst the mountains, and safely deposit them, on their backs, in the Corporation Hall; for it is impossible to imagine a more perfect prostration, or a more thorough "floorin'" to all their honors (Mr. Whelan excepted) than the Corporation, "midst great applause," administered to themselves, after the sound and masterly exposé of the mountain madness given by Doctor Gray.

But, we have done with the folly now and for ever. When men "unanimously" admit themselves to be wrong, it would not be either generous or right to bear malice for the evil; we trust, however, the lesson will not be lost for the future.

We, however, dread the present phase of the water question almost as much as the former; not so much because there can be no question that truly pure and soft water may be drawn from the Liffey at Coyford, as now proposed, whilst from the mountain bogs and Dodder it would be most unwholesome; but the expenses will, in our humble judgment, be *incalculable*, and the supply from the Liffey be a cause of litigation perhaps the most fruitful that could be conceived.

One of the Corporation Council declares that, "no amount of money could compensate for the injury proposed to be done to his father's property running for miles along the banks of the Liffey." This is but the echo of the feelings of every owner of a demesne along the whole course. The millowners view the loss of water in another light—they must be compensated for a commercial damage. From Coyford to Dublin a host of claimants will spring up, whose demands must be entertained, and how to arrive at the amount of compensation equitably to be paid, seems to be a question impossible to answer.

If the attempt be made to impound storm water by the construction of "compensating basins" to keep up the supply in the Liffey at its *natural* height, it is scarcely possible to imagine a more certain arrangement to produce unending differences — what will satisfy *one* to-day, as being equal to a natural supply, will not to-morrow; desires will be thought rights—really natural deficiencies called Corporation robbing of the stream — millowners' demands for flour will almost always rise as the waters of the river fall;—demands for water will be most unceasing when most impossible to procure; and even without wishing to do wrong on either side, wrong will be done on both, without the possibility of knowing which is wrong and which is right. We have, in Ireland, the unhappy reputation of *desiring* to fight with each other. Let us avoid, if we can, the creation of so certain a *casus belli*; and if some arrangement cannot be come to witb at least three-fourths of the owners of the banks of the Liffey, before the works be put ito operation, we would say let them never be attempted.

The expense will be incalculable, from another cause. What engineer can estimate truly for the cost of *endeavouring* to construct compensating water-works in the locality they would be necessary?

Let us not be misled into the belief that estimates of such works and such demands can be made, under almost any circumstance, to be depended upon. We have within our view two recent instances to prove the utter fallacy of such an idea.

Already we have given a full exposition of the Liverpool or Rivington water-works. Estimates were proved there to be utterly fallacious; basins were constructed, on estimate, in positions where the necessary foundations were found to be 90 feet below the estimated depth. What was the result? The supply mains were estimated at a strength that when the supply came, they burst, and had to be hooped with wrought iron from end to end—a re-excavation of the whole being made. In fact, we believe no estimate was realized, from some cause or other—the main one of all, the quantity of water required, being perfectly erroneous. Above one million six hundred thousand pounds were expended, upon the plea of the *necessity* for a high pressure supply to every house—the inhabitants, it was said, could not live without it. Investigation will prove that low pressure is still almost the rule; high pressure nearly the exception; *and that that is paid for at an extra rate!* The necessity for *pure water* was the second plea for all the alterations; facts establish that the old supply is vastly purer than the new, and it is reserved for the rich, whilst the poor get the tainted water from the bogs of the Rivington hills.

Now let us look to Glasgow! The world has been astounded by the description of these "wondrous works," and of the "world-wide fame of the engineer," so chronicled in all the newspapers. The Queen went to open the supply to her subjects of the second city of the north, fully believing, no doubt, that she was aiding to give pure water both to rich and poor, and that when she graced the ceremony by her presence, the act would lead to similar undertakings elsewhere. Her Majesty little thought, we imagine, that the whole was in reality obtaining her presence under false pretences. The water-works of Glasgow are no more

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* See page 157 *ante*, and previous numbers.

open to the citizens as a means for supply, than the waters from Coyford are to the people of Dublin. At an enormous cost, and the "world-wide fame of the engineer" (a fame which, in most instances, rests on the amount of expenditure), and at the cost of *twenty-five thousand pounds*, paid into the pocket of that engineer, for his fees,—the works have been so far completed that it requires about *three hundred thousand pounds* more, to bring the water the remainder of its journey, before the citizens get one glassful of it; and out of that £300,000 it is not impossible that the engineer will receive some £25,000 more before the job is completed. We heartily wish that some of our Irish engineers had the opportunity of gaining "world-wide fame" on such terms, and we sincerely believe they would do better service for the money.

Almost a similar scene has, within the last month, been enacted at a meeting of the Town Council of Glasgow, as at that of Dublin at their last meeting. Liberty was sought to apply to Parliament for a bill empowering the Corporation to raise £300,000 more to complete the water-works, and the facts we state are now a matter of public record. The Queen did not really open the water-works—she only aided in a ceremony tending to open the purse-strings of her liege subjects there, to the extent of £300,000 more. In vain some of the Corporation sought to check the hydrophobia; they were called all sorts of hard names for their impertinence, and, when soundly abused, they could not help themselves, for unless the £300,000 was got, to bring the water to its destination, both the labour and the money already spent was lost; therefore it was "unanimously" voted that the notice for the bill should be given; and so it has been. We believe, if the object of the Dublin meeting be realized, it will be at the cost of £300,000 also.

By baseless *estimates* have the water-works of Glasgow been commenced, and, it may be said, half-finished —"world-wide fame" has been established for the engineer—the public prints have eulogized the vastness of the expenditure, and just in proportion to its vastness has his fame been magnified. So it was in Liverpool; so elsewhere, in every instance—just as money flows forth from the rich, or from the combined pence of the poor, is merit estimated; hundreds, perhaps thousands, are employed; men look agape with wonder at what's doing, because they never saw it done before; the author of the work is looked upon as something superhuman, and the gold that showers down upon him from fees upon "the vastness of the outlay," gilds over with such brilliancy the outer surface of the work, that its flaws and fissures are but seen by the public eyes, although. mayhap, they may be vast enough to prove the whole a failure.

Liverpool has failed lamentably—scarcely one of its assumed advantages has been realized. Mr. Codd says it is because "its town councillors were at war, and have been unceasingly thwarting each other's views." But, we would ask, what has that to do with the quality of the water supplied, and the pretence that "every house should have a high-pressure supply." Neither have been realized, and yet one million six hundred thousand pounds have been expended.

Glasgow has, so far, failed, for it is at a stand still, and must be so, unless the legislature and the townsfolk agree to the outlay of £300,000 more, without any real guarantee that that will complete the undertaking. And the announcement has been recently made that when the high pressure supply is completed, and the water about to be let on, the city is to be divided into ten lots, the supply beginning with No. 1. *so that the citizens may be prepared for the casualties by bursting of the present water-mains, and their probable insufficiency to resist the pressure of the waters from Loch Katrine.* What an agreeable contemplation for the citizens of Glasgow! In Liverpool, the water-works authorities learned from the fact of the new pipes bursting, that the old ones could not bear the pressure; they therefore saved the overflow of the town, which must have taken place had the high-pressure supply been at once admitted into them; and whenever a high-pressure supply is now made, it is through pipes laid for it solely, and for which an extra rate is paid. Glasgow has learned from Liverpool; let Dublin learn from both! Water-pipes adapted for low-pressure service can no more bear the pressure necessary for high service, than low-pressure boilers bear that of high-pressure steam.

To estimate the cost of a high-pressure supply "to every inhabitant," as has been laid down as the *sine qua non*—the essential to sanitary laws—"that which the authorities are bound to insist upon for the safety and health of their fellow-citizens" (see the speeches in Liverpool, Glasgow, &c.)—is simply "a mockery, a delusion, and a snare;" unless the pipes used for low-pressure be removed, and new ones put down of adequate resistance. We must therefore ask the authorities of Dublin to calculate what that will cost for at least 100 miles of streets in our city, and to add it to the estimates. If that be *not* done, we sincerely believe that everything said as to the necessity for high-pressure supply for the general community of Dublin, is without foundation; and why the enormous expenditure proposed should be gone to, as the ground stated, we cannot comprehend.

But we have done with the subject for the present; we have conscientiously pointed out facts, which will one day prove themselves if the proposed measures be carried out. Dublin has been already saved from one great infliction—the catchment scheme; we trust she may be saved from another; but the citizens must put their shoulder to the wheel themselves—we cannot aid them more than by our humble representation of undeniable realities, which, we think, should be warning sufficient; but, if they will not be warned, the fault is not ours, and we must only be content that we have done what we conceive to be our duty, without ill-will or ill-feeling towards any one connected in the matter.

FENCES.—The cost varies according to materials used and style of work. For a single row of post and rail fencing formed of fir rails and prick posts, and larch posts four rails in height, the cost near London will be about 5s. 6d. per rod of 16½ feet. For strong cleft oak posts, ash and other rails and prick posts very strong, the charge has been 6s. 6d. per rod. In places where stone abounds this material is used for building walls as divisions between enclosures for road, fences, &c.; sometimes they are built dry, sometimes with mortar. In North Wales near Conway, the contractor will provide labour stone and mortar for such walls as do not require scaffolding, and build them in random courses faced on both sides, and 14 or 15 inches thick for 2s. 4d. per yard super; and from 18 inches to 2 feet thick, 2s. 6d. per yard super; labour only is 1s. 3d. per yard super for 2 feet in thickness.—*Blenkarn.*

BALLARAT NEW CEMETERY.—At an adjourned meeting of the trustees, held at the Chamber of Commerce, there were several plans submitted; some of them being of very large dimensions, elaborate details, and more or less picturesque in design and execution. The model was by Mr. Cuthbert, architect, late of Dublin. After examining the several plans and discussing their merits, it was resolved to give the *first* prize to the plan signed "Ne Plus Ultra," and the *second* prize to that signed "Spes." We believe the model was included in the latter vote, and is by the same gentleman as the author of the plan marked "Spes."

BELFAST.

The Blackstaff River, which runs through the south side of Belfast, has been a standing grievance to the inhabitants for nearly 20 years. The proverb says, that "It is an ill wind that blows nobody good," and we would vary it a little, and say, "It is a filthy stream which flows to nobody's advantage." The late astute town clerk and solicitor of Belfast could, if now alive, bear testimony that the Blackstaff did not flow unprofitably to him at least, proving that clever people can draw good out of evil. To those who may not be familiar with the locality it may be well to observe, that the Blackstaff River drains the valley lying east of the Black Mountain, on the south side of the town, being augmented in its course by the junction of the Forth and Pound Burn. The late Mr. John Sinclair, who died two or three years ago at an advanced age, stated that he remembered the Blackstaff a pellucid stream, abounding in fish, and fit for use either as a beverage or for culinary purposes. We regret to say that it has completely lost its character, and now only abounds in impurities and unhealthy odours.

Many plans have, at various times, been proposed by various individuals for the improvement of this river. Some may enquire, Why does it require improvement? It requires improvement because it has been, like the Thames and many other rivers, converted into an open sewer. The Pound Burn, in its course through the town, is the recipient of all sorts of impurity, from mills, sewers, &c., and finally empties itself into the Blackstaff, above the Saltwater Bridge. At this bridge and below it the Town Council have discharged several sewers into it, still further adding to its impurity. Now, our opinion as to what is required is, that the course of the river should be straightened, giving a uniform fall, and preserving its waters pure. This plan would be simple, efficacious, and inexpensive, and would contribute immensely to the manufacturing trade of the town, especially if a compensating reservoir were formed somewhere near its source, to regulate the supply of water, preventing floods at one period and scarcity at another. If this were effected, we would soon find its banks crowded with mills and manufactories of various kinds. We cannot see that any necessity exists for converting this river into a sewer; all that is wanted is to construct a sewer along its banks, into which those sewers terminating at the river can be discharged. Those proprietors of factories who now use the water may possibly have a clear case of damages against all who have contributed to render the water unfit for their use, and some surprise is stated to be felt at their not having hitherto asserted their rights in this respect.

The former proposed plan of the Town Council, and for which they obtained an Act of Parliament some eight or nine years ago, was to purchase land sufficient for a street 100 feet wide, and building ground on each side, carrying the river in a double culvert down the centre of the street—each culvert 12 feet wide and 10 feet 6 inches high. The length would have been about 3,500 feet, and has been estimated for the double culvert alone at £4 per foot, amounting to £14,000. The quantity of land required for a street 100 feet wide and building ground on each side, say 50 feet deep, would be 16 acres. What this would cost can only be matter of conjecture; but we would say not less than £14,000 more. Then we have law and parliamentary expenses to add, as well as the cost of forming and levelling the street, say £7,000—amounting in all to £35,000. But as the sum granted in the Act was only £15,000, without any compulsory powers, the scheme could not be carried out. We learn that the Town Council and the Ulster Railway have now both lodged plans and sections, and printed three proposed Acts for making a new street nearly on the site formerly contemplated, along which the river is to be carried in two culverts 24 feet apart, and along the centre of this space the railway company purpose forming a tramway.

The Town Council propose to take powers to divert the river, to purchase within two years such lands as may be necessary, and to give compensation for those taken and injuries done. The Blackstaff when diverted, and the street when made, to vest in the Corporation, their borrowing powers to be limited to £20,000. The Ulster Railway Company propose to take powers for the construction of a tramway along the centre of this street, from the terminus, following the course of the river to May's Fields, thence by Stewart-street, along the bank by the Queen's-bridge, thence along the quays to Clarendon Dock, with a short branch from the end of Chichester-street to the vegetable and pork markets. They propose also to repeal the Act of last year, relating to the Durham-street Bridge, to take new powers to build a foot bridge over the railway there, and to enlarge their station. The tramway will be double, and will cross the roads and streets on a level. They propose three years as the limit for taking land, and five for the completion of the works. Capital to be raised, £75,000. We hope that there will be a harmonious action amongst the numerous public bodies for the improvement of the town, and the construction of these works of undoubted utility. M.

LAW NOTES.

SWALLOW v. CHAYTOR.

A working builder sought to recover from defendant £121 4s. 11d., for work and materials and goods sold and delivered, &c., &c., at defendant's house, Killiney, Co. Dublin. The plaintiff also complained that the defendant converted to his own use his goods, namely, mortar, nails, lime, putty, scaffolding. The defence was, that the work was to have been done under a written agreement—according to which the plaintiff was to execute certain works for a sum of £400, within fifteen weeks, pursuant to drawings and specifications; and if Mr. Boyle, architect, thought the progress and quality of the work unsatisfactory, the defendant could declare the contract null and void, and the plaintiff to forfeit all claim under it. The defendant also pleaded that the work had not been completed within fifteen weeks, and that the certificate of Mr. Boyle was a condition precedent to an approval of the work by the defendant. To this the plaintiff replied that the default in the non-completion of the work arose from the non-supply of materials by the defendant; that the certificate of the architect had been collusively withheld; that the defendant had on this head waived objection; that Mr. Boyle did not consider the progress of the work or the quality of the materials unsatisfactory, and that even if he had done so the plaintiff was entitled to show that it was satisfactory. The defendant admitted the conversion of a portion of the property to the amount of £5, and lodged that sum in court. The plaintiff gave the defendant credit for any money he had received from the defendant, and also gave credit for any of the work that had been left unfinished. After a protracted hearing the jury found for the plaintiff, 123*l.*

Counsel for plaintiff—Sergeant Fitzgibbon, Messrs. Armstrong, Q.C., and Purcell; for the defendant—Messrs. Macdonogh, Q.C., Rollestone, Q.C., and Heron.

The New Ulster Bank, Derry.—In describing this building the *Derry Journal* says, "It is now almost completed, and, the palings being removed, the new edifice forms an object of great attraction in the locality which it ornaments. The front presents an imposing appearance, being built of Scotch freestone, after a design at once chaste and elegant, as well as highly ornamental. The building forms a slight curve at one end, which adds something to its graceful effect. The entrance to the cash office is at the end next Shipquay-place. The massive doors are of solid oak. A spacious hall intervenes between the entrance and the cash office, which is semicircular in shape, and lighted by three large windows. The counter, which is of polished oak panels, surmounted by a curved polished mahogany desk, extends the full length of the office, dividing it in the centre. The booths for the clerks—and which are handsomely carved—are placed next the front of the house, so as to obtain sufficient light, and ample room for the accommodation of the public is afforded outside the counter. The walls of the office are panelled round as high as the counter, and in the same style of polished oak, a large fire-place occupying the centre of the inner wall. The manager's office, adjoining which is the safe, is at the upper end of the public office, and is communicated with by doors on both sides of the counter. The upper portion of the house comprises the manager's residence, a private entrance being provided at the other extremity from the public entrance. The entire building has been erected and fitted up by the contractor, Mr. Matthew M'Clelland, with characteristic promptitude and taste. We should not omit to direct attention to the carved heads surmounting the doors and windows of the basement story, and the Ulster Arms over the chief entrance. These are the workmanship of Mr. Philip Doherty, sculptor, of this city, to whose works of art we have frequently referred. [We will add that Mr. Thos. Jackson, of Belfast, was the architect, and the bank has been opened for business.]

Further Improvements in Belfast.—We learn from the *Ulster General Advertiser*, that Mr. John Savage having recently purchased a large plot of ground enclosed by Peter's-hill, Old Lodge-road, Christopher-street, and Peter's-lane, has commenced various improvements including one from Peter's-hill through Israel-street to Old Lodge-road, and in making a main sewer down the centre of Old Lodge-road, and in Upper Townsend-street. Mr. Savage is also about to build these streets, and when completed, they will much improve that locality. It was intended that a street should be run from Upper Townsend-street to Carlisle Circus, thus forming one direct line of communication from the Antrim-road to the Botanic-road, passing the Ulster Railway. This would be of great advantage to the public, and such a road would increase the value of property in its vicinity; but it appears that objections are thrown in the way of carrying out the project, by one of the proprietors of the land through which such a street would require to be run.

NEW SERIES!

AGREEABLY with a previous promise we commence with this publication a new and illustrated series of THE DUBLIN BUILDER. Changes are always suggested by circumstances, and – guided by prudence – lead to important results. When we submitted our first number experimentally, we had no intention to adopt it as our *ne plus ultra* standard, but growing with our growth, and strengthening with our strength, we have fortified our resources and increased our magnitude consistently with requirements. Professional periodicals of our stamp being invariably illustrated, and the general tone of our supporters seeming to be in favour of our adopting a similar course, we willingly accede to their desires, not—be it understood—from necessity, or as a *dernier resort*, but because we are now in a position, which we were not in the first instance, to calculate pretty accurately probable support, and, as far as justice to ourselves will admit, desire that our friends should reap the fullest possible return for their kindness. If, without any assumption of egotism, we lay claim to merit for conducting this undertaking to a successful issue for the *first* year, it is that we have solved a hitherto undefined problem—viz., as to whether or not Ireland *could* and would *support* such a journal as ours, and by bringing a certain amount of energy to bear, have tested the experiment to the fullest extent. Embarking in new and responsible arrangements, it is cheering to find that on the advent of our second year, friends rally round us with redoubled vigour, and that past support, though liberally accorded, bears but small comparison with that now being received, and with what we are led to expect. We most earnestly impress on our friends that even now as regards our illustrations we cannot be supposed suddenly to attain a position of *super*-excellence. In this department we must graduate, as our predecessors have done; and as there is a marked contrast between the *first* attempts of kindred professional periodicals and their *present* productions, allowance should be made for us likewise in our infancy.

Yet withal, our present display will, we apprehend, satisfy the patrons of this journal, that our essay for their gratification in this department is of no paltry character, and we beg to assure them that on our part no effort shall be spared to fulfil our mission creditably. The Journal is further enlarged by the addition of a supplemental illustrated sheet.

WIDENING OF THE THOROUGHFARES.

WE understand that the house No. 25, Marlborough-street, together with the premises adjoining same, flanking towards Talbot-street, and in the possession of Mr. George Mark, tea merchant; also those at the rere, containing the workshops of Mr. Glennan, stone and marble cutter, have been purchased by the Corporation, and will soon be thrown down, with a view of widening Talbot-street, which at this point only presents a roadway of about 20 feet, but by the proposed arrangement will be increased to about 26 feet, with a spacious pathway likewise.

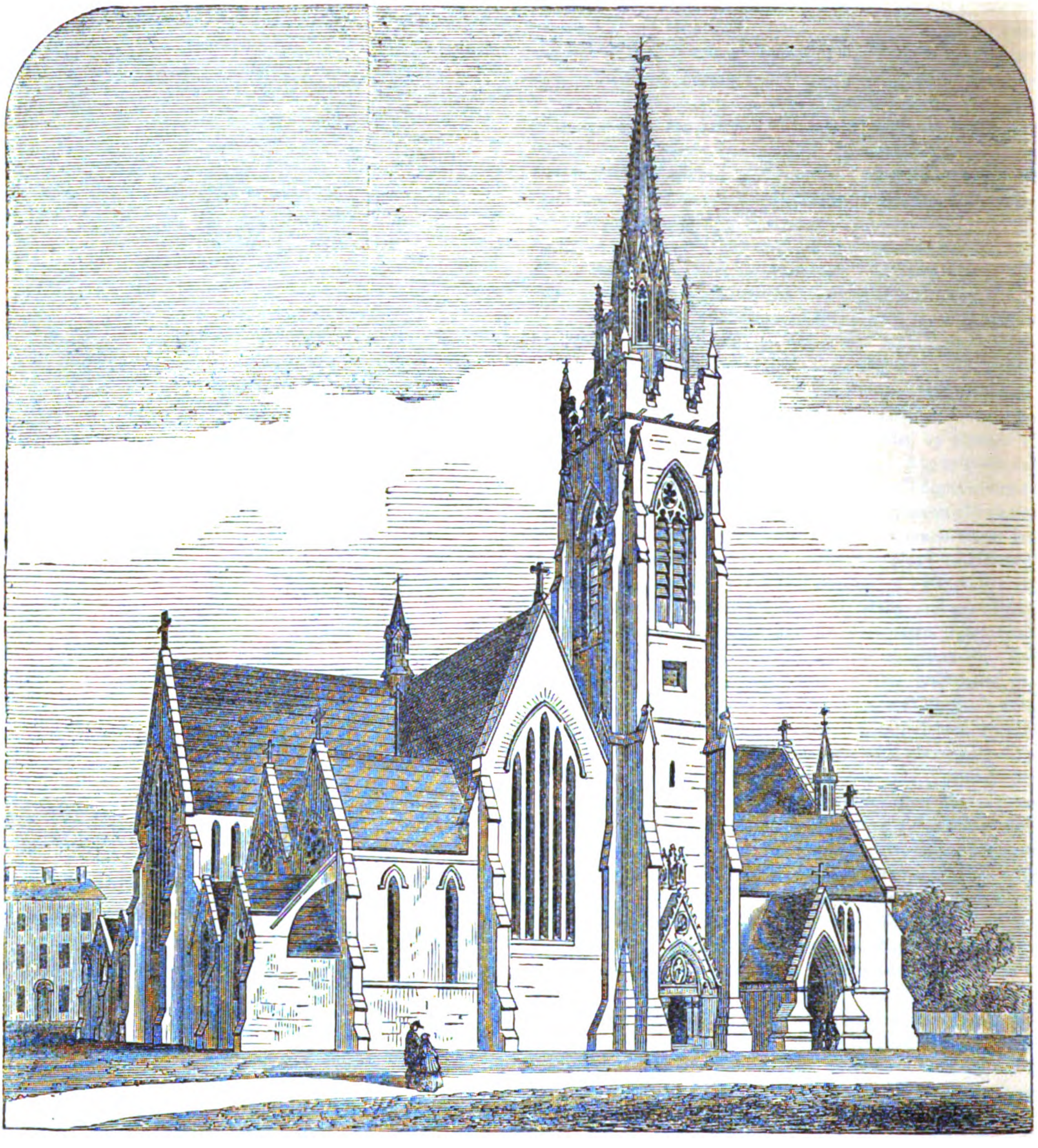
NEW GUILDHALL FOR CAMBRIDGE.

DURING the last three months or more, a competition has been in course of progress for a complication of purposes for the above University Town. At the same time that the old shire hall was to be kept to its present purposes, a large assembly room, a public reading room and a library, town clerk's offices and several committee rooms, a school of art for upwards of 80 pupils, and other minor requirements, were to be erected for the united sum of £6,000 on a limited site. The designs were also to include a large corn exchange, a magistrate's court, a large room as the council chamber, together with all the necessary waiting and other rooms for witnesses, barristers, &c., &c.; together with a telegraph office. These latter establishments are to be erected some 17 years to come, when the leases of the present houses on the site have expired. The twenty sets sent in, having been reported on by Professor Donaldson, and reduced to six, the Town Council further reduced them to two; and on the 16th December, awarded the first premium of £200 to Messrs. Peel and Stephens, of Maidstone; and the second premium of £100 to Messrs. John W. and Wyatt Papworth of London. We understand that both sets are designed in the Italian style of architecture; the latter being free in character, to suit the amounts and the masses of buildings.

THE NEW BATHS, LINCOLN-PLACE.

Now that the scaffolding is removed externally, and we are enabled to judge of the general effect of this first specimen of Oriental architecture in our city, we resume a description of the building. The principal front, as already stated, faces Lincoln-place, being about 186 feet in length, and a connecting building, in characteristic style and with separate entrance, follows the obtuse angle presented by the thoroughfare at its junction with Leinster-street. This portion will contain a spacious refreshment saloon, and also at the rere thereof an apartment where the Turkish bath system, as patented by Dr. Barter, may be applied to horses and other animals. Possibly we may hear by-and-by of elderly maiden ladies availing themselves of the system in restoring to convalescence their pet "tabbies" and "poodles," to whom the chibouk and the shampooing process will prove rather a novelty! The male and female departments are separated into each half of the building, to right and left of centre, by the ticket-office, which communicates with the respective entrance porches. The arrangements being the same in each, it suffices to state, that the divans or general rooms (32 feet by 20) are the first apartments approached by the bathers, and are fitted with open timber-work stalls at either side, constructed of pitch pine, furnished with low benches for dressing and undressing, separated by sheeted partitions and screened from view by scarlet curtains. Above these stalls is an ambulatory or platform—approached by a small flight of steps—which will be also furnished with loungers, and whereon the patients may enjoy their coffee and chibouk. The ceilings of these rooms are panelled and painted in many colours. Next is the tepidarium (16 feet square), where the first degrees of excessive heat are to be experienced, and where reclining slabs are provided. This apartment is waggon roofed, and has variegated lights therein, and ventilators in the wall to regulate the temperature. Communicating with this and of same size, is the *caldarium*, or hottest chamber, fitted with shampooing benches, and similarly constructed and lighted to that before described. Small closets, divided therefrom by open oriental-shaped arches, with piers and dressings of coloured bricks, contain cisterns supplying tubes, wherefrom hot and cold water may be distributed as required over the persons of the patients. The floors of principal storeys throughout are mostly composed of Minton's tiles, in various patterns, and beneath them are placed the hot and cold air flues communicating with the hypocaust, and by which any desired amount of heat may be produced. A spacious staircase leads to the board-room and other apartments on the first floor, and central rises an ogee-shaped dome to a height of some 50 feet, but which might, to our minds, have been made an internal, as well as an external, feature, as it can scarcely be adapted to any other than a lumber or domestics' sleeping room. 1st and 2nd class arrangements are provided, to suit the means of the patients. Externally the building is a decided acquisition, and the site seems to have been judiciously selected. Its general character takes both strangers and citizens rather by surprise, and many an enquiring countenance is directed towards its minarets, elaborate fretwork, half-moon apertures, tall variegated brick shaft rising 85 feet in the background, &c., &c., which form a very novel and agreeable contrast to the "western" style of architecture prevailing here. The front—with the exception of the base course, which is of granite—is entirely cemented in Portland, and its execution—the elaborate ornamentation especially, so novel to our workmen—is most creditable to the contractors for the plastering throughout, Messrs. Hogan and Son, of Great Brunswick-street.

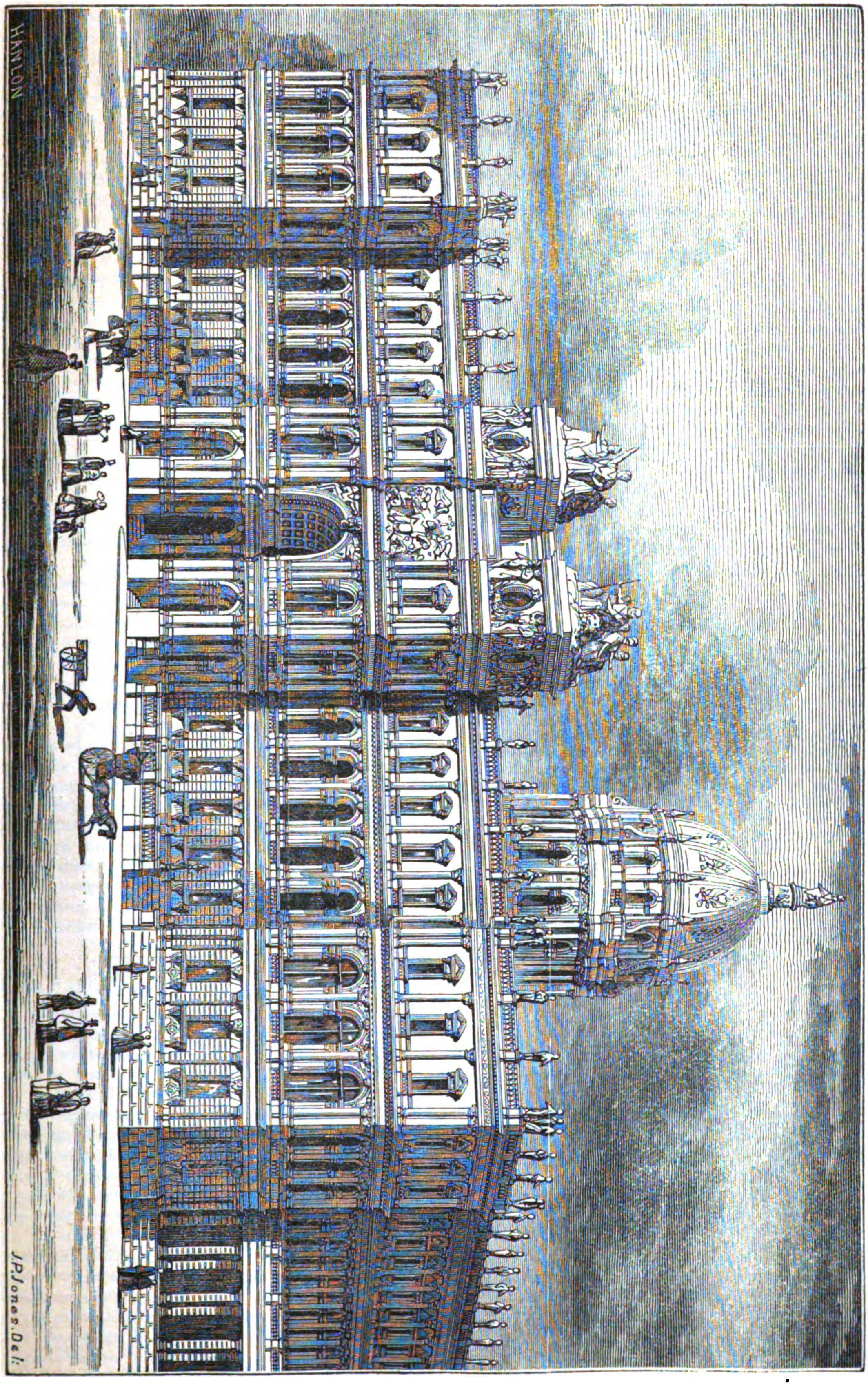
As a work of art, the building may be pronounced successful; and as its purpose has a philanthropic tendency, we trust that the speculation may prove equally so. Mr. Barter, architect and sculptor, of Cork, designed and superintended it to completion, Mr. Dwyer efficiently assisting as clerk of works, and Mr. Barry overseeing the masonry and heating departments. Nearly all—if not all—the artificers, except in the plastering and cementing departments, employed are Corkonians, and the work redounds to their credit. We understand that arrangements are being made for the immediate opening with some *eclat*. The system is likely to be largely patronized in Ireland, and no doubt will bye and by be modified, so that the humbler classes can avail themselves of it likewise.



LIMERICK CATHOLIC CATHEDRAL

LIMERICK CATHOLIC CATHEDRAL.

THE new Roman Catholic Cathedral of St. John's, at Limerick—of which we annex an engraving—is, perhaps, one of the most important ecclesiastical edifices erected of late years in Ireland, and is after the designs of Mr. Philip Hardwick, an eminent architect and Royal Academician of London. When first projected, plans were received in competition from various Irish professionals, and considerable dissatisfaction was subsequently experienced by the prize *never having been awarded.* The style of the building, as executed, is early Gothic, and the plan consists of nave, 30 feet in width, aisles, transept, chancel, 4 side chapels, 2 sacristies, tower and porch. The dimensions in clear are 168 feet—including chancel—by 74 feet; the breadth across transepts being 114 feet. On both the western and eastern elevations the nave and aisles present gabled ends terminated by crosses, and in the latter especially their grouping with the addition of the 6 extra gables formed by the side chapels and sacristies, is peculiarly effective. The great windows are 5-light tall lancets under a single arch, but wheel traceried lights are introduced into gablets, and double and single lancets with trefoil heads into other portions. The tower—which is on the northern flank at the junction with transept—is square, flanked with buttresses, surmounted with an embattled parapet, and divided into three stages, the belfry windows being louvred and traceried; a crocketed spire rising from a kind of broach on which an open octangular superstructure rests, will cap the whole, and form a pleasing composition. The external walls are of a superior class of masonry, and the dressings are of finely-wrought limestone.



DESIGN FOR THE WAR OFFICE.—J. P. JONES, ARCHITECT.

THE GALWAY ROYAL INSTITUTE.

An important structure is now in course of completion in "the citie of the tribes," which will supply a decided want in that hitherto neglected town, but destined—we trust at no distant period—to be a great highway from the Old to the New World. Very little indeed has been done in Galway in the way of building improvements, but a wide field is now being opened; and as transatlantic commercial intercourse increases, so must her prosperity and architectural requirements.

The new institute presents a frontage of about 40 feet by 70 feet flank, each elevation harmonizing in character, and displaying architectural features, with bowed connection between the two fronts. Towards the principal street, on ground floor, is a large business concern, with about 25 feet frontage and 33 feet depth, with central doorway, also communicating with a small office, a fire-proof safe room, parlour (15 feet square), pantry, hall, and staircase of private house. Immediately adjoining same, but totally distinct, and with separate entrance in bow, is another shop, 17 feet 5 inches in length, and parlour, 14 feet 6 inches by 10 feet, in connection therewith, with special bed-room over same, approached by a separate stairs. The entrance to the institute is nearly central on flank, and is through a recessed porch and hall, 8 feet wide, to a spacious staircase, leading to first floor, on which —irrespective of the bed-room described and a drawing-room, 22 feet by 15 feet, and closet for private house—two reading-rooms, 36 feet 9 inches by 21 feet 6 inches, and 18 feet 8 inches by 13 feet 6 inches, with w. c., are situate. On second or attic floor are a library of same dimensions as large reading-room, a smoking and caretaker's room, together with three bed-rooms for the private house. In the basement are various apartments, comprising kitchens, servants' bed-rooms, sculleries, cellars, &c., to meet the requirements of the habitations with which they are in connection. The plans throughout are admirably arranged, and in execution will, no doubt, prove most commodious.

Externally the elevations consist of three storeys, the lower (or ground) being a pseudo arcade, with vermiculated piers, impost mouldings, and semicircular-headed opens, with a bold continuous cornice above, and circular ornaments in spandrels; the first floor having square-headed windows, with consoles, architraves, and entablatures, and the second with smaller ones without dressings—the whole surmounted with a main cornice, astragal, and openwork parapet, with piers at intervals. The windows are intended for plate glass. The fronts are in cement, executed, with the rest of plastering work throughout, by Messrs. Hogan and Son, of Great Brunswick-street, Dublin; and the entire works have been carried out from designs and under the superintendence of Mr. E. H. Carson, architect, Dublin, by Mr. Austin Semple, builder, Galway; Mr. B. Killian, proprietor.

A DUBLIN "ARCHITECT" FIGURING IN LONDON.

In recording the proceedings at the Brompton County Court, our cotemporary the *Building News* devotes a quarter of a page of its valuable space, to what was evidently intended to appear as a very witty and amusing scene, in which "Irish," *of course*, were the principal actors; but the publication of which bears both a stupid and exaggerated *impresse*, and, to say the least, is not complimentary to the feelings of many supporters in Ireland of that (otherwise) excellent periodical. Comparatively scanty as are our resources to those of the journal in question, we confess that we can employ our space with matter dictated by much better taste than to reprint the colloquy between "Misther Jim Sullivan," an architect from Dublin, "Misther Terence Kiely," *alias* "Ginger," the judge, and the lawyers concerned; and, therefore, abstain from perpetuating the feeling of contempt and prejudice for our country, which is apparent enough amongst the classes who do not quite understand us or desire to do so, at the other side of the channel, without being additionally roused through the medium of a *professional* periodical. We must, however remark, that those who, from reading this article, conclude the profession in Ireland to be represented by "gentlemen" of such type as the "actors in this farce," labour under a serious error; one however, which—thanks to increased travelling facilities—is being gradually dispelled, and the *Irish* architect maintains his position in society as a professional man and a gentleman both at home and in every quarter of the globe. Such a dialogue might form an excellent plot for a low comedy in some of the London penny theatres, where caricaturing becomes a profitable source of business; but we can confidently state it is not relished here, nor is it worthy of a place in a professional journal hitherto deservedly commanding extensive appreciation in this country. Pursuing our own interests independently, we entertain no desire to place ourselves in antagonism with any of our cotemporaries—rather the reverse—for there is quite room enough for all; therefore, we wish it to be distinctly understood that our remarks are dictated by a sense of duty, and not for an interested purpose.

THE PROPOSED WAR OFFICES.

Our principal engraving this month, page 179, represents a hitherto unpublished design for the War Offices in London, and was submitted in the memorable competition wherein the entire professional talent of the world was called into requisition. Though not one of the premiated designs, yet discovering in the general composition many noteworthy features, and viewing it as the production of an Irish architect, we present it to our readers. We must also draw special attention to this fact, that everything connected with the illustration, except the subject, is "Irish"—viz., the *design*, *draughtsmanship*, *engraving*, and *printing*; all of which we, without any egotistical assumption, venture to submit are unexceptionably executed, and may fairly stand comparison with other illustrated periodicals; though it may be believed elsewhere that there is neither the *spirit* nor the *ability* amongst the Irish to produce a superior artistic illustration.

. NEW HOTEL IN WICKLOW.

A new hotel in the town of Wicklow, called the "Wicklow Railway and Marine Hotel," was inaugurated by a public dinner given in it on Saturday evening, 17th ult. The large building situated on the "Murrough," close to the railway station, formerly used as an industrial school, has been—by means of a capital of £5,000, provided by a joint stock company—converted into a hotel for family and general accommodation; which in point of style and extent is commensurate with the requirements of the locality, and the anticipations of progress which have already been in part realized in the county. The accommodation includes a suite of five large rooms, which can be united so as to form a dinner or ball room sufficient for the reception of upwards of two hundred persons. The hotel is under the patronage of William Dargan, Esq., whose name alone is enough to lend some celebrity to anything with which it is connected, and also of the directors of the Dublin and Wicklow Railway. The present proprietor, Mr. Joseph Softlaw, formerly of the Bridge Hotel, London, undertakes the management, with high recommendations from the great metropolis. The adaptation of this building to its present purpose, was effected under the direction of Mr. Louch, architect.

SUEZ CANAL.

This project has obtained the sanction of five European powers, England and Holland, alone withholding their approbation altho' none other have a deeper interest than they in a short cut to the Indies.

The canal proposed is to be cut 300 feet wide, 30 feet deep, and will be 90 miles in length, passing through level sand for its whole length. It is intended to have at the one end a double pier running 6 miles into the Mediterranean through the mud of the Nile, and at the other end a similar one 4 miles long running into the Red Sea. As the Mediterranean and the Red Sea are on the same level, the canal will be made 30 feet below the level of both, and hence it will be stagnant. To prevent the sandy sides of the canal from falling in, it must be cased with stone on both sides throughout its entire length, and to prevent the sand of the desert from blowing into it, a double parapet of sufficient height must be erected along its whole length. The casing of the canal, the parapets and the piers in the two seas will require stone work 200 miles in length. There is also to be a dock in the middle and a lock at each end. As there is no stone in Egypt, the proprietors propose importing it from Arabia Petrea and the Island of Cyprus. The estimate of the proprietors is six millions, but the late Robert Stephenson, Esq , was of opinion that the cost would exceed three times that amount.

CHESTNUT TIMBER IN OLD BUILDINGS.

IN our notice last month of the work lately published by Mr. Blenkarn, on *British Timber Trees*, we quoted the statement that "the timber of the *horse-chestnut tree* was little inferior to oak in durability, and that the late Mr. Pugin was often at considerable pains to make out this wood when he found it in roofs and joinery, and that in many of the engravings in his works of both foreign and English buildings, he has noted the timber by the word 'chestnut.'"

Since the above notice was issued, we have had our attention drawn to a very interesting and novel paper on this subject, by Mr. Wyatt Papworth, architect, which was read at the Institute of British Architects, of London, on the 14th June, 1858; and, deeming that it will be of great practical use to the architects of Ireland, we reprint the greater portion thereof from the Transactions of the eminent society above named. It will be noticed that the author of the essay does not acknowledge the use of the *horse-chestnut tree* at all.

Having made several enquiries, and having heard the result of others, I am inclined to believe that chesnut was *never used for timber*, at least in the large works in which it is generally attributed to have been employed. This may appear a bold assertion, but if you will listen to the grounds for my opinion, probably such statements as I have been able to collect, may suggest other conclusions than those usually received upon the use of this wood.

Harrison, writing in the time of Queen Elizabeth, only mentions the use, in times past, of sallow, willow, plum tree, hardbeam, elm and oak. Yet writers, for a long succession of years, even whilst quoting the above passage, and others from this author, declare that chesnut timber was largely used in earlier times for building.

The confusion appears to have commenced with Evelyn, or about his time. In the Sylva he states that "the chesnut is, next the oak, one of the most sought after by the carpenter and joiner. It hath formerly built a good part of our ancient houses in the city of London, as does yet appear. I had once a very large barn near the city, framed entirely of this timber; and certainly the trees grew not far off, probably in some woods near the town; for in that description of London, written by Fitz Stephens, in the reign of Henry II., he speaks of a very noble and large forest which grew on the boreal [north] part of it." "If the timber be dipped in scalding oil, and well pitched, it becomes extremely durable, but otherwise I cannot celebrate the tree for its sincerity, it being found that, contrary to the oak, it will make a fair show outwardly when it is all decayed and rotten within; but this is in some sort recompensed, if it be true that the beams of chesnut tree have this property, that, being somewhat brittle, they give warning and premonish the danger by a certain crackling." Many writers, copying each other, have misquoted the above cited passage in Fitz Stephen, and declare that he states that the Spanish chesnut grew in great profusion in the forests near London.

"Ducarel, in his Anglo-Norman Antiquities, p. 96, endeavours to prove that Old London was not only built with chestnut timber, but that there still continues a large tract of chestnut woods near Sittingbourne in Kent. I found on examination of these woods that the chestnuts are planted in rows about five yards distant from each other, without any trees scattered about, proving that they are not of natural growth. They are probably of the time of James or Charles I.

"We are told that the roof of Westminster Hall, Boston Church, and many others consist of this wood; not because any one hath found it to be so on examination, but because there are no cobwebs upon such roofs. Sometimes also, to account for spiders not harbouring in them, it is supposed that the timber is not English, but Irish oak. As this insect is known to subsist chiefly on the small flies which it surprises in its nets, the consequence is that it will no more be at the trouble of spreading its web where flies cannot be expected, than a fowler will lay his nets in a place where there is no resort of birds. No fly is scarcely ever to be seen but where there is a good deal of light and sunshine, consequently a wide wooden roof is the most improper place that a spider can lay its snares in: a whitewashed place would be selected by them in preference to a wainscoted one."

Ducarel, in reply, says, "In my Anglo-Norman Antiquities, I had observed that many old houses in Normany, when pulled down, are found to have a great deal of chestnut timber about them; as there are not any forests of chestnut trees in Normandy, the inhabitants have a tradition that this timber was brought from England. Rudhall, near Ross, in Herefordshire is built with chestnut which probably grew on the estate, although no tree of the kind is now to be found growing wild in that part of the country. . . . . The old house in the city of Gloucester (as the Rev. Mr. Crawley informs me that he has often been assured) are constructed of chestnut, derived assuredly from the chestnut trees in the forest of Dean. In some of the oldest houses in Feversham is much genuine chestnut as well as oak employed. In the nunnery of Davington, near Feversham (now entire), the timber consists of oak intermingled with chestnut. And the great beam of chestnut which supported the leads of the church tower at Feversham when it was lately pulled down, was found rotted for many feet at the extremity, and had as it were a mere shell of sound timber remaining about it."

Another writer, Mr. J. Thorpe, follows, and declares, that during the repairs of "the old house at Nettlestead, in Stockbury [near Maidstone, in Kent], a main girder, besides other timbers, were pronounced by the surveyor and the builder to be chestnut. Cowsted, in the same parish, is entirely of the same wood. The curious roof of the large hall of the mansion house at Leenes [near Erith, in Kent] is of chestnut, which no doubt was felled in the abbey wood there."

Hasted follows to the assistance of Ducarel, and states, "The ancient Norman buildings [he means buildings in Normandy] are mostly of this wood, which in all probability was fetched from this country. Most of the stone wherewith our monasteries and buildings of such sort were erected came from Normandy. This seems to have been a mutual traffic for some centuries between the two countries." "Oak timber is so entirely different from chestnut in the rings and spaces, which appear when cut transversely, that *it is impossible to mistake the one from the other*." Barrington, in replying to the three objectors to his views, says, "I have already said that I am willing to leave the point in controversy, upon what hath been advanced on the one side and on the other." It is curious that excepting the one observation about "the impossibility of mistaking the one wood from the other," these *four* writers do not attempt to describe the two woods.

In a work of a later date, it is stated that "many pieces of wood found in the old buildings of London, and supposed to be Spanish chestnut, were examined by Mr. Knight and found to be *forest oak*."

It is reported that about the year 1560, and for a century before, the English had exported vast quantities of oak from Ireland; and from a statement given in some of the scientific journals for 1856, it would appear that Irish oak was appreciated at a still earlier epoch, for "A record in St. Michan's Church, Dublin, which is verified by 'Hanmer's Chronicle' in the library of Trinity College, states that the faire greene or commune, now called Ostomontowne Green (now Oxmantown), was all wood, and hee that diggeth at this day to any depth shall finde the grounde full of great rootes. From thence, anno 1098, King William Rufus, by license of Murchard, had that frame which made up the roofes of Westminster Hall, where no English spider webbeth or breedeth to this day." In a treatise on Naval Architecture, by Nicholas Witsen, a Dutchman, in 1671, it is stated that the Hollanders were plentifully supplied from Ireland with oak, for the best and toughest of their work in shipbuilding. Of course the above extract does not allude to the *present roof* of the Hall; but in support of the probability of its being of oak as now generally asserted, and not chestnut, "Tradition," says Hayes, "gives the Shillela oak [a district in the county Wicklow] the honour of roofing Westminster Hall and other buildings of that age: the timbers which support the leads of the magnificent chapel of King's College, Cambridge, which was built in 1444 [begun, he should have said, as it was not vaulted till about 1515], as also the roof of Henry VIII.'s [VII?] Chapel in Westminster Abbey, are said to be of oak brought from those woods, and I think it by no means improbable, that the superior density and closeness of grain which is the character of the Irish oak, particularly in high situations and a dry soil, as may appear by comparing its specific gravity with that of other oak, added to the inattention of the Irish at that time to the article of bark, which permitted their oak to be felled in winter, when *free from sap*, might have induced the English architects to give it the preference in such material works; and it must be allowed that the present unimpaired state of these roofs, after so many centuries, seems very well to warrant this conjecture. It is generally understood that a sale was made of the finest timber of Shillela which remained in Charles II.'s time, into Holland for the use of the Stadt-house amd other buildings, constructed on piles driven close together to the number of several hundred thousand. In 1669, William Earl of Strafford furnished Laurence Wood of London with such pipe staves, to a great amount, at £10 per thousand, as are now sold for £50, and are only to be had from America. The year 1692 introduced into Shillela that bane of all our timber, iron forges and furnaces . . . . and it is inconceivable what destruction they must have made in the course of twenty years, which was the term of their contract."

Another authority for the present roof being of Irish oak is Barclay, who, in his Icon Animorum, published in 1614, and dedicated to Louis XIII. of France, mentions that the timber of Westminster Hall was brought from Ireland. Rees' Cyclopædia, article Westminster, contradicts its being of Irish oak, but states it to be of chestnut from Normandy; and Mr. Nightingale, in the Beauties of England and Wales, declares that it is built of chestnut supported by ribs of oak. The Irish oak, however, was employed by Charles

V. (who reigned in France as cotemporary with our Richard II.) for the roof of the library of the Louvre; and it is so stated by L'Abbe Sallier, in the Introduction to the great catalogue of the Bibliotheque du Roi (of which the Louvre library was the commencement), and this observation has been copied by later writers. Consequently it may be inferred that Irish oak *may* have been used at Westminster. Rondelet observes, that several old buildings near Paris, of which the timbers were supposed to be chestnut, were examined by Buffon and D'Aubenton, who found the pretended chestnut to be a variety of oak; and it is probable that a closer examination will prove the roof of Westminster Hall to be of oak.

The roof of St. Nicholas' Church, Great Yarmouth, is stated to be of chestnut. Whilst there I obtained the accompanying piece of what all the local carpenters call chestnut; it formed part of a standard to a former gallery, put up in 1640. The grain is very peculiar; but it is oak, not chestnut, and closely resembles a panel I have seen labelled as "English oak."

Brandon, in his valuable work on Timber Roofs of the Middle Ages, says, "they are all of oak or chestnut." The roof of Chartres Cathedral, burnt in 1836, was said to have been of oak and chestnut. In the description in the Monasticon of Castel Hymel, or Fineshed Priory, in Northamptonshire, there is an improvement on the misunderstanding: "In the granary lately taken down the beams were of *horse-chestnut.*"

Of another well known structure, still said to be roofed with chestnut, it is reported that "the timber used for the scaffolding, &c., and for the upper roof of the chapel [of King's College], seems to have been given to the college by Henry VII. and his executors, over and above the £1,000 before mentioned, for the college paid only for felling and carriage; it was brought from the Wethersfield Park, Poule Park, Walden Park, Ashden Halys, Bardefield Park, Broxstey Park, all of which are in Essex, and some from Cartlyng (Catlige) in Cambridgeshire; the timber of the roofs I believe was chiefly from Wethersfield." If this be correct, Hales, before quoted, is wrong in stating that it was obtained from Ireland, and tradition is again worthless: but did the county of Essex ever grow chestnut trees for timber?

One of the practical suggestions that has been made for discovering the difference between chestnut and oak is given in Nicholson's Dictionary of Architecture, who states that it may be found by driving an iron pin or nail into the woods while fresh: in the oak a black stain will be produced, but not so in the chestnut. I tried the experiment with the two fresh pieces sent me, and both of them have the stains; the two in the oak showed in two days, and o those in the chestnut, one showed in two, and the other in four, days' time. Another suggestion is to weigh a portion of the wood in question. Dry chestnut, according to Tredgold, "weighs from 34 to 38 lbs. per cubic foot, whereas dry English oak weighs generally from about 50 to 55 lbs. One dry specimen from an old oak tree weighed 39 lbs., or about the same as chestnut." On weighing the piece of wood from King's Stanley, above mentioned, I found a cubic foot of it would weigh 53 lbs.

A third idea is rather more laughable than serious, and has already been adverted to; it is one, however, which, from its being "a wise saw," ought not to be neglected, especially as the "spiders" are so often put forward as better authorities than ourselves in the settlement of what is oak or chestnut. In addition to what has been said in the earlier portion of this paper, you will find several remarks under the heading of "Spiders and Irish Oak," in Notes and Queries for last year (p. 268, &c.) 'thus, in Pointer's Oxoniensis Academia, 1749, is the following, in his account of the curiosities of Christ Church College. The roof of the aforesaid hall is remarkable on this account, that, tho' it be made of Irish oak, yet it harbours spiders, in contradiction to the vulgar saying. Tho' I am apt to think that there may be some pieces of English oak amongst the Irish; or else probably that particular smell that proceeds from that sort of oak, and is perhaps so distasteful to that sort of vermin, may be spent through age, or disguised by smoak, and so that common saying may stand good still.' It is also shown, p. 293, that the spider 'has *no dislike* to fixing its web on Irish oak;' also that 'no spider will hang its web on the roof of Irish oak in the chapel or cloisters at Winchester;' and 'chestnut is said to possess the same virtue.' 'The cloisters of New College, roofed with chestnut,' are free from spiders; 'the choir of St. David's Cathedral is stated to be roofed with Irish oak, and there are no cobwebs, although they are plentiful enough in other parts of the cathedral;' and lastly, that 'a fine old roof at Turner's Court, in the parish of Cold Ashton, Gloucestershire, four miles from Bath, is perfectly free from cobwebs, and is said to be of chestnut.'

The qualities of chesnut wood, as required to be known by us, are thus admirably described by Selby, in his History of British Forest Trees, 1842:—"The only particular in which the chesnut exhibits a decided inferiority (to the oak), is in the quality of its timber, which, unlike that of the oak, which gains strength and durability by age, begins to deteriorate at heart, ere the tree has passed much beyond the first half-century of its growth." "By some the chesnut has been considered as indigenous to England—the more general opinion, however, is that it is not a native, but was introduced at a very distant period, probably by the Romans. The belief which so long and so generally prevailed, and indeed, we may add, still partially exists, that the roofing and main beams of many of our ancient buildings and houses were framed of the chestnut, naturally gave rise to the idea that a tree so abundant and generally distributed as it must have been in former ages, must also have been of indigenous growth; for this supposed chesnut timber, we may remark, is not confined to buildings in the southern and midland districts of the kingdom, but is also found in the northern counties, and even in Scotland, for Sir T. Dick Lauder, apparently not aware of the discoveries of Daubenton and others, instances the roof of the parliament house at Edinburgh as constructed of chesnut:" and in a note, "It is remarkable that the same belief of the use of chestnut wood in ancient buildings also prevailed in France. Buffon, however, and afterwards Daubenton, showed that the timber taken for that of the chesnut was in fact that of quercus sessiliflora. The examination, however, and the repeated experiments of late years which have been made upon this wood, have satisfactorily proved that, in all such instances, the timber of the oak, and chiefly of the sessile fruited kind, have been mistaken for chesnut; and this fact, in a great measure, does away with any argument that might otherwise have been adduced in favour of the chesnut's indigenous origin, had the application of its timber in reality been as extensive as these ancient buildings seemed to indicate.

"In appearance and colour, the wood bears a resemblance to that of the oak, but may always be distinguished by its want of the large laminæ (flash) or transverse fibres which are seen in the oak, particularly when cut perpendicularly on the outside, in the plane of these laminæ" "For gate and other posts, railing, spars for building, piles, and various other purposes not requiring wood of large size, it is well adapted, and perhaps as durable as any other timber we possess."

Sir H. Davy, also, says, "it may easily be known by its want of the laminæ, as also from the pores in the alburnum of the oak being much larger and more thickly set than those in the chesnut, which cannot be distinctly seen without the aid of glasses."

The difference between the woods of the two oaks commonly seen in England, is that the grain of the wood of quercus sessiliflora is generally less varied and of a more uniform and deeper colour than that of quercus pedunculata and with less of that laminated appearance which is called the *flash* or silver grain. The trees are said to be known by the sessiliflora having the acorn stalks *short* or seated, with the leaves *long*; while the pedunculata is the reverse, having the acorn stalks *long* and the leaves *short*. The acorns of the former grow in clusters of two or three close to the stem of the branch; those of the latter grow singly or seldom two on the same footstalk. The quercus pedunculata, or robur, as it is more generally called, is the true old English oak, the sessiliflora being supposed to have been introduced some two or three ages ago, from the continent. There appears to be much diversity of opinion among botanists and planters on the value of the timbers of these two oaks, to the same extent at least as that already shewn to have existed on the use of chesnut; and some authors deny the botanical difference of the trees.

Chestnut timber has been often urged as a material for ship-building. One apparently qualified writer, Monteath, says, "Notwithstanding the excellent quality of the Spanish chesnut timber, which is equal to the oak in ship-building, and also for any machinery, yet it has not been generally used; but this tree should be both more planted and more used as timber." Also, "Spanish chesnut is used by cabinet-makers for boxing, at 2s. 6d. per foot, though it is of much more value when suitable for ship-building, as it is often used for that purpose." While Matthews, in a much commended work on Naval Timber (1831), says, "There is one circumstance connected with this timber in this country, at least in Scotland, which must prevent its general use in ship-plank, and be of material injury to it for ship timbers; this is, that few trees of it of size are found without the timber being shaky or split, some to such a degree that the annual rings or concentric growths have separated from each other." "From the use of the Spanish chesnut in the Spanish Navy, both in planking and timbering, and from the roofing beams and ornamental work of Westminster Hall being also of this wood, we should suppose it was not so liable to this defect of rents in the timber in milder climates. It is, we should think, as capable of supporting weight, when stretched as a beam, as the oak. Having much less proportion of sap wood, and from the matured wood containing much less sap or moisture, we should suppose it not so liable to dry-rot, or that more simple means, or a shorter period, would suffice for seasoning it, so as to be proof against this evil." According to Belidor, chesnut soon rots when built in a wall, therefore the ends of joists of this wood should have a free space left around them.

In the 10th volume of the Transactions of the Society of Arts, the writer urges that "for most purposes except ship-building, chesnut will be found equal to oak; and in buildings and out-door work much superior. In 1726 a piece 13 in. square was used as a hanging-post to a gate, and being found, after fifty-two years' use, perfectly sound, was again put down for a clapping-post. In 1743 a large barn was built with some of this timber, and is now sound in every part, as well as several chesnut posts and rails, after standing thirty or forty years. And a fencing made of oak and chestnut posts, being removed after twenty years' standing, the chestnut was found perfect, while the oak posts could not be used again without a spur to support them. The writer accounts for Evelyn's assertion of the decaying nature of chestnut, by stating that it is the case with old chestnut, that has been suffered to stand beyond the time of its attaining its full growth; it is then the worst of all timber, being more brittle and more apt to crack and fly into splinters than any other; but he adds, I have never known this to be the case with young chestnut. If it be cut when it squares only six inches, it will be as durable as an oak of six times its size and age."

From all these varied statements then, we may conclude, that the absence of spiders is not sufficient evidence to determine whether the woodwork under inspection is oak or chesnut, or even whether tbe either of those timbers.

Then when the outside of timber presents that rotten dusty apperance generally seen in old roofs, it will be next to impossible to decide whether it be of oak or not; and that the only way to discover the fact will be by obtaining a well smoothed portion of it, or if possible, a sight of the ends of some of the pieces, from which to ascertain whether there are any laminæ—the absence of them being the distinguishing mark of chesnut.

That taking into consideration all the evidence collected, there is no proof of chesnut timber having been used in mediæval buildings; therefore all results which have been promulgated upon the efficiency of a so-called chesnut timber must be valueless as regards that timber.

That certain experiments would appear to decide that small scantlings of chesnut are quite equal, if not superior, to oak for several purposes, "but the wood of old trees is unfit for any situation where an uncertain load is to be borne, as it is brittle." "It bends more than oak at the time of fracture, and therefore is tougher. Its toughness seems to permit it to yield insensibly till every particle exerts its utmost force, and then it gives way at once, more in the manner of metals than in that of woods." This well known circumstance alone, should have raised a doubt in the minds of some of our instructors, before they affirmed so strongly that chesnut timber had been largely used in our mediæval buildings.

THE WATER-WORKS OF THE ANCIENT ROMANS.*

AN abundant supply of pure water is a matter of primary importance to every family, and the greater the number of families collected together within a limited space, the more essential it becomes, both for health and for comfort, that the supply be ample, and if possible profuse. The ancient Romans were well aware of this, and expended a great amount of money, and applied much scientific skill to bring water to the metropolis, as also to the larger provincial cities, and to provide places where the water thus introduced might be employed for public use and recreation, as well as for domestic purposes. The ruins of these works are among the most imposing of the remains of ancient Rome, and the most careless traveller must have his attention arrested by the long but broken lines of arches extending here and there across the desolate Campagna towards the Sabine and Alban Hills.

The early inhabitants of Rome depended for their supply of water on the Tiber, and on the natural springs which rose up in various parts of the Seven Hills, and, according to the ordinary chronology, four centuries and a half elapsed before any other was introduced. The volume of the Tiber is indeed ample, but at Rome its waters are at all times too turbid to be employed except for the most ordinary purposes; they are unfit for drinking or cooking, unless artificially prepared, and would only be used in their natural state by a people unaccustomed to the comforts of civilized life. The impurity of the Tiber does not arise from matters held in chemical solution, but from the quantity of clay and other substances held in mechanical suspension, derived from the soil through which it flows for many miles before reaching Rome. It is so muddy, that it is impossible to see an object a few inches below its surface. The Anio joins it at a short distance above the city, and the contrast betwixt the two streams is very remarkable; the Anio of a blueish tint, but translucent as crystal, speedily disappears amid the liquid mud of the Tiber. Rome must also have derived a considerable supply from springs rising either within the walls, or in their immediate vicinity, and from one or two small rivulets. Several springs are named by ancient writers, of which the most celebrated are those of Juturna in the Forum, and of Mercury near the Porta Capena. It is, however, in vain now to attempt to discover these. They are buried deep under the accumulated soil of ages, and find their way unseen into the sewers or the river. Even the celebrated fountain of Egeria is unknown, for what is pointed out to travellers under that name, is clearly a nymphæum of comparatively recent date—the appendage of some suburban villa. A beautiful little limpid stream, the fountain of San Giorgio, rises by the side of the Cloaca Maxima, at the point where it is now open in the Velabrum, and immediately flows into it and disappears in the turbid contents of the great sewer. Some say that it is the water of the fountain of Juturna, which has found its way from the Forum to this point; but there is no proof of the fact, for it has never been traced by excavations. The water is reputed to possess medicinal qualities, and at certain seasons the Romans, of the lower classes, resort to it on this account—probably its best quality is derived from the remarkable contrast betwixt it and the contents of the Cloaca. The city is now so abundantly supplied from other sources, that there is no inducement to search out natural springs, whether ancient or modern.

The first aqueduct was constructed in the year U.C. 442, by the same Appius Claudius who formed the Appian Way, and who, in constructing these two important works, completely emptied the public treasury. We are more fortunate in regard to aqueducts than any other Roman antiquities, for we have a detailed account of them as they existed at the commencement of the second century of our era, drawn up by Julius Frontinus, who was named Præfectus Aquarum by Nerva, and continued in the office under Trajan. As soon as he was named Præfectus Aquarum, he commenced his duties by composing his "Commentarius de Aquæductibus," in order, as he tells us, in the second chapter, to qualify himself for the discharge of his new duties, and also for the benefit of his successors in office. When Frontinus composed his treatise, there were nine aqueducts which brought water into Rome. These were the Appia, Anio Vetus, Marcia, Tepula, Julia, Virgo, Alsietina (also named Augusta), Claudia, and Anio Novus. The total length of the nine was 278 miles, of which 243 were underground work, *i.e.*, culverts or small tunnels—7 miles were supported by embankments or plain walls, and 28 miles were supported by arches—with which latter our ideas of an aqueduct are apt to be rather exclusively associated. It will probably be making a very liberal allowance for subsequent aqueducts, if we suppose that they were doubled betwixt the days of Frontinus and those of the Regionaries; and if we do, and add to them all the provincial aqueducts of which remains exist, they are not to be compared in magnitude even with the canal works of Great Britain—a petty province of Imperial Rome. The Roman aqueducts were all constructed on what is now termed the gravitation principle. The simple idea was to turn a stream of water from its original course, and to convey it in an artificial channel (canalis or specus) to the place where it was required. In order to do this, it was necessary to form the channel with a slight inclination, so that the water might run freely forwards. Vitruvius directs that the slope shall be half-a-foot on 100 feet, *i.e.*, 1 in 200; but Pliny requires only a quarter of a foot on 100 feet, or 1 in 400. It was necessary to provide against the accumulation of air in the specus, and, for this purpose, vents or chimneys (lumina or columnaria) were inserted from 120 to 140 feet apart, and, but for this precaution, the compressed air would have impeded the flow of water, or perhaps burst the specus. It was equally necessary to keep up the level, so that the water might reach the proposed terminus, and hence the necessity for embankments, walls, and arches. The specus itself is, properly speaking, the aqueduct, the other parts are merely its accessories, and wholly subservient to it.

It has been warmly disputed whether or not the ancients knew the fact that water in a closed pipe rose to the level of its source. Metal pipes, both of lead and of bronze, were extensively used in the final delivery of the water throughout the city, but with no small suspicion of danger in using them, especially the leaden. Pliny says—"it is best to convey the water in earthenware pipes;" and Vitruvius denounces the use of lead pipes as unwholesome. "Water from earthenware pipes is much more wholesome than from leaden, because the water is so vitiated by the lead, that white lead is produced, which is said to be injurious to the human body." And again—"on no account is water to be conveyed in lead pipes, if we wish it to be wholesome." The Romans formed their lead pipes in a very different manner from our modern practice. A flat sheet of lead was rolled up so as to form the pipe, and the size of each pipe was named from the number of inches (16 to the foot) of width of the flat lead before being rolled up—thus a width of 10 inches formed a pipe named denaria, one of 5 inches quinaria, and so of others. Frontinus points out the inaccuracy of this mode of calculating the size, and proposes to derive the names from the actual diameters of the pipes. Vitruvius speaks also of pipes of thick leather, and Palladius of wooden: neither of which would be employed in extensive permanent works.

The mode in which the water was introduced into the aqueduct was very simple. If the supply was derived from springs, they were carefully sought out, and the water was at once introduced into the specus. If a portion of a river was to be employed, a weir or dam was constructed across the stream, and the desired quantity thus diverted into the artificial channel. In order to preserve the level (libra), and at the same time avoid the cost of embankments, walls, and arches, the specus was conducted, sometimes in a very devious course, along the sides of hills, to their points of junction, so that the artificial line greatly exceeded the actual distance from the fountain head to the city. When cut through solid rock, building is unnecessary, but when through earth or gravel, the whole was carefully lined, either with stone or brick; and in every case the specus was very carefully coated with well prepared plaster, and on the perfection of this part the efficiency of the whole depended. Many examples of it still remain in situ, and may be easily examined. It was prepared and laid on, coat after coat, with the greatest care. The commentator on Vitruvius, Philander Casolaonius, asserts that this substance was employed in coating the white specus, piscinæ and castella of the aqueducts. It might be worth while now to try the experiment on a small scale. The work, however, was not always perfect. Several of the poets allude to the water dripping from the arch of Drusus, which carried the Antonine branch-aqueduct across the Via Appia, beyond the Porta Capena, and within the modern Porto San Sebastiano. The specus were of various dimensions, according to the quantity of water which they had to convey; but that of each aqueduct seems to have been uniform throughout.

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* By Alex. Thompson, Esq; and published in "Transactions of the Architectural Institute of Scotland."

The	Claudian	was	6 feet high	by	4 feet 3	inches wide.
„	Marcian	„	5 feet 6 in.	„	2 feet 6	„
„	Julian	„	5 feet	„	1 foot 9	„
„	Tepula	„	4 feet	„	2 feet	„

The historian Procopius asserts, that each of the fourteen great aqueducts in his day had specus of such dimensions, that a knight on horseback could ride along inside of them. Unfortunately for his correctness, six of these specus may still be seen and measured at the Porta Maggiore and Porta San Lorenzo, and the loftiest would barely allow his knight to walk along erect, without his horse and without his helmet.

(To be continued)

Correspondence.

DUBLIN TIMBER TRADE.

SIR—The stock of Quebec goods held in this market is larger than usual, and the quality of this timber generally is much superior to the imports of previous years, particularly in large fine board yellow pine and red pine, of which we hold a large stock. In addition to the superior quality of the red pine it is of much longer average length than usual, and thus affords a favourable opportunity to the trade in selecting long lengths, to get good timber, as it is almost impossible to get a long average of first-class timber from the Baltic. There is considerable inquiry for the board pine timber at from 70s to 90s a ton. There is little inquiry for pine timber for ordinary building purposes—while there is a very large stock of it in the market, its present value is not more than from 42s 6d to 57s 6d per ton, although at a recent public sale some of this class timber brought as high as from 60s to 67s 6d; but this is not a criterion of its value, and we believe some of the buyers must have mistaken it for board timber, it being just taken fresh out of the water. Memel—The present rates for crown are from 70s to 80s a ton; for second quality Memel there is very little demand except for railway purposes, at rates from 50s to 60s. There have been no red deals imported since our last circular, and stocks are still heavy, there being but little demand for this article. . Gothenburg red deals may be quoted at from 25*l* to 29*l*; Christiana red deals may be quoted at from 27*l* to 35*l*. At the sale of mahogany in Liverpool the value of this wood advanced considerably. For some time past we found a considerable portion of our country trade for log timber was diverted from this port, owing to the system heretofore pursued in this market of selling by string measure, obliging us to quote a higher rate than for which the timber could be had in Cork, Limerick, Waterford, and the northern markets, where it has been customary to sell by calliper measure, and we were forced to adopt the latter mode of measurement in order to retain that portion of the country trade properly belonging to this port, and, at the same time, establish one uniform measurement throughout the country. Calliper measure is used in the principal English markets, the freight and duty on timber are paid according to it, while it saves the purchaser the expense of re-measuring and canting the timber. *Of course for such of our town friends as prefer buying by string, we shall be happy to quote special rates.* JOHN MARTIN & SON.

Notes of New Works.

Mr. Jude of Grafton-street, in this city, hotel proprietor, has recently fitted up a grand *salon* in connection with his establishment. Mr. Matthew Lynch, of Camden-street, was the builder, and Mr. Barff executed the decorative portions. The panel wall and ceiling represents fruits, birds, and fancy designs. The ceiling displays bouquets of painted flowers, birds of varied plumage, and many specimens of instinct life. The salon is divided by triple arches, springing from bronze pillars surmounted by finely wrought semi-Grecian capitals, in white and gold, with the spaces richly ornamented in glass diagonal painting. The counter consists of five panels of elaborately painted designs on plate glass, surrounded by gilt mouldings, and well imitated yellow porphyry in oil. The slab of this counter is composed of carefully worked and moulded massive slabs of Italian marble, supported by gilded brackets, rising from pilasters, bearing on their faces exquisite designs in painted glass. Inside the counter highly-finished pillars, *en suite*, stand between large polished mirrors, and support a fine bold pediment. The mirrors, as well as the other ornaments, are in the *Louis Quatorze* style.

The War Department require tenders for additional alterations at Carrickfergus Castle, in the Belfast District.

The Port of Dublin Corporation are about erecting a lighthouse tower on the Calf Rock, and dwelling-houses on Dursey Island, Co. Cork.

A new school-house has been recently erected at Ballysteen, Co. Limerick, and the Earl of Dunraven subscribed £30, has also given a field for a teacher's garden, and will pay one pound for every pound subscribed elsewhere.

A new building has been erected for school-house purposes at Kilcullen, but remains incomplete for want of funds.

FRANCISCAN CHURCH, WEXFORD.—The high altar in this Chucrh has just been completed by Mr. Manderson of Dublin, after designs by Mr. Patrick Byrne, architect. The front and sides are of statuary marble, and the panels of Connemara green. The Tabernacle stands six feet seven inches in height, and will be surmounted with a gilt crucifix, extending to the top of the canopy, now in progress of erection. The Sanctuary will be flagged with Portland stone, and enclosed by oak railings. The Altars of the Blessed Virgin and of St. Francis (to be also of marble), are being prepared in the same establishment, and expected to be ready for erection early in the present year. Mr. P. O'Connor, builder, is about finishing the campanile or bell tower, and the internal fittings and decorations will shortly be proceeded with. We understand that the same manufacturer is at present engaged in preparing an elaborate tabernacle for the Roman Catholic Church of St. Andrew, Westland-row, according to designs also by Mr. Byrne, architect.

Improvements are contemplated to be made to the farm offices of Mr. Fox, at Coolegad, in the County of Dublin, after plans by Mr. E. P. Gribbon, architect.

New farm offices are being erected on the most approved plan at Dunganstown, Co. Wicklow. by the proprietor, W. Wright, Esq., from plans prepared by Mr. E. P. Gribbon, of Dublin.

Miscellaneous.

VENTILATION OF THE NISI PRIUS COURT.—This important question again recently occupied the attention of the Court and the Bar. Counsel complain of being kept in hot water by the pipes under their feet, and suggested that fire-places should be substituted for the pipes. It was humorously remarked that the learned gentlemen resembled the Alps, the snow being above their heads (*i. e.*, the legal horse hair,) and summer lying at their feet. The Chief Baron courteously promised to do everything in his power to meet the wishes of the bar in this particular. The court was so cold in the region occupied by the jury that they were permitted to wear their hats.

CORPORATION-HALL.—The assembly-room of this building has, we perceive, undergone a thorough renovation. Mr. M'Cool has tastefully painted the walls in warm coloured panels, while the elegant centre-piece on the ceiling and the ventilators are beautifully picked out in white and gold. The effect is exceedingly effective, and reflects the highest credit on the artist. The great gasalier has been re-laquered by Mr. Evans, of Pump-street, who has likewise supplied a number of chaste and ornamental brackets for the assembly-room, which contains no less than thirty-four lights. Altogether, the renovation of the hall reflects the highest credit on Mr. M'Cool and Mr. Evans, who are both Derrymen.—*Derry Sentinel.*

Almanacs for 1860.—These monitors of passing time and heralds of the new year have reached us rather plentifully and in many shapes—bookwise, large and small sheet, &c., &c., and at quoted prices ranging from 1d. to 2s. At the latter charge the Stationers' Company of London have produced a sheet almanac on very superior paper, the letterpress printed in two colours, red and black, and displaying a beautifully executed steel engraving of the proposed Atlantic harbour at Galway Bay, at this moment an object of universal interest. The old *Derry Journal* (A.D. 1772), presents its subscribers annually with an almanac supplement, well produced and usefully compiled. The *Building News* broad sheet, published with No. of that journal of 16th ult., is most comprehensive, and embraces —besides references to events chiefly of a professional tendency opposite each day of the year—a list of London scientific and artistic societies, also an alphabetical list of building material manufacturers and dealers, with their addresses—its own advertisers. Indefatigable "friend" Richard Allen published his almanac as usual with supplement to the *General Advertiser*.

The submarine telegraph at Liverpool across the Mersey from the landing-stage to Woodside Ferry, was successfully laid, and worked admirably for some time, when an accident occurred.

Stained Woods.—Some beautifully-executed specimens of stained, sized, and varnished woods have reached us from the establishment of Mr. F. Swinburn, Bush lane, Cannon-street, London.

Monumental.—Dr. Lanigan's proposed monument at Finglas is to be an Irish cross with suitable inscription. A distinguished antiquary (we believe Dr. Petrie) has promised to furnish the design.

The Commerce of Cork.—Upwards of 600,000 quarters of corn, worth a million sterling, are annually exported from Cork. An iron steamship factory was introduced by Mr. Pike thirteen years ago, and commencing with a screw steamer of 200 tons, subsequently built the fine fleet of the Cork Steam Packet Company, and at present a steamer of 1,200 tons and 295 feet in length, is on the stocks. The docks and ship-yards at Whitepoint, and those of Mr. Browne at Passage, are the most extensive individual establishments in the kingdom, and sufficiently capacious to accommodate the "Persia," the largest of the Cunard line. The Weser, 3,900 tons and 700 horse power, drawing twenty feet of water, had her machinery improved, and was repaired in Cork, at a cost of £10,000. The Cork Gas Consumers' Company, lighting the city at a cheap rate, divided 8 per cent. on shares now at 60 per cent. The Cork Brick Making Company is said to produce as good and cheaper bricks as imported from England. The Cork Waterworks erected by Sir John Benson, C.E., at a great expense, are most effective, and produce an abundant supply of aqua vitæ.

Bray's Traction Engine.—One of Bray's traction engines, denominated the "steam horse," manufactured by Mr. Taylor, of Birkenhead, for special use to supersede the employment of teams of horses in the removal of timber and other materials, ordered by the Board of Admiralty for service in the dockyard, Woolwich, steamed down from London lately, and reached the dockyard at half-past 12, having started from London Bridge at 11. The committee having assembled in one of the unoccupied areas selected for the trial ground, the "steam horse" was brought forward under the perfect control of the helmsman and engineer. It was then tested at various rates of speed, and was driven repeatedly round, forming a circle of about 60 feet in circumference. It afterwards proceeded along the principal thoroughfare of the yard at a speed of eight or ten miles per hour, and was subsequently handed over to the authorities. The engine, unlike any former one, is fitted with carriage springs, to reduce the amount of friction, which would otherwise be considerable, from the effect of the stony and uneven roads over which it is destined to travel. A couple of trucks, intended to be attached to the engine, are in course of construction, and when completed will be applied to the daily use of the yard.

The sum paid for gas in England is estimated at £6,000,000 a-year.

Manufacture of Gas.—Mr. Ernest de Caranza, Paris, proposes to take gas from boghead, or ompelite clay, greasy sawdust from wood which has been used in cleaning fatty matters, pit coal, and fatty residues left in the extraction of schistic oils in the following proportions: Boghead clay, 50 parts; sawdust, 30 parts; fatty residues, 15 parts; pit coal, 5 parts; variable, however, according to the richness of the matters. The substances are treated in retorts, whence the gas is received in a refrigerator and purifier, and after passing through lime enters the gasholder. The system is intended principally for use in private establishments.

A young Polish artist, Boryczewski by name, has just been commissioned by the Librarian of the Imperial Library of St. Petersburgh to execute a bust of Sir Roderick Murchison. The model in clay is now exhibiting at the museum in Jermyn-street, London.

A New Artificial Light.—An improved form of lime light originally experimented upon by Captain Drummond, some years since, was shown by Sir Charles Bright in the Exchange News-room, Liverpool, on Saturday last. No substantial improvement has been made in artificial lighting since the introduction of gas at the commencement of the present century; and the steadiness, continuity, and diffusiveness of the new light, as well as its enormous power, were fully shown. A single jet of the improved lime light is estimated as equivalent to 40 Argand, or 80 fish-tail burners, each consuming five cubic feet per hour, or to 400 wax candles of four to the pound, and its power, unassisted by a reflector. was stated to be forty times greater then the present oil lamp; and for coast lights, under the same circumstances, should the light be as economical and capable of as easy manipulation as it was on this occasion, there can be no doubt it will effect a considerable change in the lighting of lighthouses, public rooms, large thoroughfares, and probably of factories and other crowded places, where the present system of extracting the oxygen requisite for respiration from the air is so objectionable.

Coffins Made of Glass.—The *New Albany* (Ind.) *Tribune* has the following:—"Mr. Cannon, of this city, has obtained a patent for glass coffins. The coffin is made of glass, from one half to an inch thick, cast in two pieces of the ordinary form. In the upper edge of the body of the coffin is a groove, in which a tongue in the lid loosely fits. When a corpse is placed in the coffin this groove is filled with melted cement; the lid is placed on and firmly held by three iron bands until the cement is hardened. Through a small hole in the top of the coffin the air is then extracted by means of an air pump. By these means Mr. Cannon claims that bodies may be preserved in their natural state for all time to come, and when placed in vaults can always be accessible to the gaze of those who are left behind. The expense of these coffins will be no more than that of the ordinary wooden coffins, and if the expectations of the inventor are realised so far as the preservation of the coffins is concerned, they will immediately come into general use."

Sheds at the Galway Floating Docks.—Plans and specifications of dock sheds have been prepared by Mr Roberts, C.E. The same gentleman submitted plans for a jetty to run out from the dock into the pool, by which the steam-tenders will be enabled to take off passengers and cargoes at all states of the tide. These works will probably be commenced immediately.

Gas in the Provinces.—The Right Hon. Lord Cloncurry has just completed the lighting of his residence at Lyons with gas. Messrs. Edmundson and Co., of Capel-street, executed the necessary works, and are also engaged in erecting gas works for the Duke of Leinster, at Carton, and many similar orders with their patent gas apparatus, which is of simple construction, and produces a light of very great brilliancy.

The National Portrait Gallery exhibits a portrait of Chantrey, by Phillips, a present from Lady Chantrey; also, Dr. Erasmus Darwin, painted by Wright, of Derby. A delicately-pencilled miniature of the celebrated caricaturist Gillray, by himself. The Hon. Lieutenant-Colonel Bagot was the donor.

The inhabitants of the town of Ballyshannon have made an application to the Lord Lieutenant that the provisions of "The Towns' Improvement (Ireland) Act, 1854," so far as they relate to the lighting and cleansing of towns, may be carried into execution in the said town.

The marine barracks at Chatham are to be greatly enlarged, at the cost of £100,000.

Government has given a grant of £200 for the completion of the Catalogue of Museum of Antiquities, Royal Irish Academy.

To Correspondents.

J. B., Tywyn, North Wales (Vol. for 1859, with wrapper and index, shall be forwarded when ready in a few days). B. P. W. (Quite an erroneous supposition—shall hear). M'C., Belfast (Better send your orders direct to the office, pending agency arrangements)

NOTICE.

Orders for Subscriptions to, and Advertisements for, THE DUBLIN BUILDER, *will be received at the Proprietor's Office,* 17, LOWER GARDINER-STREET. *Wholesale Agents*—Messrs. W. H. SMITH & SON, *Sackville-street (from whom* "THE DUBLIN BUILDER" *may be had at every Railway Station), and* GEORGE MASON, 24, *D'Olier-street.*

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☞ *NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the* DUBLIN BUILDER." *All other Communications should be addressed to the "Editor."*

BUILDING SITES FOR DETACHED HOUSES—BRAY RAILWAY.

THE Lands of GALLOPING GREEN, FOXROCK, and KERRYMOUNT, are being laid out for Detached Houses, and will be Let in Lots, from One Acre to Ten Acres each, on moderate terms. They are very elevated, and command magnificent sea and mountain scenery; are within Two Miles of Kingstown, and within Three Minutes' walk of the Stillorgan Station at one end, and of Carrickmines at the other, besides which, in order fully to develop these beautiful sites, the Railway Company have arranged to establish a Station on their Line at the centre of Foxrock, from the 1st of September next. Omnibusses will ply between same and Kingstown, for bathing, shopping, &c., as soon as the first 12 houses shall be fit for occupation.

Several Lots are already Let, and some of the Houses nearly finished. Lease 900 years.

N.B.—Superior Bricks, Stone, Sand, and Lime on the Lands, and will be given to the Tenants on very moderate terms.

Lithographed Maps, showing the New Roads, &c., and all further information, may be had from the Steward, at Foxrock; Mr. W. W. Bentley, Foxrock Lodge; or at Messrs. Bentley's Offices,

110, GRAFTON-STREET, DUBLIN.

NEW GAS REGULATOR AND PURIFIER.

MESSRS. DEFRIES & SONS, of London, having taken out a Patent for the above new Gas Burner, we beg to announce that we have just made arrangements with them for the special sale of it.

This artistic and complete Burner is the most economical ever introduced, and is the admiration of all scientific men, on account of the various qualities it possesses.

First—It purifies the Gas by filtration, and allows no more Gas to pass through the Burner than is absolutely required to give a full, clear, and brilliant light.

Second—It effectually checks all undue pressure, and does away with the unpleasant flickering and noise caused by the same.

Third—The interior is anti-corrosive, and is impossible to get out of order, and when once set right it will last for years.

Fourth—This Burner answers with any common nib, and is unerring in its operation.

Fifth—It can be fitted by the most inexperienced hand.

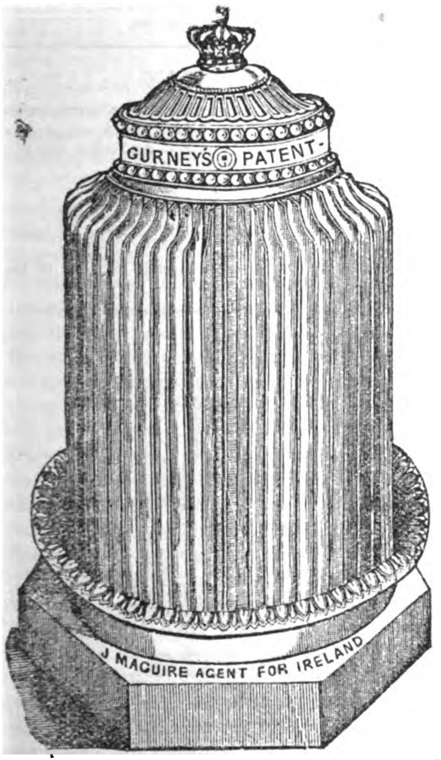
Sixth—Though last, not least—it effects a saving of 25 per cent.

Price 1s. 3d. each.

GREGG AND SON (Sole Agents),

LAMP MAKERS AND GAS FITTERS,

18, UPPER SACKVILLE-STREET, DUBLIN.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GURNEY'S PATENT STOVES AND HOT WATER BATTERIES.

THE above are in successful operation in both Houses of Parliament, St. Paul's Cathedral, Kensington Museum, the New Museum, Royal Dublin Society; Birr Barracks, &c.; and may be seen at work in

JOHN MAGUIRE'S NEW WARKROOMS,

10, DAWSON-STREET.

He has all sizes in Stock suitable for Churches, Warerooms, Halls, and Institutions.

Agent for the following Patented Goods:—

Gurney's Stoves and Hot Water Batteries.

Whitfield's Fireproof Safes & Chests.

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Eastwood's compound-action Churns from two to fifty gallons.

Simpson's Ice Machines and Freezing Powders.

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THE SIPHON PATENT VENTILATOR is to be had only of CHARLES WATSON, F.R.S.A., &c., the Patentee, at his Works, KING'S CROSS, HALIFAX, YORKSHIRE, and of

JAMES W. GATHERAL, 93, VIRGINIA-STREET, GLASGOW.

SIX THOUSAND of these Ventilators have been successfully applied to Churches, Schools, Factories, Dwelling-houses, Stables, Stores, Workshops, Warehouses, & Farm Buildings.

BUILDING GROUND at RATHGAR—between Kenilworth-square and Harold's-cross-road, near Roundtown—to be Let, at from 2s. to 3s. per Foot, Landed Estates Court Title, and 900 years' Lease. Apply to

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N.B.—A Quarry on the land, and bricks at half-price.

A FEW HALF-ACRE PLOTS at DUNDRUM for Detached Houses, within three minutes' walk of the Railway Station, to be Let cheap. Bricks and Stone on very moderate terms to parties building.

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BUILDING PLOTS at STILLORGAN, of One Acre up to Ten Acres, on the Lands of Foxrock, Galloping Green, and Kerrymount; Lease 900 years. Bricks, Stone, Sand, and Lime on the premises at very moderate terms. To be Let, at from £7 to £10 per acre, according to position. A new Station on the Dublin and Wicklow Railway will be established at Foxrock from 1st of September next also omnibus accommodation to and from Kingstown for bathing, shopping, &c.

Lithograpic Maps, showing the new sites, the new road, &c., can be had at our office.

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BUILDING GROUND, most desirably situated on the SORENTO-ROAD, DALKEY, to be Let, on a Lease for 900 years; also the ground at CLIFF-TERRACE, near SANDYCOVE, BULLOCK. The particulars of which may be known at the Office of JOHN LOUCH, Esq., 15, MOLESWORTH-ST., DUBLIN.

TO CAPITALISTS AND BUILDERS.

TO BE LET for BUILDING, the Ground round Wellington-square and in Hatch-street, the Maps and particulars of which may be seen at the Offices of JOHN LOUCH, Esq., Architect, 15, Molesworth street, Dublin.

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TO CAPITALISTS, BUILDERS, & OTHERS.

MOST DESIRABLE BUILDING GROUND TO BE LET—This Estate, containing 150 Acres, situated within half a mile of the Dundrum Railway Station, has been laid out in Lots for Building. The position is admitted to be the most beautiful in the environs of Dublin, and is particularly well circumstanced in every respect, commanding views of Killiney Hill, overlooking Mount Merrion, City and Bay of Dublin, &c.

A railway station in the centre of the estate is in contemplation, bringing it within ten minutes' drive per rail of Harcourt street.

A map of the lands, showing them laid out in building lots, can be seen, and every information obtained, at the offices of Edward Henry Carson C E., Architect, &c., 25, Harcourt-street.

MR. ANTHONY, ARCHITECT AND BUILDING SURVEYOR,

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All orders executed to satisfaction.

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T. and G. beg to refer, as specimens of *their work*, to the Iron Conservatories, Heating, etc., as erected at the ROYAL BOTANIC GARDENS, KEW; the INNER CIRCLE BOTANIC, REGENT'S PARK; CHELTENHAM; VICEREGAL LODGE; GLASNEVIN; and various Works by them throughout the United Kingdom.

PATENTS FOR INVENTIONS.

INVENTORS are respectfully informed that the undersigned continue to procure Letters Patent and to Register Designs as heretofore during the last fifteen years, information on which may be had on addressing a letter or by personal application. BARLOW and CO., Office for Patents, 89, Chancery lane, W.C.

PATENT OFFICES and DESIGNS REGISTRY, *North West Chambers*, 4, *Lower Ormond-quay, Dublin; and* 47, *Lincoln's Inn Fields, London.* J. P. BYRNE, *Solicitor, Agent.*
N.B.—A useful Pamphlet, "Hints to Inventors and Designers," gratis on application.

FIRE BRICKS, of every description and size; Furnace Blocks, Flue Covers, Chimney Cans, Vent Linings, Gas Retorts, Sewerage and Water Pipes, Vases, Fountains; Balustrading; Fire Clay, ground and selected, manufactured at the GARNKIRK WORKS, near Glasgow.

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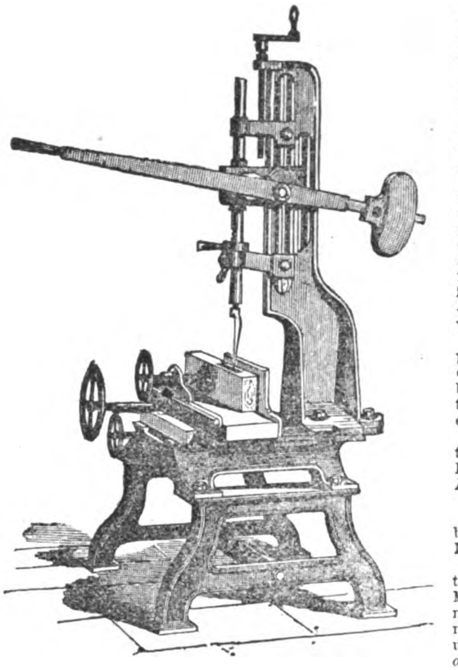

RESPECTFULLY request all BUILDERS, CONTRACTORS, CARPENTERS, &c., requiring Mortising Machines, previous to purchasing, to examine and test *their patent combined Crank and Lever Machine*, which will Mortise (Tenon and Bore, if required) both Hard and Soft Wood, and is also adapted for Drilling and Punching Iron.

The superiority of this Machine over *all* others consists *in the substitution of a solid wrought-iron plate Crank or Eccentric, by which greater power is obtained, in place of cast-metal Rack and Pinion Wheel, the Teeth or Cogs in which are so liable to strip or break out*—in the direct and perpendicular action of the Lever and Crank on the Cutting Tool, and consequent diminution of friction—in being *stronger* and *less complicated* in its construction, and more *powerful* in its motion—in the *facility* of its *adaptation* to the various depths of material—and in its *non-liability to break* or get out of working order.

This Machine has now been adopted in preference to *all others* by some of the principal Builders in London, Glasgow, Edinburgh, Dublin, and Belfast, who will bear testimony to its being the most powerful and efficient yet made

For further particulars apply to the Patentees and Makers, GALLON, BEAN, and LUMB, LEEDS.

Extract from the Report of the Royal Dublin Society's Spring Show, 1859:—

"Gallon, Bean, and Lumb, Leeds, exhibited a very useful and complete Mortising Machine, which was highly commended."

N.B.—The Patentees respectfully intimate that this Patent extends to, and comprises Machines for Mortising by Steam and other motive power, as well as by hand: and makers and vendors of, or parties buying or using Mortising Machines, *are cautioned against any infringement*, as the patent right will be strictly maintained.

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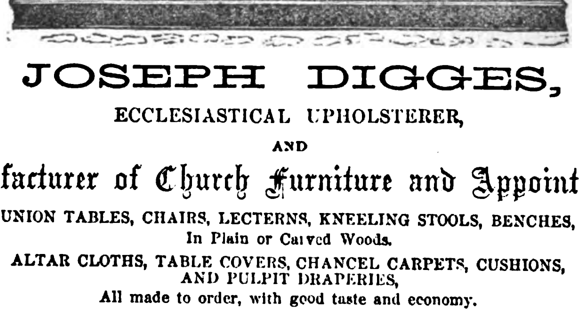
DEALER IN ROMAN, PORTLAND, AND MASTIC CEMENTS, PLASTER OF PARIS.

N.B.—The attention of Nurserymen, Gardeners, and Amateur Florists is specially directed to the PROPAGATING GLASSES, etc., etc., with which he is constantly supplied.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COMMUNION TABLES, CHAIRS, LECTERNS, KNEELING STOOLS, BENCHES, ETC.,
In Plain or Carved Woods.
ALTAR CLOTHS, TABLE COVERS, CHANCEL CARPETS, CUSHIONS, AND PULPIT DRAPERIES,
All made to order, with good taste and economy.

Blinds to suit every description of Church Windows Architects and others can depend on having their Designs carefully carried out.

27, LINCOLN-PLACE, DUBLIN.

(Opposite the Turkish Baths.)

The Dublin Builder.

VOL. II.—No. 14.

SCIENCE AND ART ESTABLISHMENTS.

The Museum of Irish Industry.

DUBLIN is lauded for the architectural beauty of her public buildings, but a visit to one of the scientific, artistic, or Industrial establishments which form an important proportion thereof, will convince as regards *them*, that "there is that within which passeth show," and that Ireland, though poor otherwise, is "rich" in elements conducive to national progress, if the people would avail themselves of the advantages at their command. Foremost, amongst institutions of this character, may be classed the Museum of Irish Industry in Stephen's-green, which each succeeding year since its establishment in 1845, has been progressively developing an extensive field for educational and industrial advancement. The premises devoted to the museum buildings comprise a frontage of about 130 feet by nearly 200 feet in depth, 3 stories in height exclusive of basement, and presenting an elevation with a centre and two wings—the latter subsequent additions, together with the galleries, each of which are about 130 feet in length by 24 feet in width, communicating at the extreme end with an admirably arranged lecture theatre about 53 feet by 45 feet, and at the other connected by a cross gallery and forming with same a quadrangle, from which they are lighted. A spacious and special staircase leads from each gallery to the story above—an arrangement unnecessarily occupying much valuable room, and capable of improvement by the substitution of a *central* stairs in the court-yard communicating alike with each wing—and principal and private staircases are also provided in the front building. On the principal story is a marble hall—approached centrally by a spacious flight of stone steps with areas on each side—and employed "for illustrating the application of Irish marbles to the purposes of decorative architecture;" an apartment of itself displaying forcibly what material we have *at home*, the various products being tastefully arranged in oak panelled wainscoting specially designed for the purpose, and which on examination will be found to stand a comparative test with many foreign imports, more fashionable, perhaps, but not one whit more beautiful, permanent, or useful. The other internal arrangements on this story comprise director's and clerk's offices, a library—though small—containing some most valuable scientific and artistic works for the use of the officers and professors, but to which the students of the Government School of Science are admitted under certain regulations during the session, and having an average attendance of 706 readers annually—also preparation rooms in connection with the lecture theatre. The galleries are denominated Lower North, Lower South, and Lower Cross, those corresponding on the floor above being distinguished as "the Upper." The first floor also comprises a Balance and Apparatus-room, Analytical Laboratory, and Geological Survey Office; on the second are various domestic apartments, stores, &c.; and the basement contains Laboratories, Chemical Apparatus and Lecture-rooms, &c., &c. So much for the building itself, which we must not omit to mention, was designed or adapted by the late Mr. Papworth, architect, we shall now offer a resumé of the contents interiorly.

Quoting from the prospectus we may premise that

"A principal department is specially devoted to the exhibition and illustration of building materials. Those form two divisions—first, ordinary building materials, in which are collections of building stones from all the important quarries in Ireland, with flags, bricks, slates, tiles, &c., so that architects from inspection of these materials can ascertain the nature and qualities of the materials available for building purposes in any given locality; second, decorative building materials, such as the rich and varied collections of the marbles of Ireland and the various artificial imitations of marbles, ornamental cements, tiles, pannelling, and papers, the applications of stained-glass to decorative purposes, alabasters, woods, &c., &c."

We learn that the public and the institution are deeply indebted for a large proportion of this beautiful and useful collection to Mr. George Wilkinson (late architect to the Poor-Law Commissioners), a gentleman distinguished for his practical and enquiring mind and uniform devotion to the cause of improvement.

In connection with this and the other departments of this museum, facilities are presented to architects, builders, &c., for ascertaining the best probable results from analytical observation by the Professor of Practical Chemistry to the institution—Dr. Galloway—who will be found courteously to respond to any call where his eminently scientific attainments may be available. Passing through the various galleries, we find them to embrace respectively Geological, Mineralogical, Botanical, Zoological, Palœontological, Metallurgical, Mechanical, &c., departments to which, however, we cannot hope to do justice by a mere cursory reference, and we are precluded from detailed description. Devoting ourselves, however, to a notice of such as come more immediately within the province of our readers, we observe that although

"The lower gallery—as named above—contains a variety of constructive material, such as the building stones of Ireland and England, &c., flags, slates, cements, marbles, porphyries, serpentines, &c. Some materials of this class, of too massive a character for this gallery, will be found near the staircase at the end of the lower south gallery."

Also that

"The application of stained and painted glass to decorative purposes is shown by the beautiful window presented by Mr. John Gibson, of Newcastle, and placed at the end of the north galleries; and also by that constructed by Messrs O'Connor, formerly of Dublin, now of Berner's-street, London, placed in the lower cross gallery, opposite the entrance from the hall."

Messrs. Minton & Co., of Stoke-upon-Trent, have the advantage of occupying a very conspicuous position in the same gallery for encaustic tile pavements, as usual beautifully designed and executed.

"On the north wall, are columns from the Giant's Causeway, on which are some specimens of basalt (Rowley rag) melted and cast by Messrs. Chance, near Birmingham; a sheet of rolled basaltic glass, &c."

"Under the stairs may be seen, on the north side, part of a granite vein, with its walls of altered silurian slate, from Killiney hill, procured through the kind instrumentality of Matthias J. O'Kelly, Esq. There are also some blocks of ornamental porphyry, from Lambay, presented by Lord Talbot de Malahide; a specimen of polished hornblende rock, from County Monaghan, presented by Lord Rossmore; and polished red granite from Barnesmore, County Donegal."

"Against the wall are arranged some large slabs of slate from Donegal and Killaloe, and a slate table, &c., from Valentia, presented by Mr. Blackburn, on the part of the Valentia Slate Company. Near the door of the physical preparation room, are a block and slab of white marble, from Dunlewey, Donegal."

Mr. Blackwell, referring to the mineral resources of Ireland, as regards iron, that invaluable product to every one engaged in constructive operations, in one of his lectures on the results of the Great Exhibition of 1851, says, "Whatever may be the mineral resources of Ireland, and they are by no means insignificant, at the present, moment no iron is produced there. Formerly she possessed extensive iron-works; in 1660, her production of iron was estimated at 1,000 tons, and there is scarcely a county in which iron was not anciently manufactured. In the north-east of Ireland blackband exists, apparently a continuation of the Scotch beds; its quality is said to be good, and quantity abundant. The north-west part of the island also possesses argillaceous ironstones, formerly worked at Arigna; but this district cannot bear competition with the iron-making resources of our English, Welsh, and Scotch districts. If the iron trade is *to be resuscitated in Ireland*, it will be probably from the working of hæmatites or magnetic oxides, both of which are known to exist in several localities along its coast; and in all probability will yet be found there more extensively, *when capital and enterprise* shall be directed to their discovery."

The words in italics bear a most significant meaning, and evidence, that, though mining operations in other ores have been and are being prosecuted with some vigour in Ireland—as may be seen in another portion of this journal—that which is above all others the most valuable for mechanical and general purposes is culpably neglected.

Amongst the models exhibited are those of a farm cottage by Dr. Fulton; reading-desk and pulpit, with geometrical staircase; patent Albert window, by Mr. Isaac Farrell (of this city) architect; various machines, statuettes, &c., &c.

We must here pause—though reminded that many other objects have escaped our notice, to which we may probably revert hereafter—to glance at the constitution of the establishment from which so much entertainment and instruction is derivable.

The Museum of Irish Industry was originated during the Peelite Administration in 1845, with especial reference to the reception of specimens during the progress of the Geological Survey of Ireland, and was for a time placed under the department of the then chief-commissioner of woods and forests, viz., the Earl of Lincoln, afterwards Duke of Newcastle; but in 1853, when the Earl of Carlisle—now Lord Lieutenant—became Chief-Commissioner of Works, and decided to extend its industrial objects, it was transferred to the Department of Science and Art, and again to the Committee of Privy Council for Education, under which department it is now consequently.

Under the excellent directorship of Sir Robert Kane, the eminent chemist and scholar, President of Cork University, whose name is so intimately associated with "the development of the resources of Ireland"; and comprising amongst its professors such luminaries in the scientific hemisphere as Mr. J. Beete Jukes, Drs Barker, Sullivan, Galloway, Harvey, and Kinahan, the faithful fulfilment of the Institution's mission could hardly be a doubtful question. Systematic courses of lectures on subjects connected with the various departments of the museum have been periodically delivered each session since 1844, for the accommodation of both day and evening pupils; and also in connexion therewith twelve of a popular character, in the Theatre of the Royal Dublin Society. Students can compete for the special certificates and prizes allotted to each course, and may register by payment of merely nominal fees. The session closes by an address from the director, when the public award of prizes takes place, usually presided at by the Lord Lieutenant. We notice by the report for the year 1858 that important donations, in porcelain and earthenware, had been received from the Science and Art Department, and of various kinds from other sources; that the total number of visitors to the museum was 23,818; competitors for prizes in natural philosophy, 3; general chemistry, 5; practical ditto, 14; geology, 4; botany, 2; zoology, 7; and general examination, 2; together with some other statistics unnecessary to detail. When the report for 1859 reaches us, we shall review the recent progress of the Institution, and trust that its future history may be distinguished by the same progressive advancement as hitherto. We must not quit the subject without tendering to Professor Galloway and Mr. George Penny, our acknowledgments for courteously conducting us through the various departments, and affording us every information requisite for this notice.

THE WATER-WORKS OF THE ANCIENT ROMANS.*

If the water was not perfectly pure at its source, it was introduced into one or more piscinæ or reservoirs before entering the city; and also, in the case of public baths, it was generally again submitted to the same process before being delivered for use. The principle of their construction is very simple. The water is introduced into a large covered space, broken into a number of compartments, through which it moves slowly, and thus has time to deposit whatever matters it may hold in mechanical suspension, and from which it issues, pure and limpid, into the specus. Some of the piscinæ appear to have consisted of two stories, one above the other; others consisted of only one story, as that of the Baths of Diocletian. The water drawn by the two aqueducts from the Anio was of course liable to be discoloured by rain, and on this account a *piscina limaria* was erected for each of them betwixt the weir, which diverted the water from the bed of the river and the commencement of the specus. Frontinus states, that six of the streams were received into six separate but adjoining piscinæ, so that each preserved its own level, at a spot about seven miles from Rome, on the Via Latina; and extensive substructions may be seen not far from the site thus indicated, but not in a state to be identified, nor to give any information as to their size or structure. Martial also speaks of a piscina as a swimming-place. The most perfect in Rome is known by the name of the Sette Sale—employed for the final purification of the water used in the Baths of Titus. Notwithstanding its name, this ruin consists of nine, not seven, long parallel vaults, with openings for communication from one to another, and these placed, not opposite to each other, but diagonally, so that the water had to pass through as great a space, and be brought in contact with as much surface as possible, betwixt its entrance and its exit. The tops of these openings have *pointed* arches, of which we only remember to have seen one other specimen of Roman work—viz., in the roof of the small aqueduct at Tusculum. The brick-work is very substantial, and the plaster several inches thick, of the finest lime and terra pozzolana, mixed with small fragments of brick or tufa, and so thoroughly hard that water could never penetrate it. A considerable deposit has been formed upon it while the piscina was in use, in some parts nearly one-fourth of an inch thick. Part of the height of the arches is now filled up with mud and rubbish, so that the original floor cannot be examined. The vaults are each 12 feet 4 inches wide, and at present 8 feet 6 inches high, and the middle vault is 136 feet 6 inches long. Those on each side of it become progressively shorter, as the inner end of the building forms a curve. Nibby, in his edition of Nardini, states, that there is another range of vaults, similar in every respect, below those now seen, and wholly filled up by earth and rubbish. There are four apartments, two above and two below. The water flows from the specus into one of the upper, falls into that immediately below, passes into the second lower, and rises up through it into the one immediately over it, on a level with the first, and then flows on by the specus, on the original level. The water, from the moment it was introduced into the specus, never saw the light of day until it was brought into the city and ready for distribution. In this respect it exactly imitated a natural subterranean stream and spring.

In this country it is common to commence the introduction of a supply of water into a town, by constructing an immense open reservoir, covering many acres of ground. Into this, dead and decaying animal and vegetable matter of every kind must find its way; there it decomposes, and furnishes food to myriads of microscopic plants and animals, and the larger Infusoria and Larvæ, which so greatly disgust water-drinkers in our large towns. Nor is this an evil which gradually abates: on the contrary, the longer an open reservoir exists, the more productive of minute life does it become. The accumulation of suitable food, both for microscopic plants and microscopic animals, goes on every day, and the organisms increase in proportion to the supply of food in a locality exactly suited to their nature and habits. Vitruvius, speaking of the specus, lays down the rule absolutely—"let them be arched over, so that the sun may on no account touch the water." This principle deserves our most careful consideration at the present day.

The aqueducts brought within the city walls were conducted, partly at once to the baths or other public places which they were intended to supply, but principally to the various castella aquæ, whence the water was furnished for the daily use of the inhabitants. The position of the castella was fixed by the level of the specus of each aqueduct, but the difference betwixt them within the city is much less than might be expected, considering the very different levels of their sources. The castella, then, were places where the water was delivered into a spacious basin, whence it was sent forth along pipes, to the localities and purposes, public or private, which it was destined to supply, but principally, so far as domestic use was concerned, to the lacus or public cisterns established in every part of the city. They were of two classes, either public or private. The great public castella divided the water into three separate reservoirs—one for the use of public baths, one for that of private houses, and the third for the public fountains; and this was so arranged, that when the supply was scanty, the least important might be cut off. From the castella the water was distributed to public and private uses under the charge of the *aquarii*. It is difficult, if not impossible, to ascertain the exact meaning of the details given of this by Frontinus; but the general principle seems to have been, that the water was turned on into each service-pipe by the aquarius, for a given space of time; and the size of the pipe being known, the supply of water given was ascertained—perhaps not very correctly.

Another very large demand for water was, to supply the balineæ. Of these the greater part were private, but a few were public, and of considerable extent, the immediate predecessors of the imperial thermæ. The private balinæ doubtless continued in use even after the erection of the public baths. Victor enumerates 1006, and as he gives the number of domi, or separate residences of the wealthier families, at 1780, it follows, that more than half of the *palaces* of Rome—if we may so translate domus—had each its own separate bathing establishment. A water-tax was paid by all who had private service-pipes, but we have failed to discover any indication of the amount. The water in the *lacus* seems to have been free to the public, or perhaps paid for by a general rate on houses. Frontinus placed bronze mouths on the ends of the water-pipes next the castella, to prevent the frauds of the aquarii by tampering with the pipes; and he placed all these calices on the same level, that each might draw off exactly the same quantity of water. The modern Romans have each about one cubic metre daily, most of which is employed for public purposes, and a very small quantity indeed for personal ablutions. If we allow a like quantity to the ancient Romans, it will very closely correspond with the probable number of inhabitants when Rome was in its glory, which we do not believe ever exceeded a million and a half.

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* Continued from page 185.

The great and constant demand for water for public use was to supply the baths. These establishments form a very marked peculiarity in the social arrangements of the Romans; nothing at all resembling them is known to have existed in any other nation, in point of extent, of luxuriousness, or of injurious effects upon all ranks of the people. In some respects, the modern clubs of our great cities bear a very slight resemblance to the Roman baths Ruined fragments of Agrippa's baths may be traced in the Via della Ciambella, in the Academia di Teologia, in the Piazza Minerva, and in the Sacristy behind Sa. Maria della Rotondo. The noblest of all the remains of ancient Rome, the Pantheon, was, without doubt, originally built as a portion of these baths: it is proved by the contiguity of the other fragments, and by the identity of the style of the brick-work. It was turned into a temple by Agrippa himself, on which occasion he added the portico, of sixteen Corinthian columns of granite, each of one stone, 50 feet 9 inches in length, and 5 feet 9 inches in diameter. Thirteen of them remain as originally placed; the three on the east side are modern restorations. No other ruin in Rome impresses one so strongly with the idea of what the magnificence of the imperial baths must have been. This, independent of the portico, the finest specimen of Roman architecture, not equalled by anything ancient or modern now existing, was originally but one apartment—perhaps the entrance-hall—of the oldest public baths erected in Rome.

There is much sameness in the plans of the various ancient thermæ. The essential parts were, the calidarium, tepidarium, and frigidarium; or, hot, tepid, and cold baths. These, variously arranged, and with the necessary adjuncts, formed the corpus internum, to which, in the imperial baths, was added a corpus externum, containing many other buildings, for various purposes, and enclosing a vast extent of ground. The baths of Caracalla accommodated the inhabitants of the Aventine and Celian, those of Titus the Esquiline, those of Agrippa the Campus Martius, and Diocletian's the Quirinal and Viminal. The bathing habits of the latter Romans must have given full employment to all the sixteen establishments, for they were not content with one bath a day—many must have spent most of their time in the water. The infamous Commodus bathed seven or eight times a day, and took his meals in the bath. The virtuous Gordian bathed four or five times in summer, and twice in winter; and the profligate Gallienus six or seven times in summer, and twice or thrice in winter. Men and women alike frequented the baths, and under the empire, for a long period, bathed promiscuously together. Hadrian separated the bathing places of the two sexes, and also Marcus Antonius the Philosopher. Heliogabalus had countenanced the practice, and Alexander Severus again strictly prohibited it. The distinctions of rank, as well as of sex, were forgotten in the baths—emperors and subjects bathed together. Even in the time of Julius Cæsar, the mother of Augustus frequented the public baths; and the Emperor Hadrian bathed along with the meanest of his subjects. Alexander Severus bathed in common with the people, in his own or in the older baths, and walked home to the palace in his bathing-dress, having no mark of the imperial dignity, save a scarlet cloak. Gallienus refreshed not himself only, but all his great officers of state, by taking a bath along with them. One of the great halls of their corpus internum was converted by Michael Angelo into the church of Sta. Maria degli Angeli, in the form of a Greek cross; and in point of architecture and effect it is superior even to St. Peter's, though much inferior in actual dimensions. This church is adorned by eight magnificent columns of red granite, which still occupy their original positions in one of the halls of the baths; but the bases on which they seem to rest are modern additions—the actual bases are several feet below—and the necessary raising of the floor has greatly injured the proportions of the columns. Some of the finest pillars of modern Rome were obtained from these ruins—as those of Verde Antico, now in San Giovanni. Part of the building is occupied by hay-lofts, the vaulted roofs still remaining, and a portion has been turned into a poor-house; and one of the corner towers of the corpus externum is now the church of San Bernardo. It is said that many thousand persecuted Christians were employed on the building by Diocletian.

The water brought by the aqueducts to Rome was of different qualities. The Marcian was the finest; it was peculiarly valued for drinking, either pure or mixed with old wine. The Aqua Virginis was as much esteemed for bathing purposes as the Marcian for drinking. One stream, the Aqua Crabra, was introduced along with the Julia by Augustus, and afterwards expelled on account of its inferior quality; and hence it obtained the name of "Aqua Damnata."

Supplies of water in Rome were obtained by private individuals only by special grants from the emperor, and these were purely personal; they were not conceded to the dwelling, but to the individual, and they did not pass to heirs or purchasers—a fresh grant must be obtained. Even the surplus water which flowed over from the basins of the Castella could only be obtained by similar grant; and a good reason is given—that this water was required for the salubrity of the city, by cleansing the drains. It would be well for our large towns if this principle were fully adopted, and ample supplies of pure water poured constantly along the sewers. It was a serious offence in ancient Rome to commit any act by which water for public use was polluted.

Modern Rome is better supplied with water than any other city in Europe, the quantity introduced being very large, and of excellent quality. Indeed, but for its abundance and salubrity, Rome would be nearly uninhabitable at the present day. Three aqueducts bring into Rome the Aqua Vergine, Felice, and Paola. The quantity of water delivered by the Aqua Paola is estimated at 94,000 cubic meters, or nearly 1,000,000 of cubic feet, in the 24 hours, which is rather more than double the quantity brought by the Aqua Vergine and Aqua Felice together.

The system of drains in Rome was not less complete than that of aqueducts, but, from the nature of the works, only a small amount of information respecting them can be given. Buried originally beneath the streets and houses, they are now interred five times over beneath the accumulated ruins of sixteen centuries. Every one has heard of the Cloaca Maxima; it stands, from the Tiber up to San Georgio in Velabro, entire as when it was constructed, and to this day performs the duty of a drain. But was it really built for the purpose? Could the Tarquins have ever dreamt of Rome requiring such an outlet for drainage, or was drainage ever thought of in those days? Supposing the Tarquins knew the value of drainage, why construct a culvert large enough to contain the whole inhabitants of their capital? It has been conjectured that it was built by some unknown people, long prior to the foundation of Rome, and belonged to some mighty city, of which no other trace remains, either on the spot or in tradition. For whatsoever purpose, or by whomsoever it was built, it now stands a wonderful monument of durable masonry, and continuing, at all events for more than twenty centuries, to do the work of a sewer. Tarquin is said to have employed Etruscan architects to build it. The cloaca is in length, from the Velabrum to the Tiber, about 440 yards. It is constructed of three concentric circles of squared stones, put together without cement. The greater part of it is of lithoid tufa, probably from the Tarpeian Rock, which it closely resembles in composition and colour—a light brownish red. It is strengthened by diatoni of Travertine, at distances of 12 feet apart. The blocks of tufa and of Travertine are each about 5 feet by 3 feet. It is about 13 feet high, and as many wide; but 6 or 7 feet are now filled with mud and water, so that the lower part and the sole cannot be seen. The arch is semicircular, or very nearly so, and it would be instructive to know whether the lower part is flat or a reversed arch. If it prove to be the latter, it would help to explain the extraordinary durability of the work, notwithstanding the ceaseless action of water for more than 2,000 years, and occasional violent earthquakes. Its position, and perhaps its usefulness, secured it very much from the attacks of man. There is not much declivity along its course, for a very moderate flood in the Tiber completely covers its mouth, and causes its contents to flow back, so as to make it inaccessible at the upper end. Pliny states, that a waggon well loaded with hay could pass along it, and this is no exaggeration.

Between the mouth of the Cloaca Maxima and the remains of the Sublician bridge two other ancient mouths of cloacæ are visible—small semicircular arches, by one of which the Marrana (Aqua Crabra) now enters the Tiber. Though our knowledge of the cloacæ be thus limited and fragmentary, we think we are entitled to conclude, from what is known to exist, that it was every way suitable to the wants of the city, and adequate to the removal of its impurities, as well as of the water introduced by the aqueducts. In some respects, the more water poured through the drains from the aqueduct, the less trouble there would be in keeping them in order, and the more completely would they do their work.

We have thus endeavoured to give to the Institute some idea, though very imperfectly, of the water-works of the ancient Romans, —their aqueducts, reservoirs, baths, and drains.

Messrs. Naylor and Co., of Sheffield, have lately cast the largest steel bell yet made. The height is 5 feet 3 inches, diameter at the mouth 6 feet 2 inches, and thickness at the sound bow 4½ inches. The bell weighs 2 tons 12 cwt., or 5,824lbs., and is destined for San Francisco, where it is to sound an alarm for fires.

Improved locomotives are building at the Stephenson Works, Newcastle, for the Great Northern Railway, which are to burn coal. and consume the smoke. Meanwhile, the experiments instituted to achieve a smoke-consuming locomotive are still industriously carried on in the northern counties, with promise of success.

DUNDALK AND ENNISKILLEN RAILWAY BUILDINGS

THE terminus at Enniskillen, without being of pretentious character externally, as regards architectural display, is a neat, substantial, and, we will add, a *sensible* building—a term not applicable to many structures of the same class throughout Ireland. Internally the arrangements are commodious, and present every requisite for the important traffic which the line is sure to command. The buildings are divided into three portions, viz., a central structure 68 feet long, and two storeys high; and a one story wing at either side disengaged therefrom—a very wise arrangement—and presenting on the whole a range towards the roadway of some 170 feet. The booking-office is a spacious apartment, central in the main building, and approached from the street under a verandah. Communicating therewith is a parcel and left-luggage office and waiting-room at one side; and at the other a ladies' waiting-room, with ante off same, also a staircase leading to the master's and locomotive-superintendent's apartments, to which the upper floor is devoted. In each minor wing are respectively situated and approached from platform, first and second class refreshment room and special kitchen, also superintendent's office, porters' and lamp-room, store, &c. Every other requisite accommodation is provided in each department The railway, which is 62 feet 6 in. in width, is spanned by an iron roof supported on the side opposite to the station buildings by a flank wall presenting a series of brick semi-circular arches and piers, resting on a freestone base course.

The style of elevation externally is characterized by cantilever projecting roofs, segmental headed windows and doors with dressings, and partakes of Italian character. The materials employed for the general structure are hammer-dressed limestone from Carrickrea quarry, and the dressings are sandstone from Cairnsmore quarries. The expenditure was about £4,500. Mr. William G. Murray was the architect, and Mr. John Nolan, of Meredyth-place, Dublin, the builder.

The stations at Ballybay, Newbliss, Clones, Newtown Butler, and Lisnaskea, are all neat and commodious structures, built of stone from their respective localities, and sandstone from Cairnmore, for the dressings; Lisnaskea having the addition of red stock, string, or band courses throughout. The first mentioned of these is of Gothic character, presenting an elevation towards the public road of about 85 feet, 57 feet of which comprises the main building—a wing thereof being two storeys high, and containing station-master's apartment—and affording a spacious ticket-office, waiting and ladies' room, together with open entrance-porch. The cost of erection was about £1,700.

The Newbliss is somewhat similarly arranged interiorly, and in style slightly resembles. The cost of erection was the same as the foregoing.

At Clones the main building is of ┌ shape, two storeys high with cantilever roof and a one-story appendage in which are a ladies' waiting-room, and traffic-manager's office, porters' and lamp-rooms. Apartments on the first floor are arranged for the station-master. Cost, £2,500.

Newtownbutler station has probably more striking architectural features than the others, the style being early English, and presenting high-pitched roof, gabled dormers, barge boards, trefoil and Gothic arch-headed windows and doors with irregular dressings, quoins, &c., and an effective outline. The plan of two story building is ┌ shape likewise, and comprehends nearly a similar amount of accommodation to the preceding. Cost, £1,400.

Lisnaskea station is also similar in style, though differing on plan, and is partly two stories in height. Cost, £1,500.

All the foregoing works were executed from the designs of the company's architect (named above), and by the same builder of the terminus.

The items of cost particularized in each case are exclusive of extra works, which in some instances, owing to the nature of the soil, &c., are very considerable.

THE AIR WE BREATHE.—Although "trifles light as air" has become a proverb, yet air is positively heavy. A hogshead of air weighs ten ounces, heavier than the gas used for light, of which a hogshead would only weigh seven ounces A hogshead of hydrogen gas used for inflating gas weighs only two-thirds of an ounce. Every space of an inch square supports fifteen pounds weight of air, at the rate of ten ounces to a hogshead; the depth of the air is about five miles. Air is compressible, and that next the ground is made denser by that above it. At three miles high a hogshead of air weighs *five* ounces, at eight only *two*, and the limits extend to 40 miles.

THE ARTIZANS OF DUBLIN AND THE LONDON "LOCK OUTS."—The regular carpenters have contributed £50, the regular incorporated bricklayers a like sum, and the regular brick and stone layers £60, towards the support of their brethren in London against the masters.

Monthly Railway Memoranda.

For the present there is an end to the scheme for a railway from Downpatrick to Newry.

There will be no opposition by the County Down Company to the Holywood and Bangor railway bill.

The directors of the Dundalk and Enniskillen railway are prepared to receive tenders for the construction of the line from Clones to Cavan. Time limited to 21st inst. Mr. James Barton, C.E

The sum of £14,700, being the proportion of capital required by act of parliament to be lodged before applying to the legislature for a bill to legalize the proposed West Cork Railway, has been paid into the Irish Court of Chancery, and there is now every probability of the successful carrying out of the extension of railway communication in the west of the county. The presentment sessions give a guarantee on half the capital required for the construction of the line, which is not to exceed £6,000 per mile.

INDUSTRIAL DEPARTMENT OF THEATRES.

THE carpenter's shop is as busy a scene as the tailor's. The hammer and the saw are for ever sounding. "Flats" and "wings" are always being nailed into shape, and covered over with canvas, ready to go up to the painting-room. At the time of our visit, a being in canvas overalls, wearing a paper cap, and having a neat little saw in his hand, was busy cutting out the shape of some foliage, or, as the operation is called behind the scenes, marking the "profile." Carpenters in some theatres perform a great many duties which are not dreamt of in extra-theatrical shops. We knew a man once who had been at some time or other connected with nearly every provincial theatre in Great Britain and Ireland, and who called himself a carpenter, but he could do anything; he could form a scene, stretch on the canvas, and, if it was for a chamber, he could paint it. He also officiated as scene-shifter, and went on for "little business" at night. He could make properties, and did not disdain to act the part of a tailor or check-taker when required. Once or twice, upon emergency, he took a place in the orchestra; and with an accordion he has sometimes officiated as the whole band of a theatre rural. Yet for all his usefulness he never had a larger salary than sixteen shillings a week.

We may now leave the carpenter's shop, and visit the studio of the artist, which is situated at the top of the theatre. The painting shop is exactly over the back part of the stage, but it is a great way up. It is a long room, and is filled with a profusion of light, by means of a gigantic glass erection on the top of the house. In this chamber we see the artist at work on the back part of "the tranquil lake in the empyrean fields of balmy delight." The canvas is astonishingly large, but it is quite manageable, and can be lowered or raised to any required height or depth by means of slight machinery constructed for the purpose. The dexterity with which it has been painted is quite wonderful. The immense surface having been sized over, an outline of the landscape is traced out pretty boldly by the principal artist; then it is more minutely outlined in ink, and numerous portions of the design, originally dashed off on Bristol-board, in water colours; all the principal masses of colour are at once washed in by the assistant-brushes, but the finish conferred upon the whole is left to the principal artist, who executes it with a skill and power which will obtain we trust, the high encomiums of the critics of the Sunday papers, as well as the volleys of applause bestowed upon it by the "discriminating" audience who are always sure to assemble on boxing-night. The celerity with which business is carried on in this department of the theatre is quite miraculous, although, aided, no doubt, by the largeness of the canvas operated upon, which admits of a perfect army of brushes being engaged upon it at the same time, all directed, however, by the great master-brush of the establishment. A considerable portion of the labour in the painting-room is quite mechanical; for instance, straight lines for cornices, &c., are traced on the canvas by means of a tightly drawn piece of cord, rubbed over with dry colour, which is placed against the scene, and then pulled out, and let down again, when, of course, it leaves its mark. This and similar work can be done by a labourer or boy. This elaborate scrolled scene for a chamber in the tyrant's palace, is done by means of "pouncing"—that is, a small portion of the design is pricked out on a sheet of paper, which is held against the canvas, and then a bag of charcoal is dashed upon it, leaving, of course, the outline to be afterwards finished. This process is repeated till the whole of the large surface is covered, and when finally perfected, it looks very well indeed. When scenes are intended to dazzle and glitter, as is usually the case in a pantomime, they are daubed over with Dutch metal, the artist marking the places to be so done with a thinnish kind of glue; and the bits so prepared are either covered with gold or silver leaf as may be required.—*Chambers's Journal.*

An official Railway Handbook, for the Dublin and Wicklow Railway, suitably illustrated, is about being published.

THE WATER SUPPLY OF DUBLIN.*

THE CRISIS!

THE great pitched battle so long anticipated to come off between the "Cavaliers" of the Canal, the Lough Owel, the Dodder, and the Kippure supply schemes on the one hand, and the "Roundheads" of the "Coyford" proposition on the other, has been fought; and right earnestly was the struggle carried on by the combatants on both sides, as their *tattered* banners palpably show. For the present the latter have gained ascendancy, but the campaign is hardly yet finished; for they may rest assured that, unless their position is fortified to the extent the public are led to suppose, they will be subjected to perpetual attacks from without, which may ultimately overwhelm their citadel. There is a vulgar saying, but a very trite one, that "when rogues fall out, honest men come by their own," and though we are far from applying the term in its *literal* sense to the corporate members, either individually or collectively, it must be conceded that the animated—to use a mild phrase—discussions that took place in the Council Chamber on the 20th, 23rd, and 24th ult., have served to develop the faults and the possible ultimate responsibilities of *every* scheme propounded, and by which a prudent and foreseeing public may take warning in time, and secure to itself the *best* result. Our misgivings as to the capability of the Coyford proposition, both as regards *quantity* and *quality*, at certain seasons of the year, and the utter *impossibility of estimating* even a probable expense for all the necessary works to secure a supply from that source, the interminable and incalculable contingencies in settling with property owners whose interests will be detrimentalized by interference; and last, not least, the *little* items for a special bill, parliamentary expenses, fees to gentlemen of the long robe, &c., are already in the abstract before our readers, and we will not weary by repetition. But with all respect to the eminently qualified opinions of Sir John Benson—whose name is already associated most honourably with a successful enterprise of similar character—and of Mr. Dargan—whose competency to grapple with matters of calculation as regards expense of construction, or subjects for speculation, is universally acknowledged and appreciated — we still maintain our *own* opinion — viz., that the estimate laid before the house and the public is *insufficient* to provide against *contingencies*, in addition to the cost of the mechanical department. To ascertain the value of a perch of masonry, a foot lineal of piping, or a cubic yard of excavation, is a mere school-boy calculation; and by the same rule, with the assistance of an extended experience, the most important engineering or architectural undertaking may be calculated to a nicety, with scale and compass in hand, and the proper detailed data to work from; and that, too, in any quarter of the globe without moving from our studio chair. This, both Sir John Benson and Mr. Dargan must admit, and in such items we at once yield to, and repose confidence in, their opinions as expressed; but certainly not in *probabilities* yet to be developed by circumstances no human being *can* foresee, and each of which will draw more or less expenditure with it. How, then, the fullest possible rate of municipal taxation—viz., a *maximum* of 1s. 3d., or a *practical* one of *tenpence in the pound*—on the city valuation, to cover *all* expenses of the Coyford scheme for public and private supply, *can* be relied on, is to us a mystery. *If* the proposed works and all contingencies should happen to be amply provided for by this rate—and we sincerely hope, both for the character of the promoters and the public pocket, that they are—all honours and praises shall be showered on the triumvirate; but should they *not*, what will be the consequence? a position humiliated before, and responsible to, their fellow-citizens, for leading them by misrepresentation — however exonerated from wilfulness—into a secret entailing an annual pecuniary detriment on their own and their children's resources. Men of commercial status and capacity for business, such as Alderman Kinahan and Mr. Codd, are, doubtless, sensible of this, and so acute and clear-headed a tactician as Dr. Gray cannot but foresee how the result must tell either on the one side or the other. The final solution of this, however, is in "the womb of futurity," and until the conception is realized, *our* anticipations must remain mere matters of conjecture. That the canal companies have positively refused to guarantee, on *any* terms, a never-failing supply of ten million gallons per diem to the city, also that when advised of the municipal engineers' (consulting and borough) reports in favour of treating with them under extended and improved arrangements, and of the unlikelihood of available supply elsewhere, they *doubled* their *figures*, are notable facts. How far they were justified in either act, on business principle, or from philanthropic considerations — and their boards comprise many gentlemen distinguished in both capacities—is a question we will not *now* raise; but certain it is, that on their heads *also* a responsibility will fall—for depriving the citizens of their original *simple* supply source, and coercing them to seek another more expensive and difficult of approach—should the subsequent *dernier resort* scheme prove a failure, and more costly than expected. We are promised—but are not unmindful of something about "promises" and "pie-crusts"—by the proposed bill that we are to have from the new source better, purer, and more wholesome water, a full and sufficient supply at high pressure attaining a level of from 40 to 50 feet above the highest chimney-top in Dublin; that we shall be secured, within *two* minutes, a supply, in case of fire, for ten engines to pour upon a burning pile; that the estimate of £218,000 for the construction is ample; and that good and experienced contractors may be found to execute the works for that sum. This, perhaps, is the compendium and pith of the whole proposition, with the following

SYNOPSIS OF THE BILL.

1.—A weir to extend across the bed of the river Liffey at the site of an ancient weir called Coyford, partly in the townland of Halverstown in the parish of Carragh, and partly in the townland of Castlekeely in the parish of Bride's Church, all in the Co. Kildare.

2.—An aqueduct, conduit, or pipe, commencing by communication with the river Liffey, at or near the eastern end of said intended weir, &c., and terminating by a junction with the reservoir, &c., at Templeogue and Limekiln Farm in the parish of Tallaght, &c.

3.—A reservoir or filtering beds, &c., with all necessary approaches, &c., partly in the townland of Templeogue in the parish of Tallaght, and partly in the townlands of Limekiln Farm and Whitehall in the parish of Crumlin and Co. Dublin.

4.—An aqueduct, &c., commencing with this reservoir and passing thence in through or into several parishes in the townlands of Whitehall, Perrystown, Crumlin, Kimmage, Terenure, Portobello, Harold's Cross West, in the parish of St. Peter's, Mount Jerome, Cherry Orchard, and terminating in Upper Clanbrassil-street, in the parish of St. Nicholas, in the County of the City of Dublin.

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* See page 178 *ante*, and previous numbers.

5.—A reservoir or reservoirs, &c., commencing westward of Ballyward Bridge (Liffey). and terminating eastward of Blessington Bridge in the parish of Blessington and Co. Wicklow.

Clearly the 78th section of the bill (which we append for the information of our readers) *does* give power, if necessary, to levy an additional domestic water-rate, but alleged by the promoters to be inserted "that the council might be empowered to borrow money at a lesser rate of interest than otherwise," a margin as likely, in our opinion, to be dangerous as the reverse, and for that reason open to strong and palpable objections, inasmuch as the Corporation, though making specious promises, may nevertheless protect itself at the expense of the citizens to an infinitessimal extent, and by crying *peccavimus* hereafter, carry out their purpose at *any* cost.

78.—If *at any time* there be a *deficiency* in the amount required to pay the interest on the mortgages and debentures issued under the recited acts or this act, it shall be lawful for the Corporation, and they are hereby required to levy such an *additional* domestic water-rate as may be necessary to meet such deficiency, and to no other purpose, and such rate shall be assessed upon the *same* person, and levied and collected in the like manner as "the Domestic Water-rate," authorized to be levied under this act.

The abolition of public fountains—for which nothing short of a general mania arose during part of 1858 and all of 1859, throughout the United Kingdom—is provided for by the 72nd section, as may be seen by the following:—

72.—The Corporation may close up, discontinue, and remove all or any of the fountains now existing, and supplied by them with water, within the borough of Dublin, and *may* construct and supply any number of drinking fountains which they may consider *necessary* within the limits of this act for the free purpose of the public.

Now are the citizens of Dublin placed in *this* position: they are to *assume* that abundant and good water *may* be supplied to them from Coyford; that the sum total of expenses *may* not exceed £250,000, to be repaid by them by a taxation of *ten* to *fifteen* pence in the pound, but *that if it do*, they *must pay* an additional rate; that the Corporation *may* or *may not*—just as they please—take down every drinking fountain in the city, for the purpose of coercing the landlords of houses set in tenements, &c., to introduce *water* therein, and be included in the rate. How the committee to whom the bill has been referred to consider in detail will deal with these items, is now the question, and we await the result.

MINING OPERATIONS IN IRELAND.

The accounts of the Mining Company of Ireland show that the Knockmahon mines (Waterford) have realised a profit of £8,949; the Luganure mines (Wicklow), a profit of £3,506; the Slievardagh collieries (Tipperary), a profit of £1,794; and the Lisnacon Dromskeha collieries (Cork), a profit of £185. The Ballycorus lead works show a gross profit of £2,259, but from this one-half, or £1,129, is transferred to the Ballycorus Improvement Fund. The entire gain, for the six months, on those adventures which have resulted in a profit is thus £10,515; from which are to be deducted £897 for loss on the Ballydehob mine (Cork), £326 for loss on the Ballycorus lead mine (Dublin), £211 for expenditure on the Imael lead mine (Wicklow), as well as some trifling sums on minor undertakings. The nett profit of the Company is £7,766, as compared with £6,044 in the corresponding half-year of 1858.

The Engineer to the Barramore Mining Company reports "that this mine has been in active working operation for better than four months, and the progress and results so far satisfactory. The situation, at the head of the valley of Glenmalure, is a good mining one, and the granitic formation in which it exists is celebrated for being the great lead producing district of the county of Wicklow. The lode is the same, continuing its course into the Barravore Hill, having passed under the river and valley westward. In the adjoining valley of the Seven Churches, and in the same range and formation, are situated the rich Luganure lead mines, the largest producing that mineral in Ireland. The character of the ore and matrix of the lode at Barravore are identical with both this and Glenmalure. Since the formation of the company, and their placing the management in my hands, the works have been unceasingly persevered in by me. The underground works of the former proprietary were chiefly of an abortive character, being confined to driving long adit cross-cuts through hard granite. . . . . . The staff, consisting of working agent, good carpenter and blacksmith, together with two masons engaged on the wheel-pit and crushing house, all reside on the mine, and the organization of the whole is now perfect and complete. The buildings, consisting of agent's house, stores, carpenters' and smiths' shops, offices, &c., together with eighteen miner's cottages, are a great acquisition on the property. Although they require to be put in repair, which is now going on, nevertheless they enable us to comfortably lodge the company's staff, and to have complete control over the work-people; add to which, they allow the directors to apply to the company to direct mining operations, instead of to building purposes;—these are all points that cannot be over-estimated."

NEW BUILDINGS AT CHATHAM.

EBENEZER CHAPEL—THE JUBILEE MEMORIAL.

(Communicated.)

For many years the Congregationalist Denomination of Dissenters in this town have been making successful exertions in raising and maintaining Sunday Schools; the number of their scholars being considerably larger than that of any other body of Christians in this part of the county.

To meet a want that had been felt, as well as to provide a memorial of thankfulness for what had been accomplished in the lapse of fifty years for the building of Ebenezer Chapel, it was resolved to erect a building which should serve as a central plan of gathering for the associated schools and in which each school might find, to a certain extent, a home. For this purpose some small houses in Meeting-House-Lane, adjoining the chapel, were purchased, and an architect was consulted as to the best means of adapting the site to the proposed object. The result is, the building to which we now call attention.

The exterior has an exceedingly bold appearance, but it would have been considerably increased if the ground-line had not been kept so high. We understand that many difficulties in reference to the level of the pathway in front of the building have been raised by our local Board of Health, and these appear to have hampered the architect in the treatment of the lower portion of the design. Its principal feature is a large room placed on the same level as that of the old school room, and is connected with it by the cutting away of the end wall of the old building; the dimensions are about 86 feet long, 83 feet wide, and 20 feet high. A gallery is formed along the whole length of one side, and is lighted very effectively at night by a sunburner in the centre of the ceiling. For ordinary occasions the two rooms are separated by a moveable wood screen; but, by its removal can be thrown into one large room, capable of accommodating 600 persons. Seven class-rooms are provided in different parts of the building and are intended for the separate use of the schools connected with the chapel, for holding meetings of past scholars and other special business that may arise. The rooms and passages are lighted with gas, and conveniences of various kinds are attached for holding the tea meetings and other assemblages.

The building was commenced in April last, and in May the corner stone was laid by Samuel Morley, Esq., of London, in the presence of a large number of the friends of the undertaking. The meeting was addressed by the Rev. J. S. Hall, the pastor of the church, to whose great energy the origination and prosecution of the work is due; the Rev. P. Thomson, M.A., of Manchester, the former pastor; and the Rev. Breton Hood, of London.

At the completion of the building the committee entertained the workmen employed, and on this occasion, it may be stated, that an opportunity was afforded of testing the acoustic properties of the room, and that the trial was very successful.

The formal opening took place a few days before Christmas, and the work is now in full operation. The whole appears to be a very sound, solid construction, and has been erected from the designs of Mr. John Young, architect, of 36, Lincolns Inn Fields, London. The builder was Mr. Alfred Stump, of Brompton, who has very ably carried out the intentions of the architect.

BROMPTON BARRACKS,

The Government intend building a new Officers' Mess Establishment at those barracks, and have accepted the proposals of Mr .Alfred Stump, of Brompton, the Government contractor, for the erection of same; the amount we hear is between £4,000 and £5,000.

FORT PITT.

The new Lecture Theatre here is finished; it was completed in two months from the date of the order. The superintending officer was Mr. Richard Louch, of the Royal Engineers' Department, and the contractor as before named.

MORE ABOUT HORSE PASSENGER TRAMWAYS.

We have been requested to publish the following correspondence—forwarded to us by the secretary to the company *interested as original* MSS., though discovered at the eleventh hour, and when going to press, *not* to be so, an act which speaks sufficiently for itself without comment—relative to the introduction of these tramways into our city and suburbs:—

Extract from Letter of Mr. Myers, Secretary Sixth Avenue Railroad.

"New York, 5th December, 1859.

"You are entirely correct in thinking that we take an interest in your tramway question, and sympathise with the effort to introduce them in the world. If consent could be obtained to the laying of horse railroads through your city and suburbs, you may rely on the advocacy and support of the present opponents. This has been the case on this side of the Atlantic; in this city it has been so in every instance: custom has sanctioned what, in the outset, the property-holders viewed with sensitiveness and distrust. The only difficulty here has been, and is, that the *entire success and profit* of the routes established have induced constant efforts to obtain additional grants. We have railroads now on the 2nd, 3rd, 4th, 6th, 8th, and 9th avenues. So popular are these roads become, that constant applications are made to our authorities for new grants, in many cases fillibustering on the rights of those laid down; and the feeling is produced to prevent *an excessive use of what is found so advantageous.*

"In the development of the city the railroads have done a great work. Up to their construction, in 1852, the only mode of transit was by lumbering omnibuses, over an uneven and jolting pavement. Now people go down to their business and return in the cars, the two-horsed seating 40 inside, and one-horsed 16 to 20. The growth of New York has been greatly aided by these facilities of travel. I have had charge of the railroad for five years, and am sure my conclusions are correct. With no other interest than a desire to see tested what I know must succeed, I hope that Sir Robert Ferguson, Colonel French, and Colonel Greville will carry the Irish Tramway Bill."

Extract from Letter of Mr. Pallas, of Dublin, Engineer to several Lines in Philadelphia.

"Philadelphia, 26th Dec. 1859.

"The figures in your Prospectus (City of Dublin County and Suburbs Tramway Co.), as regards Philadelphia, flattering though they be, are considerably less than what they really are. We have at present a horse passenger road running in opposition to a steam road, and paying very well, notwithstanding the disadvantage of some heavy grades of 1 in 20, and charging less than half price; proving most conclusively that horse roads can run in opposition to steam. That they can and will do a large and paying business, *even though an omnibus line would not pay*, we have several proofs in this city, especially on the Grey's Ferry Road, which did not support a single line of omnibusses, yet the R. R. *now pays* 18 *per cent. per annum, and the shares are* 120 *premium.* Your proposed roads will pay *incredibly well*, more especially if run through Kingstown, Rathgar, Rathmines, &c. Though I mentioned the matter to but few persons here, parties would be willing to build and equip your roads, taking part stock and part cash."

Description of the Depots of the 6th and 3rd Avenues, New York.

"The 6th Avenue Depot is a fine brick building, 2 stories high, with a front of 200 feet by 60 feet deep, the ground floor for offices and car house, the 2nd story finished for balls and public rooms. In the rear is a store 90 feet deep, basement for stables, upper floor for feed lofts and repair shops. The premises are 200 by 150, containing stabling for 400 horses and storage for 70 railroad cars.

The 3rd Avenue Depot was finished in Dec. 1857, built of brick and iron, a great ornament to the neighbourhood. Main building 3 stories high, front 200 by 50 feet deep, occupied by company for repairing-shops, offices, &c., remainder leased. In the rear is a low building, one story high, with basement, devoted exclusively to the horses; and the stalls in rows, between every two of which is an alley whence the provender is supplied to the mangers, wider passages running the whole length intersect the alleys like a subterranean village. An open span in the centre is reserved as the head quarters of the Litchers (harnessers) for the exchange of teams, these are driven up and down two inclined platforms communicating with the floor above. The centre of the main floor is enclosed with partitions for feed lofts communicating with the stables below through a large hopper, the remainder of the floor is fitted up for a car house and turning ground for those in service—this cost 175,000 dols. or £35,000. At present in them are 600 horses, 80 cars, and 20 stages, but room for much more. The stables were considered when built among the finest in the States."

The Renfrew and Glasgow Railroad, three miles long, has lately been changed from steam to a horse passenger one.

The cities of Quebec and Montreal are about having them, their relative populations being 60,000 and 80,000—not so large as Cork or Belfast.

In Ireland—Limerick, Belfast, and Londonderry are supporting them.

At present an agent of American capitalists is in Europe relative to their introduction to the large towns in England, Scotland, and on the Continent, the Americans taking most of the stock, having proved their working at home.

The Corporation of London, which in 1858 opposed tramways being laid in the city, have changed their minds, as seen by the report of Mr. Heywood, their engineer, in the *Times* of the 9th Dec.

DESTRUCTION BY FIRE OF ST. ANDREW'S PAROCHIAL CHURCH.

This building which—now that it is no more—is fully appreciated as an architectural achievement in some of its features, was destroyed by fire, resulting it is supposed from the overheating of a flue and the close approximation of the rafters thereto, after morning service on Sunday, 8th ult. The merit of its general design is attributed to the late Mr. John Hartwell, architect, to whom was awarded a prize of twenty guineas, and the entrance opposite Church Lane and the arrangements of the galleries and fittings to Mr. Francis Johnston, who succeeded that gentleman in the work, and superintended it to completion. Of the latter we hope to place a view before our readers in an early number, as they are well worthy of perpetuation. The following are a few particulars of the edifice according to Mr. Gilbert. In 1793, the church having become ruinous, the parish appointed a committee to carry its repairs into execution. The original foundation was so well built, that it was found unnecessary to take down the walls below the level of the windows. The Parliament of Ireland granted £500 in 1796, and £1,000 in 1799, to enable the parish to complete the repair of the church, and to make proper accommodation in it for the reception of the members of the House of Commons and their Speaker, when they should attend divine worship there. The pews and galleries, together with all the interior work, were executed by Mr. James Lever, of the North-strand, a contractor of eminence, and father of our Irish novelist. In 1802, the Earl of Hardwicke, then Lord Lieutenant, presented to the parish the large gilt chandelier which had belonged to the Irish House of Commons, and which has lately been transferred from the Church to the Examination Hall of Trinity College. The following estimate by the great Dublin sculptor, for the statue still standing over the entrance to St. Andrew's Church, illustrates the low condition of the fine arts in the metropolis of Ireland immediately after the Union:—

Estimate by Edward Smyth, sculptor, June 6th, 1803, for executing a statue of Saint Andrew, in Portland stone, for the new front of Saint Andrew's Church, seven feet high, according to model exhibited by him for that purpose, finding the stone, &c., &c., for	£118	15	0
He begs leave to submit the following mode of payment and time to consideration, viz., the sum of ten guineas per month, on account, to be paid for four months, in which time the statue will be completely finished,	45	10	0
The further sum of five guineas to be paid in hand for defraying all expenses of loading, carriage, stone-cutter, making a level base, and erecting the block, being about 3½ tons weight, ...	5	18	9
Balance in Treasurer's hands, ...	£51	3	9

"This proposal I think fair, as Mr. Smyth was paid the same price for figures of a similar kind, and the manner of payment I think satisfactory and convenient.—June the 7th, 1803.—Francis Johnston."

"The Imperial Parliament, in 1805, granted £6,000 to be applied towards completing the building of St. Andrew's Church, and the erection of a steeple and spire, the first stone of which was laid in April of the same year. The Dissenting congregation of Eustace-street accommodated the parishioners of St. Andrew's in their place of worship from 1793 till the church was completed and opened on Sunday the 8th of March, 1807, on which occasion the chief personages in Dublin attended, and the money collected amounted to £538 10s. 9d. The total sum expended on the rebuilding of the church and the purchase of an organ amounted to about £22,000. The church of St. Andrew, says Mr. William Monck Mason, "is of a circular form; its interior very splendidly decorated, but its exterior, together with its unfinished steeple, exhibits a strange heterogenous collection of architectural blunders; the humour of every one of its tasteless projectors appears to have been gratified by the introduction of somewhat of his favourite style; so much of its steeple as is finished is Gothic, executed in hewn limestone; the church is of brick; the entrance or porch of granite; the situation of every part is likewise misplaced; the church opens upon the street, so that divine service is perpetually interrupted by the noise of carriages; had the steeple been placed so that its lower part should serve as a vestibule, this most considerable defect in its construction would have been remedied."

OUR MARKETS.

"COMPARISONS are odious," no doubt, but nevertheless serve to awaken us sometimes to a deficiency which might probably otherwise pass unheeded. Comparing with other cities, attention has been specially directed to "pavement," "sewerage," "bridge accommodation," and "water supply,"—the latter agitation having attained a kind of European celebrity from the earnest and lengthy deliberations on the various projects mooted—but the sanitary arrangements and the convenience of the public as regards "Our Markets"—so palpably deficient in every possible respect—seems to be passed over as "a thing" not worthy of thought. If we have been taught a lesson elsewhere in sanitary matters—and surely all endowed with comprehension must admit we *have* and are *being* daily—can any deficiency be brought more home to us than in the arrangement of our *markets?* We boast of our spacious thoroughfares, our public buildings, our quays, as the noblest in Europe, our squares—even as a model for the British Babylon, but let us for the necessary elements of the outward man, retire to the shambles of the victualler and the stalls of the huckster or fishmonger, what a scene presents itself? We say, certainly unprecedented in the United Kingdom, in any city or town *one-fourth* the capacity and importance of Dublin. View some of the pettiest villages or hamlets in England or various towns even in Ireland, and they will be found to possess all the elements for facility of business on a scale suited to the requirements of the locality, and to the sanitary welfare of the inhabitants. An English market-house is a picture of cleanliness, of system, and suitability to its required purposes; *some* of the Irish are partly so—especially those at Cork—but in the second city of Her Majesty's dominions, "our dear, dirty Dublin," what a sorry figure is presented?—*No market at all!* is probably the better designation for the huddled shambles of the Cole's-lane, the Moore, Leinster, or William-streets animal food depots, where man and beast are alike regarded, where the dainty requirements of the one are indiscriminately mixed with the offal thrown to the other, where purchasers' nasal organs are at certain seasons submitted to an intolerable test, and they are compelled to transact their business under dripping eaves—where the necessary cleansing and other appurtenances are absent, where a breath of wholesome air is unknown, and where in warm weather, from the putrid stores within, poisonous exhalations are emitted to the detriment of the inhabitants of populous neighbourhoods. These are facts which to our minds cannot be contradicted; if *so*, we invite comment or qualification, and if *not*, the necessity at once suggests itself for a move in *that* direction, as earnest as in any other of sanitary tendency.

A correspondent of a local contemporary—rejoicing in the originality of his conception—suggests that a Covent Garden floral market should be erected in Dublin, but *we* think that the actual necessaries of life should be provided with a fitting receptacle before a crystal hall for horticultural display and fashionable lounging after Cockney style be thought of.

The state of our markets cannot much longer be tolerated, and as our municipal body numbers many members of philanthropic and practically useful minds, we earnestly direct their attention thereto.

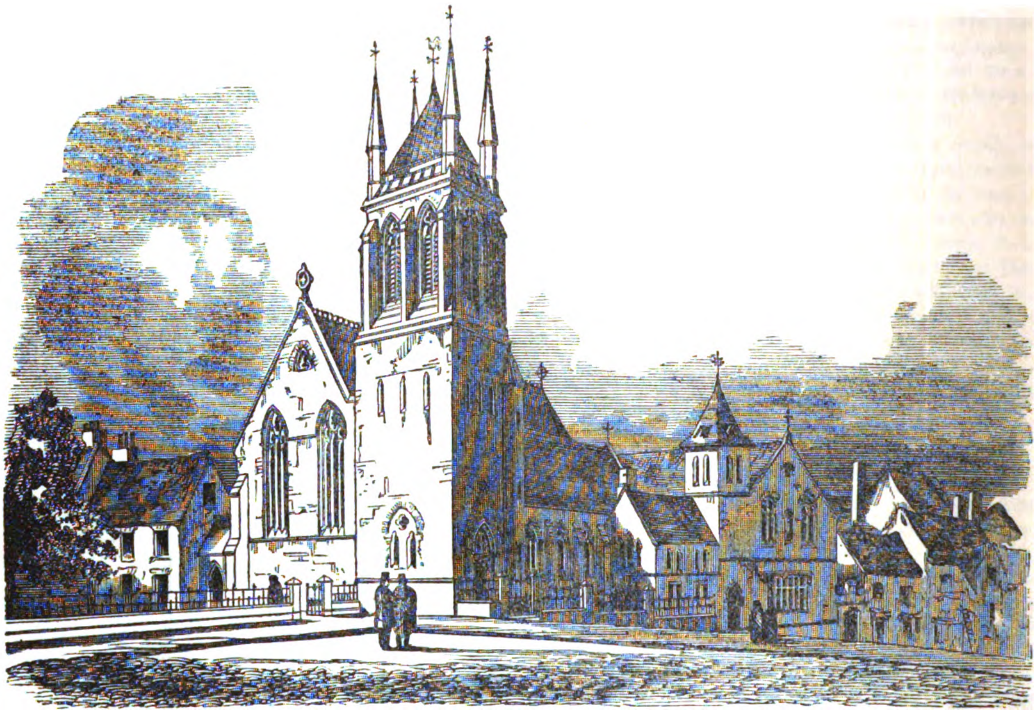
WATER WANTING AT THE NORTH SIDE.

IT seems to be a characteristic of our Corporate constitution to defer granting to the citizens the necessaries of pure water, effective sewerage, and good light, until the public voice with vociferous outcry demands compliance. Districts however improving, or likely to improve and become populous, are expected first to develop *themselves* fully, before any encouragement will be given by the provision of requisites for the inhabitants. This is an expectation contrary to common sense, as men will not build to any extent or speculate on general improvements in localities where a thirsty soul may not find the quenching wherewith, where open drains and stagnant pools send forth fœtid exhalations, and where, after sunset, an out-door essay is attended with much risk to life or limb. It is certainly a principle of progressing backwards, the policy of which appears very questionable, financially and otherwise. In the neighbourhood comprised within Upper Sheriff-street, Church and East-roads, and the Circular-road leading to the Wharf, and thence to the new Graving Docks, and other buildings of the Port of Dublin Corporation, are the elements for a new and important district, if the encouragement even of abundant water were afforded. On Church-road are domestic dwellings of three classes—two new cottages to rent at some £18 per annum are in progress of completion experimentally at the end next Wharf-road—various others are projected, and a resident has actually commenced the preliminaries for six others in same locality in a field where an open foul drain runs parallel with the road for a considerable distance. Not one drop of pipe-water is obtainable nearer than Sheriff-street Bridge—some half mile or so distant.

To complain of faults and not to suggest a remedy, is not our maxim, so we submit, that as the water is in Upper Sheriff-street, the main might at a small expense be continued by the Dock-yard-gate to the "Smoothing Iron"—where for the thousands who resort there in the summer for bathing, a draught of fresh water from a *public fountain* would be most palatable, and thence by the East-road to Church-road. From our own acquaintance with this locality we can vouch that even this one concession to *commence* with, would be a wise one, and ensure its growth. The more extended the city becomes, the greater will be the corporate revenue; and a deaf ear turned by its members to necessary improvements, must be accompanied by extreme blindness to public interests.

ALTERATIONS OF LIBRARY BUILDING, T.C.D.

THE contract recently entered into by the Board of the Alma Mater with a view of providing increased shelving accommodation in, and otherwise improving, the library, under the direction of Messrs. Deane and Woodward, has evoked some personal correspondence in the daily journals, wherein the architects are accused of Vandalism and unnecessarily tampering with the present edifice, &c., &c. The old library building consists externally of cut stone, the lower story being arcaded—and affording a spacious ambularium in inclement weather for the professors or students—and the upper presenting a range of architraved square-headed windows—the fenestration arrangement not quite in accordance with custom now-a-days—with rusticated piers between, and surmounted by rich Corinthian entablature which carries a continuous balustraded parapet. The library apartment is a noble one, probably the largest in the kingdom, being 210 feet by 41 feet, and 40 feet in height, with a richly coffered horizontal ceiling. We believe it was opened about the year 1593, having occupied two years in building. The rapidly accumulating collection of volumes, manuscripts, periodicals, &c.,—for there is an act of parliament requiring, under heavy penalty, that a copy of every publication in Her Majesty's dominions *must* be deposited in the British Museum, and Trinity College, Dublin—demanded increased space. To *lengthen* or *widen* or erect *additions* to the existing building, would necessitate a most material interference with the arrangements of the other buildings in proximity, and in fact may be pronounced an impracticability. But there was a *dernier resort* left viz., to procure extension upwards and without interfering with the present galleries by removing the ceiling, between which and the roof timbers existed a considerable space. We may also mention that the old roof having performed its duty for more than two centuries and a half was deemed a fit subject for retirement, and thereby an additional facility for achieving a double purpose was presented. The alterations now progressing comprise the removal of that ceiling, the substitution of a new cylindrical vault formed of semi-circular oaken ribs, and sheeted with planking of the same material following the curve; the construction of an entirely new roof, *exactly the same outline as before*—though alleged *not* to be so—and the adding of granite columns inside the ambularium central on the arcade piers, and affording both support for the oaken uprights on which the principals of the new roof are to rest, independent of the old walls, as also assistance to the present floors, which exhibited symptoms of instability. The library will be materially improved, and instead of being accused of Vandalism or even want of judgment, the architects have, to our minds, surmounted a difficulty most nobly. The columns are not of a classic order—in fact, they are of *no* order—and if there be a cause for regret in the matter, it is that they are not so; but, being placed internally, are comparatively unseen. They are, more properly speaking, square shaped, perfectly vertical antœ with chamfers on the arrises widening towards the astragal, continued up a bell-shaped cap and terminating in a point at the abacus. The expenditure will be £7,250, and Messrs. Cockburn and Son are the contractors.



ST. VINCENT'S CHURCH, SHEFFIELD.

MESSRS. HADFIELD AND GOLDIE, ARCHITECTS.

ST. VINCENT'S CHURCH, SHEFFIELD.

THE new church of St. Vincent of Paul was built during the course of the year 1858, the foundation stone having been laid on the 25th day of March same year.

The plan is devised to meet the peculiarities of the site, which is adjoining the schools previously built in White Croft. The church has two entrances, one being from Solly-street, the other from the top of White Croft.

The edifice consists of a nave—with an apsis for the chancel—110 feet long by 27 feet wide. On the north side is an aisle of irregular width, but averaging 10 feet, and abutting upon the works of Messrs. Spencer and Sons. On the south is an aisle 19 feet wide, and at the west end of it will be the tower, which is not as yet commenced.

Two sides of the edifice are more or less lost to view from the crowding of the adjoining buildings, but a large space is left on the west and south. The west elevation is particularly admired, from its loftiness and the elegant proportions of its lofty coupled windows· In the upper portion of the gable is an elaborate niche, containing a fine statue of the patron of the church, sculptured by Messrs. Lane and Lewis, of Birmingham, who have also done various carvings about the building.

The nave is separated from the aisles by an arcade of stone pillars, with moulded capitals, the arches being of fine red brick, with alternate stone voussoirs, and the label moulding of black brick. This admixture of stone and brick gives to the interior a character of decorative effect which is wholly structural, and so founded upon the truest principle of ornament.

The church is in the early decorated style, built of stone, in a solid and durable manner. The nave is roofed with a series of coupled braced rafters, so arranged as to admit of a pannelled ceiling to be hereafter added, and the chancel is defined by a coved and pannelled ceiling, and a rood beam supported by angel corbels, sustaining the crucifixion and the attenant statues of the Blessed Virgin and St. John. The apse is lighted by three two-light windows, to be hereafter filled with stained glass.

The nave is provided with strong simple benches, and the whole church admirably lighted with gas, and heated with hot water.

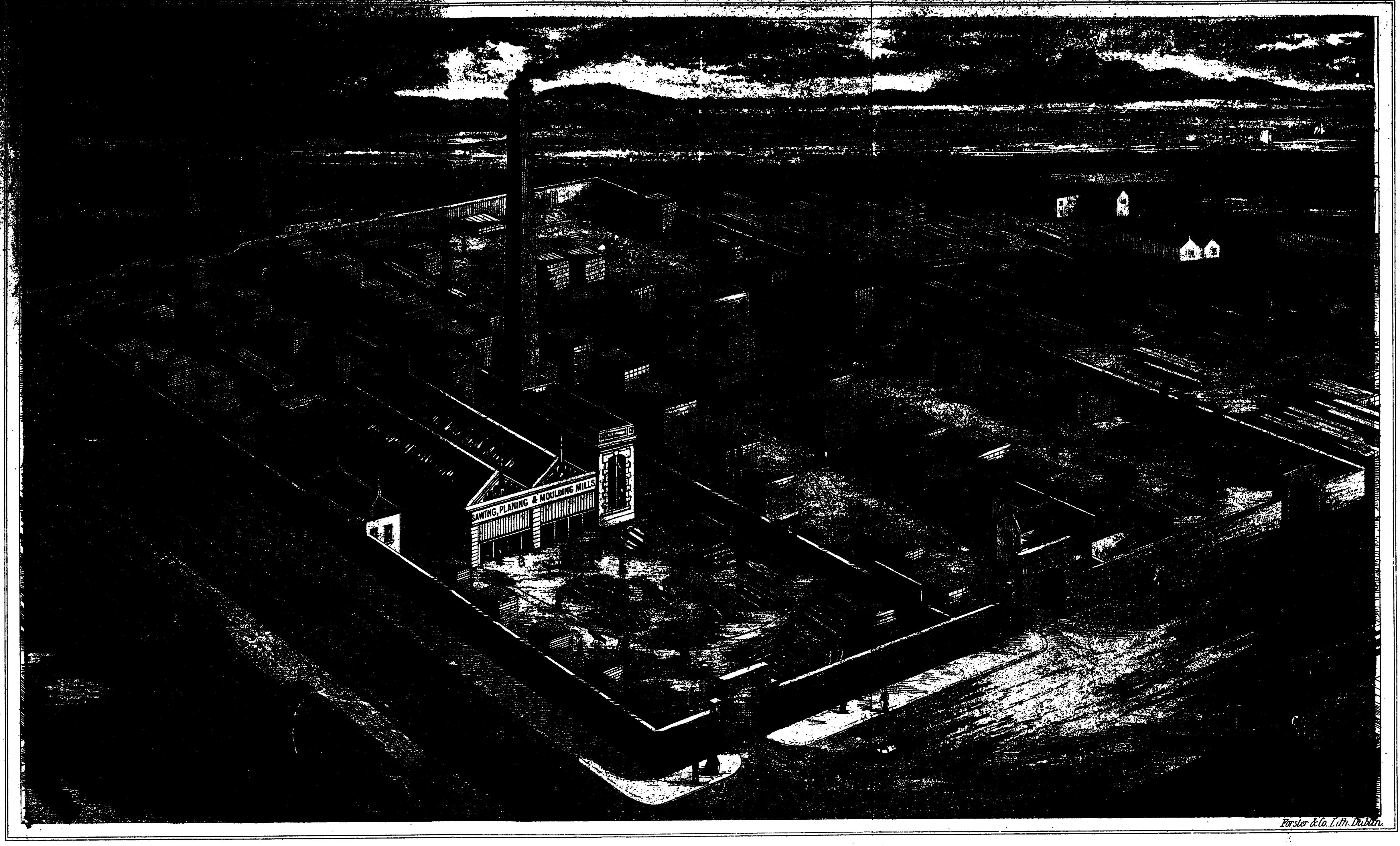
The chancel floor is paved with Minton's tiles. The altar is of Brodsworth stone. The tabernacle, reredos, and all the remaining furniture of the sanctuary are to be added as the means are provided. The south aisle is lighted by three-light windows with tracery, and over the altar is a wheel window, of good size and form, filled with stained glass.

The tower will be terminated by a steep roof, with a group of octagonal pinnacles at its base; all to be covered with lead, and terminated with metal finials. The belfry will be lighted by coupled windows, and the lower portion of the tower will be of the utmost simplicity and solidity. The door opening into it, will be however, deeply moulded with a richly sculptured tympanum.

The Architects are Messrs. Hadfield and Goldie, of Sheffield, and Parliament-street, Westminster, London.

JOHN MARTIN AND SON

NORTH WALL, DUBLIN.

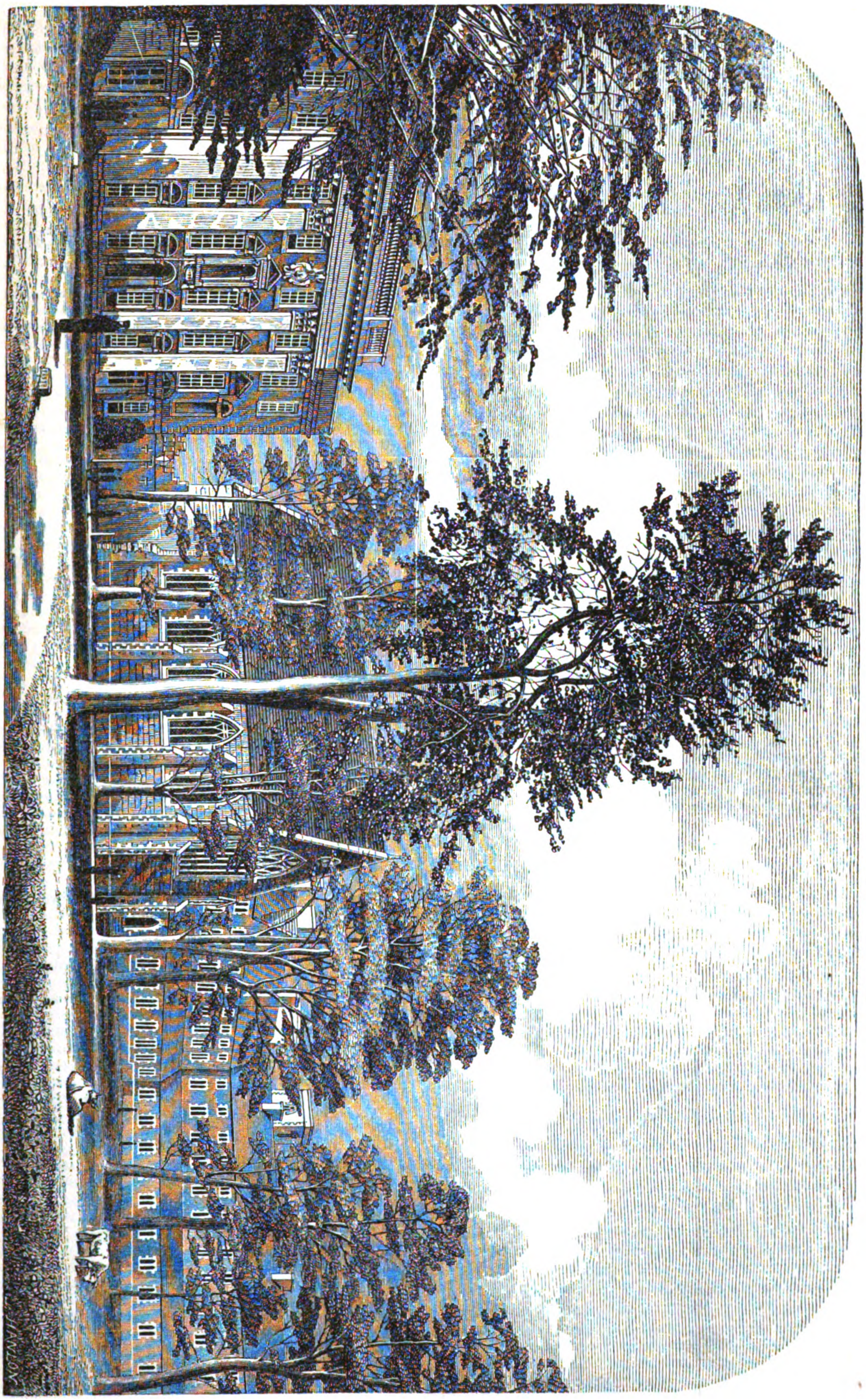


Forster & Co. Lith. Dublin.

A, *Mahogany, Memel & Red Pine Store Yard.*
B, *Sawing and Planing Mill.*

SAWING, PLANING & MOULDING MILLS.

C, *Spruce Deal Store Yard.*
D, *White Pine Store Yard.*



ALL HALLOWES COLLEGE, Drumcondra, near DUBLIN.—Mr. J. J. M'Carthy, R.H.A., Architect.

ALL HALLOWES COLLEGE,

DRUMCONDRA, NEAR DUBLIN.

THE accompanying illustration is an engraving by Mr. Hanlon, from a photograph which has been faithfully perpetuated. This accounts for the extensive foliage in the foreground, as the point from which the view was taken is studded with beautiful trees. For the sake, however, of our "architect" readers we should have wished the beauties of nature to merge a little, and admit of the artistic features of this handsome quadrangle being better developed. The block has—by the courtesy of the President of the College—been kindly placed at our disposal.

The buildings at present erected form part of a general design which is being gradually carried out as the requirements and means of the college increase. They consist of the north, west, and part of the south wings of a quadrangle 220 feet square in clear. No part of the east wing has yet been taken in hands. The west wing, or entrance front, facing the Swords-road, contains the entrance hall and grand staircase in the centre, with porter's lodge. To the right of the entrance hall is the *Aula Maxima*, in which the great academical exhibitions of the college are held: its dimensions (exclusive of the gallery at the southern end) are 95 feet in length by 30 in width and 25 feet high; it is lighted by seven two-light traceried windows on the west side; one end is formed into an elevated *duis* for the reception of distinguished visitors. The principal entrance to the *Aula Maxima* is through three large doorways in the southern end, opening from a central cloister in close proximity to the church. Returning to the entrance hall, on the left is situated the General Reception-room which is 70 feet long by 30 wide. This room is also intended to serve as a museum of natural history, costumes, and antiquities of all countries, towards the formation of which several valuable contributions have already been made by former *Alumni* of the college, who are dispersed over every part of the globe. Through two pointed archways we pass from the central hall to the west cloister, which occupies the entire of the east side of the wing above described. The northern end of this cloister opens into the cloister which runs along the south front of the north wing. The principal floor of the north wing is occupied by the various study halls and class-rooms, such as the Sacred Scripture Hall, the Theology Hall, the Halls of Ecclesiastical History, Logic, Natural Philosophy, and Humanities, and the rooms of the College Debating Society. These halls vary in size from 40 to 20 feet long by 20 feet wide. The width of each cloister is 12 feet. The north wing also contains a large staircase for the use of that part of the establishment. The two upper stories of the west wing contain a central corridor 10 feet wide, lighted by large three-bay windows in the north and south ends, and by lantern lights in the roof. On either side of these central corridors are situated the President's-rooms, with those of some of the Professors and Students. There are sixty rooms for residence, including baths. &c., on both floors. The north wing being narrower than the west, has the corridors (which open into those of the west wing) on the north side; so that the professors' and students' rooms (numbering, in all, 32) face the south.

The greater part of the south side of the quadrangle will be occupied by the church, of which at present the choir and sacristies only are built. The choir is 80 feet long by 26 feet wide; the side walls are 30 feet high, and the roof of high pitch and open. The east window is of five lights with traceried heads: the windows in the south side are all of three lights, with traceried heads of various patterns. The demands on the college for increased accommodation for the students, and other pressing necessities, have hitherto prevented the permanent furnishing of the chapel or the introduction of decorations to any liberal extent. Temporary altars and stalls, of the exact dimensions of those which are to be permanent, have been erected, so that ecclesiastical order and discipline is perfectly observed in the several church services and ceremonies. A generous benefactor of the institution has erected a monument to the founder of the college, the late Rev. John Hand, in the usual place on the gospel side of the altar. Some mural paintings by Messrs. Barff and Co., ornament the east end. The design for the completion of this church, as shown by the drawing exhibited by the architect, Mr. J. J. M'Carthy, in the Royal Hibernian Academy last year, comprise an ante-chapel extending towards the west, and projecting about 15 feet beyond the front of the west wing, lateral chapels, and tower and spire. A cloister connecting that of the west wing with buildings to be hereafter erected towards the south, will be continued along the west front of the ante-chapel; and over the cloister will be an organ gallery. The west end of the church will be lighted by a large Catherine-wheel window.

The east wing will be, like that of the north, appropriated to class rooms, study halls, and the dwellings of professors and students. It will also contain the college library.

The fine old mansion, shown in our illustration, formerly known as Clonturk House, situated to the south-west of the new college, contains the present library, the refectory, and dormitories for some junior students.

The grounds to the east and south of the college are appropriated to the recreation and exercise of the students; and a little *capella* in Italian architecture, erected by the proprietors of Clonturk House during the last century—not as a chapel, but as a lounge—is now the last resting-place on earth of the deceased members of the college.

We believe an antiquarian spirit had some influence in selecting the name "All Hallowes."—The lands of Clonturk, or Clynturk (the site of the college), were a grange belonging to the ancient Priory of All Hallows, Dublin. They are frequently mentioned in the ancient registry of the priory, published by the Irish Archolæogical Society in 1845.

The entire of the new buildings have been built and finished to the perfect satisfaction of the Directors of College by Mr. John Conolly, of Prince's-street, Dublin.

MACHINE CARPENTRY AND JOINERS' WORK MILLS.

WE give this month a view of the extensive Saw-Mills lately erected at the North Wall by the Messrs. Martin, which we visited a short time since, and were so pleased that we considered the subject worthy of being presented to our readers as a supplemental illustration. The mills are for the purpose of sawing and working timber to suit the various requirements of the building trade, and we believe them to be as extensive as any in the sister country. We noticed that the machines were by Woorsam & Co., London; Forrest and Barr, Glasgow; and Robinson & Son, Rochdale; also that an Irish firm (Victor Coates and Co., Belfast) constructed the powerful steam engine and boilers. The facility of erecting buildings must be greatly aided by the application of machinery. These mills are capable of turning out daily within the usual hours from 12 to 15 hundred of cut deals, 60 to 100 tons of cut timber, and 20 to 30 thousand feet of prepared flooring and mouldings; and in the extension now making on the east side, additional machinery can be erected so as to accommodate the various requirements of the trade, ample available steam power being in reserve. A rumour has reached us that offers have been made to the proprietors for the purchase of the concern by a company—the formation of which is contemplated by some members of the trade—for the importation and sale of timber; whether this arrangement be carried out or not, we feel convinced that a more convenient locality could not have been selected for the erection of the mills, standing, as they do, close to the import timber wharf, and in the midst of every description of imported timber, with ample room for storage, presenting facilities for supplying our wants without seeking elsewhere, saving risk, expense, and consequent delay of cross channel freight, and at the same time giving employment to our local tradesmen.

PROPOSED NEW BRIDGE ACROSS THE LIFFEY.

THE project so long talked of, so frequently and so earnestly urged on public consideration, and as often shelved to bide its time, seems to be again on the *tapis*; but we apprehend it will *again* share the same fate as hitherto, till the memory of "the quay-wall tax" shall have vanished—till "the whinstone pavement *experiments*" be fully paid for, "the water supply problem" solved, and the tone of the public mind fully tested by *pecuniary draws*—till the existing bridges shall have been pronounced incapable of modification for *required* purposes—and till provision is made, by the construction of docks elsewhere, for the shipping now occupying that portion of the river—and last, not least, till the funds are forthcoming to meet the expenses.

THE DUBLIN MECHANICS' INSTITUTE.

WE are gratified to announce that harmony—not dissension, as heretofore—prevails in this establishment, and that the last Annual Report shows its financial position to be in a healthy state, "all liabilities having been discharged up to 31st December last, and a balance of nearly £50 remaining in hands." What a contrast to former years! We heartily wish it may continue to prosper, and as enemies often become sworn friends, that *all* will unite hand in hand, consigning the unpleasantness of the past to oblivion, and think and work for but one object—the advancement of the Institution. The lecture-hall has been much improved—and there is an alteration in the platform contemplated—under the directions of Mr. John Bourke, architect, one of its earliest members, and who has ever taken a lively interest in the well-being of the Institute.

RESTORATION OF ST. DOULOUGH'S CHURCH, COUNTY DUBLIN.*

Ever ready to chronicle progress, we feel pleasure in recording the effort now being made to preserve this ancient ecclesiological relic from dilapidation. To those who, previously to the introduction of railroads, travelled by the ordinary route to Malahide, these remains were familiar; but comparatively few now-a-days have an opportunity of seeing them unless impelled by antiquarian tendencies to the spot. Writers on the antiquities of Ireland have rarely omitted to mention St. Doulough's, but some only in such a casual way as to leave a very faint impression respecting its architectural merits. Ledwich, Grose, Miss Beaufort, Brewer, Colgan, Ware, and others, for instance, have each alluded to the building, but evidently without detailed investigation. In May, 1856, Mr. Sloane, C.E., architect, of this city, and now entrusted with the work of restoration, after a careful survey, prepared comprehensive drawings of the structure, which, with a lengthened paper on the subject, he submitted to the Ecclesiological Society of St. Patrick's. The Rev. Dr. Reeves, Vicar of Lusk, read another paper before the Royal Irish Academy in April, 1859, which aroused the lovers of antiquarian art to make a positive move towards the saving of this venerable relic from ruin. Subsequently an influential committee was organized, and donations liberally poured in, so that we soon expect to hear of practical steps being taken towards the development of this object.

Mr. Sloane's estimate for the necessary repairs is £143 16s., comprising the following items, viz.:—

Exterior, ...	£61	17	6
Cell, ...	16	11	6
Oratory, ...	25	17	0
Chamber over Cell, ...	7	2	6
Chamber over Oratory, ...	15	16	6
Staircases, ...	8	10	0
	180	15	0
Contingencies, at 10 per Cent,...	13	1	0
Total, ...	£143	16	0

A sum seemingly very small for such an important work; but the smaller the more available happily. To the present incumbent, the Rev. W. S. Kennedy, much merit is due for his exertions to accomplish this undertaking, and if others followed his example, the few ancient architectural relics Ireland can boast of would not be in their present neglected and deplorable condition.

Correspondence.

THE LATE FIRE IN LOWER GARDINER-STREET.

THE PROPOSED WATER SUPPLY.

TO THE EDITOR OF THE DUBLIN BUILDER.

Dear Sir,—We are told by the promoters of the Corporation Water Works Bill, now before the public, that a principal benefit to be derived from the new system is, that "if a fire occur, we can have within *two minutes*, not *two* or *three* or *ten* fire-engines pouring water continually upon it, but the pressure of the great city basins pouring a vast flood with great force upon the burning pile." This—without specially commenting on the actual merit of the proposed water scheme, from which, though differing on principle, I am free to confess has been ably and practically dealt with in some of its details by Dr. Gray and the other gentlemen constituting with him the subcommittee appointed by our municipal body—appear to me a palpable absurdity; for this reason, that be the supply ever so powerful and copious, it cannot, without extraneous aid—viz., proper organization of a fire brigade (which there is not) promptly to place in operation the mechanical appliances necessary to render the water available—of itself be of any service. I have been present at many fires in the city, great and small: I have both witnessed and heard various just complaints of deficiency of water, the late arrival of engines, and so forth, but never to the extent that I did on the night of the 21st inst., when the fire broke out in No. 96 Lower Gardiner-street, and when there was abundance of water *twenty feet* distant, but *no engine* to work it. Happily the consequences were comparatively trivial, but they *might* not have been so, and considering that there was a heavy gale of wind blowing at the time, the result, however fortunate, seems providential and mysterious. At ten o'clock, or thereabouts, the alarm of "fire" was given, and after a short interval *one*, *two*, *three*, and subsequently more policemen arrived. Delay arose in procuring entrance, but when effected the first step was to open the hall door wide, as also the *two* drawing-room windows. Under *any* circumstances I need scarcely dwell on the injudiciousness of such a course, but with a positive storm to fan the flame, the proceeding was (to say the least) most stupid and ill-timed. The trimmings of the two-pair front window were on fire, the squares of glass gave way one by one, and each gust of wind acted more powerfully with each additional vent; now all this time, while the police were within, confusion seemed to reign amongst those without—no one seemed to have his proper duty defined, and each looked to his fellow to do the needful. St. Thomas's and St. George's parish engines were sent for, but neither were to be had; and until the police within, assisted by a chimney sweep named "Foley," who volunteered his services, literally tore every atom of burning woodwork from the window and thereby arrested the progress of the fire more extensively, the consequences appeared to be most seriously questionable. All this time, though the fire-plug was turned on and yielded an abundant supply, no engine was to be seen, nor did any arrive until fifteen minutes past eleven o'clock—*one hour and fifteen minutes* after the fire originated, and in which period the house might have been reduced to cinders. Here then was no lack of water; and if ten times as abundant a supply were obtainable, of what avail could it be without the hose and the engines?

A Beholder.

THE TIMBER MEASUREMENT QUESTION.

TO THE SECRETARY OF THE BUILDERS' ASSOCIATION OF IRELAND.

Sir—My attention has been called to a report of a meeting of the Builders' Association, held on Monday, the 9th instant, at which the following resolution, amongst others, was passed:—

"Resolved—That Mr. Barcroft, the present measurer, be called upon to state his opinion relative to calliper measurement, and to what extent it affects the purchaser in contradistinction to string measurement."

In compliance with the above resolution I beg to say that, in accordance with my experience, which extends over a period of 25 years, I have found a difference in favour of the string, of from 5 to 25 per cent. to exist, according as the timber was well squared or wany; and I fully agree with that part of Mr. Chaloner's letter wherein he states that it is necessary to have a sworn measurer to act between the merchant and the purchaser—for during my experience, I have found many frauds attempted to be practised by unprincipled parties, and especially upon public companies. The purchaser is not generally aware, however, that he has the power to call upon the measurer to examine the merchant's account, in order to see that the measurement of the timber for which he is charged is correct or otherwise, yet such is the case. However disposed I may be to agree with most of the remarks contained in Mr Chaloner's letter, I cannot but think we ought to be able to settle all our differences amongst ourselves, and with this view I would propose that a deputation, consisting of builders, retail timber merchants, and cabinet makers, should wait upon the Messrs. Martin and lay this matter, and their views upon it, before these gentlemen, when, I have no doubt, an amicable arrangement will be the result. The Messrs. Martin have already stated in their circular that any of the trade wishing to purchase according to the old arrangement would be so dealt with, and in either case I will be the measurer to stand between them and the purchaser. It is undoubtedly the interest of all parties concerned that the timber trade should be kept in the port of Dublin, and to effect which a sound and friendly feeling should exist between the importers and the trade.—I am, sir, your obedient servant,

J. Barcroft.

42a, Brunswick-street, Jan. 13, 1860.

Liverpool, December 27, 1859.

Dear Sir—The profession or trade of a timber measurer is not to be made light of because "a shilling per load" might be saved by disregarding his services. The integrity of the timber market is most immediately connected with the independence and skill of its port timber measurer, and his employment cannot be dispensed with without injustice resulting to some interest. Indeed the function of a timber measurer is practically to define the customary usage of the port, and so lead to and enable the importer, dealer, and consumer, respectively, to avail themselves of honourable and fair dealing. The art of measuring timber, in any well-regulated community, is as needful in practice as any other branch of skill, and has the like right to its share of patronage and remuneration, while honesty and common sense alike demand its conservation, for the general good of the community. In Liverpool, for a long series of years, calliper measure was unknown (except in the collection of duty), and though now used as a freight measure on all colonial and Baltic firs, its use has been successfully resisted up to the present time, and very justly so, for calliper measure is just only between the importer and shipowner, as determining the space occupied, whether the logs be sound or rotten, well squared or wany; and its use, even for the exaction of duty, is more on the ground of expediency than justice. To charge the consumer by calliper measure is at variance with fair dealing, simply because by calliper you charge the buyer with a quantity beyond that which you deliver to him, and this is contrary to the usage of all trades, where more of an article is *usually* delivered than is charged for, but never less. For instance, you hear of thirteen to the dozen, but *never* two, or of six score to the hundred, but *never* four; and whether in the case of discount or measure, there is always something in favour of the buyer. It has been the common law of England, that a man could not vend any article as of a measure or weight greater than that actually sold. Every schoolboy has learned tare and trett. Now, apart from the usage of trade, no article requires cutting more than wood, and even when cut up, sawn fir is divided into four qualities; how much more necessary is this classification when the wood is in its raw or unsawn state, and some logs very defective, some perfectly sound, or some exactly squared, and others comparatively round? The acceptance of timber solely by calliper measure would lead to very many abuses, fraudulent representations, ill-squared logs, or logs nearly round. The calliper, beyond its use for masts and spars (because used in the round), was an instrument unknown for the measurement of logs in England until the introduction of a war-tax, where it appears to have been introduced among the custom officers for the sake of simplicity and uniformity. So important was the art of measuring considered here, that not only did it require, as now, an apprenticeship to learn it, but measurers had to be sworn by the Corporation before they were qualified to act. The trade of timber measurer is yet one of the most important in this port, and certainly in no trade are there greater opportunities for dishonest practices as regards measure, as well as representation and manufacture, and the best check on these is in the employment of the disinterested and responsible measurer. The difference between string and calliper measure of timber varies so much, averaging, as it does, from 5 to 25 per cent., that no buyer can judge sufficiently close to enable him to regulate the difference by price only. The port of Dublin, which has hitherto given to its cabinet-maker a larger tare on wood than is obtainable in any other port of the United Kingdom, seems inclined henceforth to exact from its builder payment on fir, not only without any tare whatever, but absolutely to make him pay for what he does not receive, and this to the extent of nearly 25 per cent. as an extreme case. This is justice to an Irish capital with a vengeance, and yielding tare after an "Irish fashion." The Scotch are very practical, and string measure, and not calliper, rules all sales of fir, whether in Leith or Clyde.

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* For a detailed description of this edifice see page 71 ante.

E. Chaloner.

Dublin, 13th January, 1860.

Sir—The letter of Mr. E. Chaloner, in the *Freeman* of 11th inst. on the subject of timber measurement, requires a little explanation; and as the parties who got that letter written and published have not thought fit to afford it, I will endeavour to supply the omission. In the first place, Mr. Chaloner is a Liverpool timber broker, and of course, as such, takes a great and unselfish (?) interest in the Dublin timber trade; and further, Mr. E. Chaloner is a Liverpool timber measurer, and very naturally has an aversion to a change that would dispense with his services in this respect. In the possession of these facts, the public will be enabled to judge of Mr. Chaloner's independence and impartiality on the subject on which he writes, and how far his statements may be biassed by his interests. Mr. Chaloner speaks with authority on the functions of a timber measurer, and as he both measures and sells the timber to the trade, he must know what protection he affords them. Still, with all deference to Mr. Chaloner, I do not think any interest would suffer, except the measurer's, were his services dispensed with; and I am of opinion that the Custom-house officer, who measures by calliper, and who is independent of all parties, is quite protection enough as between merchant and trader, without the intervention of a second measurer, the expense of whose duties falls on the trade. Parties not in the trade may naturally suppose that the change from string to calliper is an innovation, and not in general practice, on reading Mr. Chaloner's letter, while the fact is, timber is sold by calliper in all the Irish markets, and in London, Bristol, Hull, and other principal English ports, except Liverpool. Mr. Chaloner's ingenious remark about the Scotch being very practical, and buying their timber by string, if it has any meaning, amounts to this, that the traders of London, Bristol, Hull, Cork and Belfast are not so, and that the good sense of the United Kingdom, as far as the measurement of timber is concerned, is confined to the Liverpool, Leith, and Clyde markets. Does Mr. Chaloner hold this opinion?

I am at a loss to know what are the "many abuses and fraudulent misrepresentations" to which the adoption of calliper measure in the market would lead, and cannot understand how it would make logs of timber either "ill-squared or nearly round;" while very little experience would enable any one to estimate the difference in the value of timber according to the measure by which he buys it. Mr. Chaloner's sneer at things done after an "Irish fashion" was a fitting wind-up of the statements he has made for the information and instruction of the builders of the "Irish capital," in a style which, I am glad to say, has nothing Irish about it, and has, no doubt, afforded unbounded satisfaction to those who elicited it. Mr. Chaloner is not to be blamed; he is only attending to his business, which is, to try and divert, still more, the trade of this port to Liverpool.—I am, Sir, your faithful servant,

One in the Trade.

[At a meeting of the Shipbuilders of the Port of Liverpool, held on the 26th ult., Mr. Thomas Royden in the chair, it was resolved that, "by the *old-established Quay and String* Measurement of the Port *only* will we, the undersigned, hereafter buy and consume any imported logs of wood."—Signed, Thomas Royden and Son, Clover and Royle, Cato, Miller and Co., R. and J. Evans and Co., Chaloner, Hart, and Sinnott, T. and R. Clarke, jun.]

TO THE EDITOR OF THE FREEMAN.

Liverpool, 21st January, 1860.

Sir,—Through an anonymous correspondent you did me the honour in your impression of Saturday last of naming me as "a wood-broker and measurer," no fewer than *eleven* times. To this letter I do not deem any reply to be needful, but content myself with stating that, in the above capacity I was on the Thursday and Friday of last week employed by the importers of Liverpool, to sell by auction six cargoes of first-class woods, in the measurement of which, if reckoned by the Custom House *calliper* measure, every third foot was yielded as tare to the buyers, of whom there were no fewer than 110; and I beg to inform the timber trade of the United Kingdom in general, and Ireland in particular, through your columns, that these auction sales of imports are here of periodical recurrence, and that the next will take place on the mornings of Thursday and Friday, the 2nd and 3rd of February, 1860, commencing each day at eleven o'clock, agreeable with an advertisement which appears in another part of your journal. Catalogues are available for reference.—I remain, &c., Edward Chaloner, Wood-broker.

Notes of New Works.

METROPOLITAN.

Among the many building improvements of a domestic class proceeding in our city, we must not omit noticing the house, No. 2, Merrion-square East, the residence of James Tyrrell, Esq. It has undergone considerable improvements, the height being increased two feet, newly roofed, and a granite cornice frieze and blocking on front, plate-glass windows, handsome balcony, &c. The hall entrance is by a spacious flight of moulded steps of Ballyknockin granite, with massive iron railings at the sides and round area. The doorway has a portico with columns and pilasters of polished Aberdeen granite (the first of the kind used in the city); the entablature is of Irish granite. The interior of the house has been considerably improved and decorated, a splendid vestibule being the principal attraction, which is on the first landing of the staircase, and upwards of 30 feet long by 10 feet wide, having a range of Corinthian columns and pilasters—with carved pedestals—on each side; the spaces between being filled with stained-glass windows (supplied and fixed by Mr. Gibbs, sen., of Marylebone-road, London) representing Poetry, Music, and Drawing, with mirrors on the opposite side. The approach to the inner vestibule is by marble steps, and is lighted by a glass dome, the open being enriched with a stucco frieze and a foliage of oak. The ceiling is a splendid specimen of stucco-work, having a full Corinthian cornice, and the ceilings are divided with enriched panelling. The floors of vestibule and halls are splendid, laid in various patterns of Maw's encaustic tiles. The architect of the foregoing is Mr. E. H. Carson, and the works have been executed by Mr. Saml. H. Bolton, builder, of Richmond-street; the painting and decorating by Messrs. Sibthorpe and Son. The expenditure was about £3,000.

The Messrs. Lovely are about erecting a very extensive covered timber-yard in Poolbeg-street. The roof, of 50 feet clear span, in iron, has been designed by Mr. Sloane, C.E.

A large corn store, 250 feet in height and 55 in width, and roofed with timber ring post trusses, with four lofts, is to be built at Wapping-street, North Wall, Mr. Louch, architect. Owing to the slob nature of the soil, the foundation will be 10 feet deep. The expense will probably be £6,000.

Tenders are in preparation for a house at Victoria-terrace, Sandymount, for Francis Salmon, Esq. Mr. Sloane, C.E., Architect.

An asylum has been recently completed at New-street, after plans furnished by Mr. Joseph Maguire, architect; Mr. S. H. Bolton, the builder. It is designed to accommodate twenty-six widows; is of plain but substantial character externally, and its internal arrangements are commodious and suited to the required purposes. This structure has been erected at the sole expense of Alderman Atkinson, at a cost of £1,000, to commemorate (as we learn) his year of Mayoralty, and forms another link in the chain of philanthropic acts which has distinguished the worthy alderman, and is worthy of imitation by those who succeed to the honour of the civic chair.

Several villas are about being erected at Leeson Park, near the site of the new Molyneux Church. Mr. Sloane, C.E., architect.

Preliminary arrangements for the erection of the new Augustinian Church at John-street are so far progressing that operations will shortly commence, and we understand that designs will be invited from architects in competition.

The house No. 81, Grafton-street, which fell some time since, is being rebuilt by Messrs. Hopkins, to add to their adjoining premises. The front will be of decorative character from designs by Mr. Burne, architect. Mr. J. H. Bolton is the builder.

Extensive improvements are in progress on the demesne of Friarstown, for Captain Baily, under the superintendence of Mr. John S. Sloane, C.E. and Agricultural Architect; also large farm-offices, including houses for various machines and farm implements. These will be driven by a turbine, or horizontal wheel, on the principle so successfully applied by Mr. Sloane, in situations where economy of water is an object. The turbine will be supplied from a large reservoir, or catch water basin, which is intended to receive the water from several fields in progress of being drained. The waste water, after doing its duty in the turbine, will be used for irrigation, and other works of a useful character. In the same demesne is being formed a very fine fish-pond, which will, from its ornamental character, add greatly to the picturesqueness of the estate. The contractor for the various works is Mr. Aaron Laughlin, builder.

Various artificers' works are to be performed at Portobello Barracks, Dublin, from 24th inst. to 31st prox. and tenders are required for same.

PROVINCIAL.

A new place of worship, for the Primitive Wesleyan Methodists, has been erected and opened at Tyrone. The building is said to be chaste and beautiful.

A site has been selected on the South Mall, Cork, for the proposed Protestant Hall, and the owner, Miss Howard, has presented it to the promoters.

A new convent is to be built at Mountmellick according to designs by Mr. John S. Butler, of Dublin, architect.

A handsome dwelling house is to be erected at Dundrum, County Down, on the property of the Marquis of Downshire, according to plans, &c., by Mr. Henry Smith, architect, Downpatrick.

The Grand Jury, Co. Longford, are about erecting an iron lattice bridge at Scrabby, on the road from Granard to Arvagh, with other works in connection therewith, for which they are prepared to receive tenders up to the 18th inst.

A gallery is about to be constructed at Banagher Presbyterian Church, according to designs by Mr. Fitzgibbon Louch, Architect and C.E., Derry.

Lord Lorton is about to place in the church of Ardcarne (now rebuilding) a Memorial Window, to the memory of the late Viscount and Viscountess Lorton. It has been ordered in London, and will cost about £200.

A commodious parochial house is being completed at Edenderry, and the Marquess of Downshire has given £30 subscription.

The new convent of the Sisters of Mercy, Roscommon, is being completed.

The Gothic chapel recently erected at Carrick-on-Suir for the Christian Brothers, is a neat building, and contains a handsome stained glass window by Messrs Casey, Brothers, of this city.

St. Patrick's new Catholic Church at Gargary, Dolly's Brae, has been erected under the direction of Mr. W. J. Barre, of Belfast and Newry, architect, who, as already stated in the *Dublin Builder*, took the prize in the Ulster Hall competition, It is in the Gothic style, designed to accommodate 600 persons, and in the belfry is a bell of 10 cwt., cast by Mr. Murphy. Messrs. Barff and Co. supplied the altar and tabernacle. Expenditure about £2,000.

The Right Hon. Lord Carew has contributed £100 towards the erection of the new church at Courtnacuddy, also a site in addition.

A new Convent is to be built in a conspicuous position on the Upper Glanmire-road, Cork.

A large sum is to be appropriated to the extension and improvement of the Athlone Barracks, which are said to be very much restricted.

From the mineral statistics for 1858, compiled by the Keeper of the Records at the Museum of Practical Geology, it appears that the total value of minerals raised in the British Isles in that year was £22,319,599, of which two thirds were for coal. Estimating the value of the metallic ores when in a marketable state, and adding that of the coal, the gross amount is £31,266,932. It also appears that the quantity of coal raised in the year, which was 65,529,483 tons, was equal to nearly three times the quantity obtained in the five principal coal-producing countries of the Continent, and that of this large aggregate only 6½ millions of tons were exported, our home consumption and stock in hand accounting for all the rest.

Intelligence of the successful laying of the telegraph between the Channel Islands and France has been received.

Reviews.

Examples of Modern Alphabets, Ornamental and Plain. By F. Delamotte. London: E. & F. N. Spon.

In a former number we had occasion to notice the "Book of Ornamental Alphabets, Ancient and Modern," by the same author, and to express a favourable opinion thereof. The work now before us is a companion to it, and produced in similar style and size. The contents comprise examples of various Alphabets, large and small, Ornamental, Egyptian, Spurred Letter, Fleur-de-lis, Riband, Saxon, Italian and Roman shaded, Ornamented German, Italic, Gothic, Perspective, Rustic, Pearl, large and small Relief, Arabesque, Roman, and Old English, Analytical, &c.; together with Hebrew and Greek, and Engrossing and Court Hand Characters. The selections are excellent, and the book must prove an acquisition to numerous classes, from the architect to the sign-painter, and we may add, the scrivener likewise.

Irish Rural Almanac for 1860. William Robertson, Dublin.

The proprietors of an excellent cotemporary, the *Agricultural Review*, edited by Dr. Cameron, produced with the new year an almanac, to the compiling of which the editor and contributors of that journal lent their assistance; and the little volume—which, however, extends to some 180 pages of closely-printed letter press—is a most creditable work, elegantly printed, and comprising much valuable intelligence in farming, gardening, and sporting matters, besides some generally useful tables and memoranda.

Such spirited enterprise as characterises this establishment merits, and doubtless will command its reward.

The Architects' and Mechanics' Journal: an illustrated periodical.—New York.

Vol. I.; No. 9. (the first we have seen) has reached us. It gives us much pleasure to see that the various classes in the Far West, to whom our own journal—in this country—is devoted, are likewise represented by a very excellent contemporary. It, like ours, no doubt, has, in its infancy, much difficulties to contend with, arising from various causes, of which invidiousness is probably not the least prominent; but from our own experience of what *may* be done by energy and perseverance, we would counsel our "transatlantic brother" to bring these powerful levers unceasingly to bear—guided by forethought—and complete success will crown his efforts. The journal is *well written*, the selections *varied* and *judicious*, the paper, letter-press, and printing *good*, and the illustrations *excellent*. The remarkably small subscription of two dollars per annum (of course, in advance, and exclusive of postage) will secure 52 copies, and we warmly commend it to *our* friends.

There is another journal of a similar class published in Australia and termed the *Melbourne Builder*.

LAW NOTES.

COURT OF COMMON PLEAS.

The Right Hon. Lord Gough v. *Carmichael.*—Motion was made for liberty to plead double to this action, which was brought to recover damages for alleged negligence and breach of duty as an architect. The pleas sought to be pleaded were a traverse of the contract, as alleged in the summons and plaint, and also of the alleged negligence. Granted. Several cases of great interest to the members of the building profession especially will come off this term, amongst which we may name that of Kempston v. Butler, Hugh Kelly v. Crampton, Burke v. Carroll.

STATE OF THE COURT.

Sergeant Fitzgibbon applied to the Chief Justice to cause the proper authorities to have remedied the heating arrangements of the Court, and stated that he felt much difficulty in speaking at all, in consequence of the steam coming from under the table; and remarked "it was hardly credible that those who have the care of constructing and arranging buildings like those should be so brutally ignorant of the laws they are acting under." His Lordship promised to draw the attention of the Board of Public Works to the matter.

OBITUARY.

We regret to announce the unexpected death of Mr. Thomas Anthony, aged 62, of this city, architect and building surveyor, which took place on the 17th ult. Mr. Anthony was a native of Cork, an excellent draughtsman, and an experienced measurer, in which latter capacity he pursued a lucrative practice for many years, and for some time previously also undertook building contracts.

THE COUNTY SURVEYORS OF IRELAND.

SEVEN members of this body—viz., Messrs Brett (Wicklow), Lanyon (Antrim), Tarrant (Waterford), Townsend (Queen's County), Hill (King's County), Stokes (Kerry), and Tate (Dublin)—presented a memorial to His Excellency the Lord Lieutenant, to the effect—That the office was instituted in the year 1834, and was the first for which a competitive examination was required. That every holder has undergone examination, conducted in a severe and searching manner, into his qualifications as a civil engineer and architect. That the duties of the office are of an onerous and responsible character, and have been and are continually on the increase—fourteen acts of parliament having been passed, each of which has added to these duties, without providing any increase of salary. That there is no allowance whatever for travelling expenses. That the salary, after payment of travelling expenses, is little over £200 in the smaller counties, and much less in the larger. That such remuneration is inadequate to the qualifications, duties, and responsibilities of a county surveyor, and far below that received by civil engineers in other public departments, or by any of the other civil servants of the country of equal standing and attainments That while every other county office has been classified with salaries proportioned to the duties, no classification exists for the office in question. That the salary has, in every case, been fixed at the maximum allowed by law. That the duties of this office are exercised over areas, expenditures, and mileage of roads, which vary respectively from 200,000 acres to 1,200,000 acres—from £4,000 to £31,000—from 400 miles to 1,900 miles. That while the principle of superannuation is all but universally applied to other public officers, there is no provision by which county surveyors can be superannuated, or placed upon a retiring allowance. That the inadequacy of the remuneration has been frequently brought before the executive, and as frequently admitted." The memorialists pray that His Excellency will graciously cause such measures to be taken as will bring the matter before the legislature during the present session, so as to give effect to the recommendation of the select committee.

The prayer of the memorial is recommended by the Duke of Leinster; the Marquesses of Drogheda, Conyngham, Londonderry, Clanricarde, Sligo: the Earls of Antrim, Farnham, Arran, Dunraven, Bandon, Listowel, Ventry, Castlerosse: Viscounts De Vesci, Lifford, Ashbrook, Monteagle, Monck, Powerscourt: Sirs R. G. Booth, M P., George Hodson, D. Norreys, J. Esmonde, C. Coote, A. Weldon, H. Walsh, Thomas Young, G. G. Aylmer, James Stewart, Thos. Burke, M.P., C. O'Loghlen, John Carden John Stronge, Richard Musgrave, Richard O'Donnell: Barons Dunboyne, Stuart Decies: and the following Members of Parliament—Lord Dunkellin, D. O'Connell, The O'Donoghoe, Right Hon. H. A. Herbert, W. Monsell, Dawson Damer, Michael Dunne, R. P. Dawson, Stewart Knox, W. W. F. Hume, Charles Tottenham, E. J. Cooper.

Miscellaneous.

SIR JOHN MCNEILL, C.E., AND MR. JOHN BOWER, C.E.—A smart correspondence has recently appeared between these gentlemen, relative to the proposed Letterkenny and Lough Swilly Railways, of the former of which projects Mr. Bower is engineer. Sir J. McNeill asserts that "the Letterkenny line has a series of curves of contrary flexure from end to end; that "there are only 1¾ miles which can be considered straight;" condemns the curves in Donegal; and assumes that "the Board of Trade will not sanction the level crossings;" states "that a good line could be laid out that would suit the country better;" that "the cuttings and embankments are not judiciously planned," &c., &c. To these Mr. Bower replies, that (even if true) "curves of contrary flexure would not indicate a bad line, as nearly all modern railways have become of that character, economising capital, and increasing the profits to the shareholders;" that "the straight portions measure upwards of 3 miles;" that "there are 4¾ miles on flat curves of from 4 to 12 furlongs radius," making nearly 8 miles which, for all practical purposes, "may be considered straight." Mr. Bower also reminds Sir John, that he (Sir John) is now making lines with *quicker* curves on *worse* gradients—viz., County Down main line, and Bangor and Donaghadee branches; also, that on the Navan and Kells line there are *seven* level crossings out of *eight* public roads, on *nine* miles of railway; and hopes before the Parliamentary Committee to disprove the statement relative to the cuttings, &c.

OAK STAINS.—To such perfection has "imitation" in painting arrived, that the *natural* product may frequently find a fitting substitute in the artificial article; and perhaps in no instance connected with building materials is it more so than in that of woods and marbles. An imitation, if inferior, is positively *bad* to a vengeance, but if good, it will command attraction. The process of staining and varnishing is comparatively simple, and certainly more effective than the ordinary *regimé* of painting. To impart even to *new* deal the appearance of "oak" is the purpose of Ibbotson's stain, for which Messrs. Boileau and Boyd, of this city, are the agents.

TESTIMONIAL TO DR. CAMERON, Professor of Chemistry, Editor of the *Agricultural Review*. &c., &c.—We are much gratified to see that this long-contemplated and well-merited compliment has at length been matured, and that the handsome sum of £130 has been subscribed. The testimonial is divided into two portions—the one ornamental and useful, consisting of a very large gilt shade clock, representing Pandora in the act of opening the box and letting forth its destructive contents; the base, wreathed, standing on a gilt plinth. The supports are a pair of candelabra for five lights each, representing "History" and "Fame," each standing on a gilt plinth. The inscription is engraved on a silver-gilt shield, let into the rosewood stand for the shade. The whole constitutes an exquisite group; and in the selection of the figures of History and Fame the committee have manifestly intended to convey to Professor Cameron, in allegory, a graceful and marked compliment. The other is to be a complete chemical apparatus; and in coming to that decision the committee have exercised great judgment and good taste.

DROGHEDA HARBOUR BOARD—STAMEEN QUARRY.—At a recent meeting of this Board, Mr. Donor, Harbour Engineer, reported—"Now that the working of this quarry is about to terminate, and finding at all times the anxiety felt by this Board for the safety and welfare of the men in their employ, it becomes my pleasing duty to be able to inform them, that for nearly nine years past, during which time the work has been conducted by steam and manual labour, raising annually from 24,500 to 27,000 tons of stone, and having, by blasting, during that period, consumed five and a-half tons of powder, from the commencement of the work to the present time not one man has been disabled, or otherwise injured, so as to prevent him from attending to his work before the end of a week; and those solitary cases were caused by a cut from a stone or a bruise from a crowbar. This happy result is chiefly owing to the precautions taken to have the staging, gantry-roads, and machinery properly attended to."

ACTION OF IRON NAILS IN SHIPS.—M. Kuhlmann asserts that the use of iron nails in building wooden ships is one of the chief causes of their decay. The rotting or decay of wood is a process of slow combustion, and M. Kuhlmann considers that the iron nails act as carriers for oxygen, and introduce it into the substance of the timber. By contact with water and air the iron is rapidly converted into a sesquioxide. In this state it yields a portion of its oxygen to the wood, and is reduced to the state of protoxide, which further action of air and moisture converts to the sesquioxide and so the process goes on. M. Kuhlmann fortifies his theory with several experiments, and appeals to the well-known blackened and rotten appearance of ships' planks that have been long in contact with iron nails or bolts. Copper nails do not produce this effect. This is a matter which ought to be investigated by our naval authorities, as a large proportion of our annual expenditure arises from the decay of ships. We believe housewives will admit one fact which M Kuhlmann adduces, namely, the tendency to decay of those portions of linen or cotton articles which are affected by iron mould.

A handsome pyro-pneumatic stove-grate, combining the double quality of warming and ventilation, has been fixed in the National Bank. It answers its purpose admirably, and is the invention of Mr. William Pierce, 5, Jermyn-street, London, from whom full particulars as to its principle may be had.

THE PANTOMIMES.

THE "merry Christmas" and "happy new year" greetings are now matters of memory only, scarcely a relic of the festive season being left save the Pantomimes! The thread too of *their* existence is doomed to be untimely cut, when the withdrawal of the novelty element—now an expiring spark—in their vitality compels them to "yield up the ghost." The mysterious Harlequin's wand, the ærial movements of the Columbine, and the adventures of the "funny" Clown and suffering Pantaloon were never better appreciated by the public, both *old* and *young*, than in the Pantomimes presented this season at our Theatres. At the *Royal*, King Hotuponeverything vociferously maintained his supremacy as "King of the Castle," amongst all the gorgeous appendages of his court; and Prince Diamond and the Princess Brighteyes "*loved* and were *beloved*," until the cruel fairy, rejoicing in her powers of transformation, used her magic influence. The scenery, as usual, was diversified and attractive, though probably questionable—omitting the artist's licence—in some details. However, the lessee's catering energies seem not to flag, and he has maintained, as is his wont, the *ancient* credit of our national Theatre.

The *Queen's* audience, judging from happy faces and applauding hands, seemed to relish the humour and the adventures of "*Daniel O'Rourke*," with his not very enviable winged companion. The scenery, appointments, and mechanical appliances were, as usual, creditable to Mr. Webb's enterprise, making due allowance for comparatively limited resources.

NOTICE.

Post-office Orders and Remittances should be made payable to MR. PETER ROE, 42, MABBOT-STREET, DUBLIN.

☞ *NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the* DUBLIN BUILDER." *All other Communications should be addressed to the "Editor."*

Building Materials.

SAWING, PLANING, & MOULDING MILLS,

GREAT BRUNSWICK-STREET, DUBLIN,

MICHAEL MEADE,

HAVING nearly completed the extensive Buildings and Machinery for Sawing, Planing, Moulding, Tenoning, Grooving, &c., Timbers at his new works, begs to inform his friends and the public that he has REMOVED his business from Westland-row. In conjunction with his business as Builder, he has now opened a new department for the sale of all descriptions of Materials used in Building. Timber, Deals, Laths, Prepared Flooring, Skirtings and Mouldings of all Sizes and Patterns always on hand Doors, Sashes, Sash Frames, Shutters, Architraves, &c., made to order on the shortest notice and most reasonable terms. Being the *only* Manufactory of the kind in Dublin, it offers an advantage to persons Building which has not hitherto presented itself in this country.

From M. M.'s long practical experience in the working of all descriptions of Timber, persons requiring their Timber sawn or planed will find a great advantage in sending it to the above Mills.

THOMAS HENRY CARROLL,

70, SIR JOHN ROGERSON'S-QUAY,

(formerly occupied by Mr. James Fagan).

Now landing, ex CLIO, from Quebec,

The following FIRST-CLASS TIMBER GOODS:—

Prime Red Pine, of largest average and superior description.

„ *Quebec Oak, Elm and Ash.*
„ *White Pine* clean and large.
„ *Pine Board Timber*, of largest averages.
„ *Pine Deals & Plank*, 1st & 2d quality (no 3rds).
„ *Spruce Deals & Battens*, do., do., do.
„ *Pine Staves and Hogshead Staves*

N.B.—This Cargo is one of the best ever brought into this market, and the Timber will be sold according to the established rule of the port—viz., STRING MEASURE.

70, SIR JOHN ROGERSON'S-QUAY.

Is also fully supplied with the best ENGLISH, IRISH, and SCOTCH CLAY GOODS, including

Roof Tile, all sizes, Fire Bricks and Blocks,
Paving Tile, do. Chimney Tops and Cans.
Ridge Tile, do. Common and Fancy Bricks.
Sewer Pipe, do. Red Fronting Bricks.

Bangor Slates, and Bangor and Valencia Slate Slabs, Slate Cisterns; Portland, Scotch, Caen, and Daubigny Stone; Irish Limestone, in Block; Yorkshire and other Flagging; Seasoned Mahogany and Walnut Plank.

TWO CARGOES OF FIRE-CLAY *(Coal Island)* DRAINAGE PIPES, are now discharging.

THE CITY SAW MILLS.

JOSEPH KELLY,

Having purchased the Interest in Nos. 66, 67, and 68 THOMAS STREET, which adjoin the Saw Mill Premises, 128, FRANCIS-STREET, begs to inform the Public the Principal Entrance will be 66 and 67 THOMAS-STREET (opposite John's-lane). The large space acquired will give increased facility, and prevent any complaint as to delay.

Having also erected EXTRA MACHINERY for SAWING, PLANING, and MOULDING, &c., estimates can be furnished for Architraves, Doors, Sashes, Skirtings, &c.

The SLATE, PIPE, TILE, and BRICK YARD, JOHN'S LANE, is largely stocked with Wyatt's Best Bangor Slates, Doulton's Sewerage Pipes, Bridgewater Fronting Bricks, Oven Tiles, &c., Chimney Tops and Flue Linings.

The WHOLESALE YARD, Sir John's-Quay, contains:—

A large Stock of well-selected Timber and Deals, of the following Cargoes, imported this year, viz:—

Ex Agnes, St. John's Deals.
Ex York, do. do
Ex Cascade, St. Stephen's Deals.
Ex Swarthwick, Quebec, Timber Deals and Staves;
Ex Triton, from Memel, Timber and Lathwood.
Ex Sophie, Richabuctoo, Deals.
Ex Hiawatha, St. John's Deals.
Ex E. Sherman do. do.

And daily expects,

Ex Oello, from Memel, Timber, Deals, and Lathwood.
Ex Argentinus, St. John's Deals.

Which will be sold at moderate rates.

THE CITY SAW MILLS,
66 and 67 THOMAS-STREET
(Opposite John's-lane), late
127 FRANCIS STREET.

BUILDERS' Framing, Flooring, and Bench Cramps, in great variety of size and price, at

BOOTH, BROTHERS',
3, UPPER STEPHEN-STREET, DUBLIN.

SUPERIOR Red Fronting BRICKS, also Prime Stock Bricks, delivered at any Station on the Dublin and Wicklow Railway, at Kingstown, Dublin, &c., can be had from

BENTLEY AND SON,
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Samples lie at our office.

BUILDERS' GOODS, Kitchen Ranges, Ironmongery, Window Glass, Oils, Paints, and Paper Hangings, of the best qualities, at MAURICE BROOKS', SACKVILLE-PLACE, DUBLIN.

PATENT RIDGE TRESSLE,

FOR Builders, Bricklayers, Painters, &c. These Tressles will be found very important, as they make a safe and useful Scaffold on the Ridge of a Building in a few minutes.

For particulars apply to WILLIAM WILKINS, Builder, BANBURY, OXFORDSHIRE.

OFFICE OF THE "CROWHILL, MILTON, AND KENMUIR QUARRY COMPANY (Limited)."

51, Renfield-street, Glasgow.

HAVING entered upon a Lease of those extensive and well-known Quarries—Crowhill, Milton, and Kenmuir, near Bishopbriggs—long wrought by Mr. Wm. Neilson, parties desirous of supplying themselves with a first-class Rock, will be served promptly with any quantity, however large.

From our facilities for despatching materials by private Railway to Forth and Clyde Canal, Builders in Ireland will find this a cheap and ready mode of supplying themselves.

Any orders with which we may be favoured, shall receive our best attention.

WILLIAM GRAY, Secretary.

Note—We refer for sample of our stone to the new National Practising Schools, at Lower Gardiner-street, Dublin, and new Exchange, Dundalk.

BATH STONE OF BEST QUALITY.

RANDELL AND SAUNDERS,

QUARRYMEN and STONE-MERCHANTS,
BATH.

List of prices at the Quarries and Depots, also cost of transit to any part of the United Kingdom, furnished on application to Bath Stone Office, Corsham, Wilts.

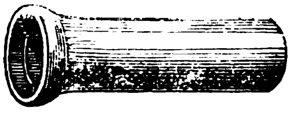
BATH STONE OF BEST QUALITY.

PICTOR and SON, Quarry Proprietors and Stone Merchants, BATH. List of Prices of Box Ground, and Corsham Down Stone (loaded in railway trucks at Box or Corsham Station), also cost of transit to all parts of the kingdom forwarded on application to Bath Freestone Works, Box, near Chippenham, Wilts. Dressings both plain and ornamental) prepared ready for fixing.) Vases, Tombs, Chimney-pieces, &c.

TIMBER AND SLATE STORES,

SWIFT'S-ROW, Lower Ormond-quay
(Near the Metal Bridge).

Mahogany, Cedar, Rosewood, Walnut, Birch. American Ash, Pine, Deals, Staves, &c., &c. A large Stock of Staves on hands. Country Orders promptly attended to. GEORGE FINNEGAN.



FIELD DRAINING PIPE TILES.

JOSEPH KELLY is landing at his Stores, Sir John's-quay, a large Cargo of Dungannon Fire Clay Field Draining Pipes, consisting of 1½, 2, 3, and 4 Inch, which will be sold at moderate rates.

CITY SAW MILLS 66 and 67, THOMAS-STREET.
Dublin, 18th October, 1859.

TO ARCHITECTS AND BUILDERS.

HENRY E. JAQUES Architectural Carver (late of Myres's, of London), begs to inform the above that he has commenced business at 36, Middle Gardiner-street; and having a thorough knowledge of Architectural Carving, he respectfully solicits their patronage.

N.B.—Plaster Models Cut.
36, MIDDLE GARDINER-STREET.

Building Ground, &c.

BUILDING GROUND at RATHGAR—between Kenilworth-square and Harold's-cross-road, near Roundtown—to be Let, at from 2s to 3s. per Foot, Landed Estates Court Title, and 900 years' Lease. Apply to

BENTLEY AND SON,
110, GRAFTON-STREET, DUBLIN.

N.B.—A Quarry on the land, and bricks at half-price.

A FEW HALF-ACRE PLOTS at DUNDRUM for Detached Houses, within three minutes' walk of the Railway Station, to be Let cheap. Bricks and Stone on very moderate terms to parties building.

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BUILDING GROUND, most desirably situated on the SORENTO-ROAD, DALKEY, to be Let, on a Lease for 900 years; also the ground at CLIFF-TERRACE, near SANDYCOVE, BULLOCK. The particulars of which may be known at the Office of John Louch, Esq., 15, MOLESWORTH-ST., DUBLIN.

TO CAPITALISTS AND BUILDERS.

TO BE LET for BUILDING, the Ground round Wellington-square and in Hatch-street, the Maps and particulars of which may be seen at the Offices of John Louch, Esq., Architect, 15, Molesworth street, Dublin.

BELMYRA, DUNDRUM, CO. DUBLIN.

TO CAPITALISTS, BUILDERS, & OTHERS.

MOST Desirable Building Ground TO BE LET.—This Estate, containing 150 Acres, situated within half a mile of the Dundrum Railway Station, has been laid out in Lots for Building. The position is admitted to be the most beautiful in the environs of Dublin, and is particularly well circumstanced in every respect, commanding views of Killiney Hill, overlooking Mount Merrion, City and Bay of Dublin, &c.

A railway station in the centre of the estate is in contemplation, bringing it within ten minutes' drive per rail of Harcourt street.

A map of the lands, showing them laid out in building lots, can be seen, and every information obtained, at the offices of Edward Henry Carson, C.E., Architect, &c., 25, Harcourt-street.

IN CHANCERY.

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TO be Let, on very reasonable terms, all that and those the Houses and Offices known as AIR LODGE, RATHMINES, containing every accommodation for a respectable family. Also the House No. 6, MARINO-CRESCENT, CLONTARF STRAND, having Parlours, Drawing rooms, four best Bedrooms, Servants' Room, Water Closet, Kitchen, Pantry, &c.; Garden front and rere. These Houses are beautifully situated, commanding good views, with the advantage of the omnibus passing every half hour to and from Dublin. For terms apply to the Receiver, Edward Henry Carson, Esq., 25, Harcourt-street; or his Solicitor, Peter Lambert, Esq., 35, Lower Ormond-quay.

THE Representatives of the late Mr. JOSEPH BOOTH, 35, GOLDEN LANE, Dublin, respectfully present their sincere thanks to the Nobility, Gentry, and Traders of Ireland, for the patronage their Establishment has been favoured with for the past half century, and are now desirous of calling particular attention to their extensive Stock in Trade.

The Mahogany Stores are well supplied with St. Domingo, Cuba, Honduras, and Mexican wood, in log and plank.

The Veneer and Fancy Goods consist of St. Domingo mottles and curls, Rosewood, Tulipwood, Ebony, Bird-eye Maple, Havana and Pencil Cedar.

The Timber Stores are well supplied with Memel, Oak, Red and White Pine, in log and plank; also, Quebec and St. John Deals, from eight to twenty feet long.

The character of the Artist Warehouse is so well known that it is only necessary to inform the public that special attention will be paid to this department, and every article will be stamped with the maker's name.

To prevent any mistake, please direct to

BOOTH'S
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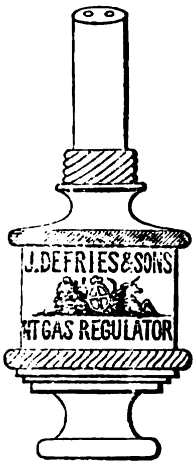
N.B.—All orders by post will meet immediate attention.



NEW GAS REGULATOR AND PURIFIER.

MESSRS. DEFRIES & SONS, of London, having taken out a Patent for the above new Gas Burner, we beg to announce that we have just made arrangements with them for the special sale of it.

This artistic and complete Burner is the most economical ever introduced, and is the admiration of all scientific men, on account of the various qualities it possesses.

First—It purifies the Gas by filtration, and allows no more Gas to pass through the Burner than is absolutely required to give a full, clear, and brilliant light.

Second—It effectually checks all undue pressure, and does away with the unpleasant flickering and noise caused by the same.

Third—The interior is anti-corrosive, and is impossible to get out of order, and when once set right it will last for years.

Fourth—This Burner answers with any common nib, and is unerring in its operation.

Fifth—It can be fitted by the most inexperienced hand.

Sixth—Though last, not least—it effects a saving of 25 per cent.

Price 1s. 3d. each.

GREGG AND SON (Sole Agents),
LAMP MAKERS AND GAS FITTERS,
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HURLFORD FIRE-CLAY DEPOT,

47, COOK-STREET, GLASGOW.

JOHN ROBSON begs to draw the attention of Gentlemen and Farmers to his superior

CATTLE TROUGHS FOR FEEDING CATTLE,

which were awarded the FIRST PRIZE at the Glasgow Highland Agricultural Show, in August, 1857; at Aberdeen, September, 1858; at Glasgow Local Show, June, 1858; and at other Agricultural Shows; and Medal, 1859, at Edinburgh Highland Agricultural Show.

HORSE MANGERS WITH GRUEL-BOX, SINGLE MANGERS, PIG TROUGHS, SHEEP TROUGHS,

Always on hand, GAS RETORTS, FLUE COVERS, FIRE BRICKS, FLOORING TILES, Plain and Ornamental CHIMNEY CANS, GROUND FIRE-CLAY of best quality; Oncomes for Vents, Ventlings, round and oval; Patent Square Ventlings for to prevent back smoke, and give good ventilation into rooms; Stack Pillars, which were awarded the Silver Medal at Glasgow, June, 1859; at Edinburgh Highland Agricultural Show, August, 1859; SEWERAGE PIPES, from 2-inch up to 24-inch bore, which were awarded the First Prize of £5 at Edinburgh Highland Agricultural Show, August, 1859; FIELD DRAIN PIPES, which were awarded the First Prize at the Highland Agricultural Shows—Aberdeen, September, 1858, and Edinburgh, August, 1859.

All Orders sent to the above Address will be promptly executed.

THE PATENT CRYSTAL WINDOW BARS, adapted for Domestic Windows, Shop Fronts, Conservatories, Skylights, Verandahs, Exhibition and Counter Cases, Aquariums, Fern Cases, etc., etc., combining perfect transmission of light, durability against rust or decay, and economy in the facility with which they are kept clean.

Aquariums with Slate or Marble Bottoms of various sizes, with or without Fountains, also of glass.

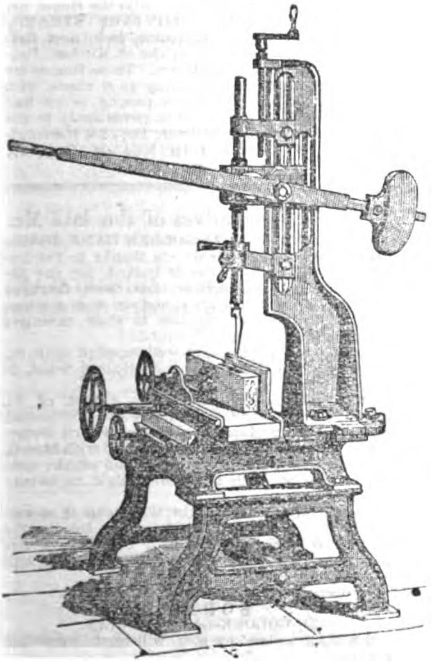
Manufactured by LLOYD & SUMMERFIELD, Park Glass-Works, Birmingham.

All kinds of Flint Glass, cut and plain, Coloured Window Sheet, Optical Sheet, Coloured Lenses, etc.

Agents at Dublin—Messrs. SIBTHORPE and SON, CORK-HILL.

GALLON AND BEAN, LEEDS,

Cut & Wrought Nail Manufacturers, & Hardware Merchants,



RESPECTFULLY request all BUILDERS, CONTRACTORS, CARPENTERS, &c., requiring Mortising Machines, previous to purchasing, to examine and test *their patent combined Crank and Lever Machine*, which will Mortise (Tenon and Bore, if required) both Hard and Soft Wood, and is also adapted for Drilling and Punching Iron.

The superiority of this Machine over *all* others consists *in the substitution of a solid wrought-iron plate Crank or Eccentric, by which greater power is obtained, in place of cast-metal Rack and Pinion Wheel, the Teeth or Cogs in which are so liable to strip or break out*—in the direct and perpendicular action of the Lever and Crank on the Cutting Tool, and consequent diminution of friction—in being *stronger* and *less complicated* in its construction, and more *powerful* in its motion—in the *facility* of its *adaptation* to the various depths of material—and in its *non-liability to break* or get out of working order.

This Machine has now been adopted in preference to *all others* by some of the principal Builders in London, Glasgow, Edinburgh, Dublin, and Belfast, who will bear testimony to its being the most powerful and efficient yet made

For further particulars apply to the Patentees and Makers, GALLON, BEAN, and LUMB, LEEDS.

Extract from the Report of the Royal Dublin Society's Spring Show, 1859:—

"Gallon, Bean, and Lumb, Leeds, exhibited a very useful and complete Mortising Machine, which was highly commended."

N.B.—The Patentees respectfully intimate that this Patent extends to, and comprises Machines for Mortising by Steam and other motive power, as well as by hand; and makers and vendors of, or parties buying or using Mortising Machines, *are cautioned against any infringement*, as the patent right will be strictly maintained.

TO ARCHITECTS, BUILDERS, AND OTHERS.

PATRICK KERR, SURVEYOR & BUILDER, considers it advisable at this particular period to inform his numerous friends that it is not his intention to confine himself *exclusively* to the Building business; and begs to say he will still continue to act as Building Surveyor and Measurer.

93, Leinster-road, Rathmines,
January, 1860.

TO THE LANDED GENTRY OF IRELAND.

ADVERTISER begs to acquaint the Noblemen and Gentlemen of Ireland that he has had great experience as an Agricultural Engineer and Architect, and is open to engagements for the preparing of Plans for Farm Buildings, Drainage, &c., for the ensuing Spring.

Gentlemen wishing to obtain Loans under the Lands' Improvement Acts should at once consult Mr. SLOANE, who will send them the Forms, prepare the requisite Plans, &c., in compliance with the Rules of the Board of Public Works in Ireland, on whose staff Mr. S. was for many years.

JOHN S. SLOANE, ARCHITECT & SURVEYOR,
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MESSRS. JAMES & EDWD. BARKER,
CONTRACTORS
To Her Majesty's War Department, and the Ecclesiastical Commissioners for Ireland.
All orders executed to satisfaction.
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MESSRS. O'DUFFY AND EGAR, SURGICAL and MECHANICAL DENTISTS, may be consulted *free* at 75, DAME-STREET, opposite the Lower Castle Yard.

ESTABLISHED THIRTY-FIVE YEARS.

F. SURRIDGE (late of London), Manufacturer of Photograph Apparatus, Scientific Modeller, &c.
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PURE AND BRILLIANT GAS LIGHT.

GAS IN COUNTRY MANSIONS.

IMPROVED PATENT HYDRO-CARBON GAS APPARATUS.

JOSHUA EDMUNDSON and Co. having the exclusive right to Manufacture and Sell this Gas Apparatus, call attention of the Public to this most valuable invention. It is peculiarly adapted for Lighting Gentlemen's Mansions, Colleges, Mills, Manufactories, Railway Stations, other Country Establishments, and Public Gas Works for Towns.

The Apparatus will produce more Gas from a ton of Coal than any other, and can be so arranged in the erection that the Cooking of an establishment, of whatever size, can be effected without expense, no fuel being required beyond that used in making the Gas.

Particulars as to price, size, scientific merit, etc., and the most satisfactory reference to parties for whom it has been erected in this country, will be given by

JOSHUA EDMUNDSON AND CO.,
34, 35, 36, CAPEL-STREET.

Estimates for all parts of the Kingdom given, free of expense.

Country Towns lighted at a very small cost.

Agents for Milner's Fireproof Safes.

IBBOTSON'S IMPROVED OAK STAIN, for imparting to New Deal the appearance of Oak, and to New Oak the appearance of Antiquity.

It is about half the expense of paint, and is easily applied with a brush. Being an Oil Stain, it has the important advantage over all other stains of being impervious to wet. It produces a bright gloss, but if a high polish is required, the proper varnish can be applied. It requires no size or previous preparation of the wood.

The Stain (with the proper varnish, if required), of three shades—Light, Middle, and Dark—is sold in Bottles at 6d., 1s., and 2s. each, or by the Gallon, at 10s.

SOLE AGENTS—BOILEAU AND BOYD,
(Late John George Boileau and Co., Mary's-abbey)
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DRAUGHTS of COLD AIR round DOORS and WINDOWS prevented by GREENWOOD'S PATENT INDIA RUBBER STOPS, and Self-acting Slides, for the bottoms of Doors, which have proved to supersede all previous invention for the purpose of Making the Joints of Doors, Windows, Show Cases, &c., AIR TIGHT.

Agents for the Patentee—
FERGUSON AND CO.,
Patentees & Manufacturers of Vulcanized India Rubber, Gutta Percha Waterproof & Airproof Fabrics,
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THOMAS HENSHAW & CO.,

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BEG to call attention to their extensive, varied, and well-selected Stock of Ironmongery in all its different branches. It consists of Parlour, Drawing-room, and Bed-room Grates; Kitchen Ranges, Cottage Ranges, Sash Weights; Iron Rim, Mortise, and Stock Locks; Hinges of all descriptions; Wrought and Cut Nails, Eave Gutters. Down Pipes and Fittings, Metal Skylights, Ventilating Bricks; Cast-iron Chimney-pieces, with and without Grates; Rabbit Traps, Fox Traps, Galvanized Wire Netting, Fencing Wire, Sheet and Perforated Zinc, Sink Traps, Furnace Doors and Frames, Hot Air and Plain Stoves. Also on Sale, Saunders' Patent Cooking Range, *the* most economical Cooking Apparatus of the day.

Manufacturing and General Ironmongers and Tool Warehouse—81, MIDDLE ABBEY-STREET.
Spade, Shovel, and Tool Works—CLONSKEAGH.

Agents for Perry's Patent Fire-proof Safes; quality considered, they are *the* cheapest in the market. Builders are invited to inspect our Stock previous to purchasing.

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CALL the attention of Engineers and others to their PATENT MINERALIZED and VULCANIZED INDIA-RUBBER, in Sheets, and for Valves, Washers, Railway Buffers, Bearing Springs; Hose Pipes (delivery and suction), Flexible Tubings, Driving Belts, and to their improved Anglo-American FLEXIBLE CANVAS and INDIA-RUBBER PACKING, for Steam Joints and Piston Rods.

SOLE MANUFACTURERS OF THE

NEW PATENT MINERALIZED KAMPTULICON,

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MINERALIZED INDIA-RUBBER SOUNDLESS CARPET CLOTH,

Combining EXTREME FLEXIBILITY, and consequent non-liability to cracking; DURABILITY and IMPERMEABILITY to Wet; WARMTH TO THE FEET AND SOFTNESS TO THE TREAD.

SOLE MANUFACTURERS OF

WARNE'S NEW PATENT INDIA-RUBBER MATS.

These Mats consist of Tubes of India-Rubber, of various configurations, placed vertically in contact with each other, and are far more efficient than any other description of Mat. No ordinary wear can sensibly affect them; they thoroughly clean the feet like a brush, and the dirt removed falling through the cells formed by the tubes, is not carried by the feet on to the floors and passages, which are consequently kept perfectly clean; and by removing the Mat, the accumulated dirt is easily swept away. They are also made with backs.

The Mats never clog, require no beating, and are readily cleansed by water. Unlike all other Mats, water in no way injures them, and it neither lodges on nor is absorbed by them. Indestructible by damp or wet, these Mats, made to any shape, size, or thickness, are especially suitable for uncovered passages and out-of-door purposes.

The invention is peculiarly applicable for Mats for Baths, Conservatories, Laundries, Sculleries, Ships, Steamers, Omnibusses, Carriages, and Seats, also for Churches, &c.; and for Scrubbing Brushes for Decks, and Wooden and Stone Floors, and for Housemaids' Mats.

All Mats are marked W. WARNE and CO., Patentees, London. Orders received at the London Warehouse, 9, GRESHAM-STREET WEST, E.C.; or at the Factory, TOTTENHAM, N, MIDDLESEX.

WILLIAM BISSELL,

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SOLE Proprietor of the Improved MORTISING MACHINE, the newest, most easy, simple, and powerful, yet invented. Also the universally and justly-celebrated Equi-action RIM and MORTISE LOCKS.
Patentee of the well-known Flooring Dogs, and 4-Ton Lifting Sacks.
Factor and General Manufacturer of Builders' Ironmongery.

Machinery, Patents, &c.

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MESSRS. TURNER AND GIBSON, Manufacturers of IRON CONSERVATORIES, Fruit Houses, Pine Pits, etc.

ORNAMENTAL WORKS, Bowers, Porches, Balustrades, Trellises, Flower Stands, Vases, etc.

GRAND ENTRANCE GATES, Guard Railings, Farm Gates, Hurdles, and Strained Wire Fencing, etc.

IRON ROOFS for Railway Stations, Breweries, Gas Works, and Farm Buildings, etc.

WARMING & VENTILATING Dwelling Houses, Prisons, Conservatories, Mills, and Public Buildings, etc.; House, Laundry, Cooking, and Steaming Apparatus.

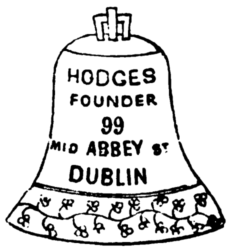
BRIDGES, GIRDERS, Iron Lattice, Bowstring, Suspension, Patent Balance Rolling, and Swivel Bridges, and Floor Girders

T. and G. beg to refer, as specimens of *their work*, to the Iron Conservatories, Heating, etc., as erected at the ROYAL BOTANIC GARDENS, KEW; the INNER CIRCLE BOTANIC, REGENT'S PARK; CHELTENHAM; VICEREGAL LODGE; GLASNEVIN; and various Works by them throughout the United Kingdom.

PATENT OFFICES and DESIGNS REGISTRY, *North West Chambers*, 4, *Lower Ormond-quay, Dublin; and* 47, *Lincoln's Inn Fields, London*. J. P. BYRNE, *Solicitor, Agent*.

N.B.—A useful Pamphlet, "Hints to Inventors and Designers," gratis on application.

London and Paris Great Exhibitions



Prize Medal Bells.

PATENT ASPHALTE ROOFING FELT.

ELLIS AND CO.,

MALONE MILLS, BELFAST,

Manufacturers of

PATENT ASPHALTE ROOFING, SHEETING, INODOROUS, AND BOILER FELTS.

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Messrs. CAROLIN AND EGAN, 20, EDEN QUAY.

ASPHALTIC ROOFING FELT, a light, clean, economical, and durable roofing, price 1d. per square foot. Samples and instructions may be had gratis in answer to letters from any part addressed to MAURICE BROOKS, IRONMONGERY, GLASS, & ROOM PAPER WAREHOUSE, SACKVILLE-PLACE.

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ROGERS'S PATENT PEAT CHARCOAL, for Sanitary Uses generally: for Disinfection of the Dead, Purification of Sick Chambers, Filtration of Water, Purification of Ships, Stables, Cattle Sheds; for Packing Provisions, Eggs, Butter, &c.; and for Agricultural Purposes. Manufactured by THE HEALTH OF TOWNS IMPROVEMENT COMPANY.

Works and Depots:—Derrymullen, Robertstown, Co. Kildare; Newcomen-bridge, Dublin; 5, Donegal-square, North, Belfast. General Agent—JOSEPH G. THOMPSON.

The Dublin Builder.

VOL. II.—No. 15.

ON THE MORE EXTENSIVE ADAPTATION OF GLASS—COLOURED ESPECIALLY—TO ORNAMENTAL AND USEFUL PURPOSES.

THE sudden and mysterious changes produced by the fabulous ring of "Arabian Nights' Entertainments" celebrity, could be scarcely more striking than the rapid transformations of the march of intellect. Our crystal palaces, arising, as it were, at the bidding of commercial greatness and necessity, complete in arrangement and detail, containing all that is classic and artistic, novel and useful, seem like the realization of romance, and are calculated, when we look back on the barrenness of ages gone by, to impress us with an idea that it is owing to something more than human agency or invention. The genius of improvement strides along, and borne by its advancing columns, we cannot often disengage ourselves to gaze upon the moving panorama with a contemplative eye. Easy is it for the poet or the essayist to stand, pen in hand, and dot down each striking feature, gathering therefrom instruction, and, yes, a veritable moral; but the practical man, if he be not dexterous, cannot do this but seldom, without risk of losing his place, and of being over-ridden and lying

"For pavement to the abject rear."

But he must even sometimes give himself breathing-time to contemplate. He cannot halt, as one of the automata in a puppet-show, but, still moving, must direct the world whither to look, and upon what to think, as he presses onward. Our architectural and engineering creations may seem to encourage the idea of a material production eclipsing mental power—of reality eclipsing ideality; but it is false. The actual result represents but an insignificant quota of the ideal whole. A fruitful genius is too often crippled by conventionalisms, and thus checked in mid-career, becomes a poor interpreter of its own resources. Therefore may we look on works of art, in most instances, as but shadows before of these to come, and what may seem to us now as but fairy creations, or rather, as they are generally called, romantic notions, will be ultimately realized, and the veil that hides a glorious future be gradually drawn aside. This is as sure as the simplest revelations of science have dissipated the mysticism attached to the history of an ancient Egyptian priesthood, whose necromancy held so many millions in the chains of superstitious awe, but the secrets of which we can identify with a knowledge of chemistry and natural philosophy.

Among the many materials that are contributing to work such changes in the hands of enterprise, that of glass has been, and still is, an important one. To say that it has been used ever as a poetical simile for clearness, transparency, and brilliancy, would be needless, as no simile has been so hackneyed by our poets, if we may give it so rude a term. Ever a favorite with fabulous writers, it has now become so of theatrical scenists, and no material is capable of so many adaptations in a decorative sense. Already have our London, Dublin, and Paris exhibitions demonstrated the immense range to which its many uses have access, and of which it is susceptible in an architectural sense; in an engineering one it has yet to be proved of immense value. At some future time we may enter into this, but at present our remarks are intended to apply rather to *coloured* glass, and its prospective uses in a decorative sense.

Beckman says, "It is probable there was no great interval between the discovery of the art of making glass and that of giving it different colours." He proceeds to notice the first motives for that colouring, which appears to have been one of imitation—viz., the manufacture of artificial hyacinths, sapphires, &c. There seems no doubt that amongst the Romans it was considered as valuable, or nearly so, as the genuine stone. We thus, therefore, thank the spirit of deception, it would appear, for the first attempt at colouring glass, which, fortunately for the scientific world in these days, is not the usual incentive to invention. Many eminent Germans brought the several processes nearer to our own time, and recently, in our own country, patents have been obtained for its more extended adaptation, in the shape of coldmns and bars, from which it is more likely to become of universal use. The many modes in which it may be adapted to the internal fitting and decoration of palutial and first-class residences, may be evidenced by the present use, though not as yet carried out extensively, in shop window-fronts in many of the leading towns and cities of Great Britain and Ireland. For stair-balusters, and even hand-rails, arranged as pilasters for mantle-pieces, ceiling-centres, as mirror-frames, curtain-bars. Then again for furniture, as the legs of couches, table-pedestals, &c. We will not go so far as to advocate the "glass stairs" of the nursery-tale, down which the ambitious fair one is reported to have broken her leg, substituting for which a golden one, and dying, makes a journey from the tomb to demand the golden limb from her husband, who had no idea of burying such a valuable article; but such things may be realized, unlikely though it appears. The use of coloured or colourless glass in all places where convenient would add much to the beauty and airy effect of a mansion.

In our cathedrals and churches, instead of dividing stained windows by mullions of stone or brick, it may be done by strong ones of coloured glass, the whole then presenting a greater mass of colour to the eye, and so condensing the subject as to produce one grand pictorial effect. The font, the pulpit, may be surrounded by pillars of glass, which may, perhaps, be colourless (but this depending on the adjacent material), as typical of the purity and brightness of the religion to which they are consecrated. To quote the many instances in which it would be found both useful and ornamental may be deemed on our part speculative, in the absence of examples; but it is easy to imagine the effect of its introduction. No gilding or painting would be required to give colour, that being already done, and the effect produced according to the peculiar colour chosen. For lightness of appearance, possessing at the same time a tolerable amount of strength—*i.e.*, resistance to vertical pressure—it can really be commended. Heat and cold, coupled with the settlement of adjacent material, may be deemed an objection to its use; but when placed in a position unaffected by settlement, the objection, of course, is obviated. As far as the change of temperature is concerned, the extensive use of plate-glass windows, as at present, would at one time have been deemed impossible; but prejudices rise only to be exploded—all are dissipated by experiment.

The encouragement of the present use of glass columns and sash-bars for shop fronts should be exceedingly conditional, on account of the necessary superstructure, being sometimes placed in such a position and in such a manner as to be exposed to a strain they are not calculated to bear. In such instances supports of iron, it is true, are provided; but we would suggest thicker columns than are at present used, which would save the expense of so much metal, and look clearer and more complete. Everything should be done very carefully, as this kind of property gives no warning of breakage. Nevertheless, in many instances, when properly fitted and fixed, it is really wonderful what a pressure glass will sustain. Its crystalline structure encourages us in the belief, that should a series of proper experiments be made on columns of glass and bars of the same, of various diameters, they would be found to surpass the strength generally attributed to them, the only danger being where it should be necessary to fix one piece on the top of another, that they would chip off the adjoining edges—this might be prevented by ferrules. However, we are not now necessarily treating of their strength, but of their ornamental uses generally. In regard to these, the variety of form and colour of which it is susceptible gives coloured glass amongst materials, if not the first, at least a very superior rank For grace or boldness of effect, when combined with brilliant or mellowed tints, for sun-light or gas-light, it is certainly a most manageable article, and the ease with which it may be kept clean, together with its preservation of freshness in appearance, are not among the least of its good qualities. We conceive there may be a wholesome dread of its proverbial brittleness, which may alarm the "routine" builder, who naturally enough will hesitate over a new idea. But, before building a palatial or first class residence, a church or a public building, it is well worth while making a few experiments, and we doubt not they would prove successful. A very little artistic taste in arranging and adapting would be sufficient. Suites of rooms, for instance, for balls and evening parties may soon be made to present, in conjunction with mirrors, and at a trifling expense, brilliant and charming pictures, and each bright and particular star amongst our female aristocracy look still more beautiful for the reflection. With some little exercise of taste, we may produce, without the barbarity of profusion, such effects as may rival the much talked-of eastern magnificence.

Here is a hint then; it is quite practical. Let the architect take it; he may often have dreamed of it, and in a small way executed it. It is worth thinking of, and carrying out *in extenso*.

LAW NOTES.—BUILDING QUESTIONS.

Exchequer Nisi Prius.

(Before the Lord Chief Baron and a special jury.)

O'Reilly v. *Brennan.*—Action to recover £431, for building materials furnished. The jury returned a verdict for the defendant, finding that the entire of plaintiff's credits amounted to £1,928, and that the defendant was entitled, as against that sum by payments and goods supplied, to £1,945.

Court of Common Pleas.

(Before the Lord Chief Justice and a special jury.)

Doran v. *Hughes*—Action brought by a shopkeeper in Dorset-street, for injuries alleged to have been done to his house, 143, in July last, when taking down the house adjoining. The plaintiff alleged that, in consequence of the unskilful manner in which the work was executed, his house received such injuries as to cause the glass in the windows to break and the walls to crack. The defence was a traverse of the allegation that the work was executed in an unskilful manner, and the plaintiff's witnesses were cross-examined for the purpose of showing that the house was a very old one, and in a very bad state of repair. This case resulted in a verdict for plaintiff, £75 damages and 6d. costs.

Counsel for the plaintiff—Mr. Sergeant Fitzgibbon and Mr. Sidney; Attorney Mr. Casey. For the defendant—Mr. Armstrong, Q C, Mr. James Kernan, Q.C.; and Mr. O'Loghlen; Attorneys—Messrs. Kernan and Treacy.

Burke v. *Carroll.*—We understand that this record is for the *present* withdrawn.

Kelly v. *Crampton.*—This case will not come on till next term.

Lord Gough v. *Carmichael.*—This action, instituted for alleged breach of duty as an architect, was—after being partly proceeded with—referred to the Master of the Court, to be assisted by an architect.

Kelly v. Hoey.—Action by Mr. Patrick Kelly, a builder, against Mr. Robert Hoey, of Kilmacud, in the County Dublin, to recover £130, for work and labour, &c., as a builder. The defences were, that the work done was fully and sufficiently paid for, and that some of the work was not done in a proper and workmanlike manner, &c.

Sergeant Fitzgibbon, with Messrs. Burke, Q C, and W. Burke, appeared for the plaintiff; and Messrs. Rollestone, Q.C., Barry, Q.C., and Heron for the defendant.

The case of the plaintiff was, that he entered into a contract with the defendant to do certain work for £380, according to plans and specifications prepared by Messrs. Carmichael and Jones, architects employed by Mr. Hoey; that after commencing the work the original plans were departed from, and considerable expenses incurred, part of which were paid, leaving altogether a sum of £130 due. Plaintiff alleged that an ornamental tower was erected on an old foundation, to a height of 50 feet, contrary to his opinion and advice, and that it fell, as he anticipated, and that the amount claimed included the cost of removing the materials of this erection. Defendant replied that the plaintiff's charges were exorbitant, and that the work and materials were not according to the terms of the contract; and that the sums paid on foot of contract, and extra work, was fully what the work was worth, if not more.

The case resulted in a reference to the Master, to take an account between the parties to be assisted by an architect.

Kempston v. *Butler*. This case was partly tried previously, when the plaintiff was nonsuited on a technicality. Action brought by Mr. John Kempston, of No. 82 Grafton-street, against Mr. John Butler, of Rathmines, a builder, for alleged damages, for negligence in taking down adjoining house in November and December, 1858, for the purpose of rebuilding same. The summons and plaint charged defendant with negligence, by reason of which plaintiff's house fell; and stated that Mr. Kempston's house was entitled to lateral support from adjoining house, No. 83, and that defendant, having improperly removed that house, was liable to make good plaintiff's loss. There were also counts for breaking into plaintiff's house and injuring his goods, &c. Defendant traversed all these allegations, and pleaded that plaintiff's goods were encumbering his close, and he took them away, and was justified in so doing, &c. Damages laid at £7,000. The house formerly belonged for some years to Mr. O'Reilly, ladies' mourning outfitter, and up to March, 1858, when he sold his interest in the house and business to the plaintiff for £500, for the residue of a term of 61 years, subject to £95 annually. Mr. O'Reilly expended about £400 on the premises in certain building alterations, according to plans, specifications, and under superintendence of Mr. Caldbeck, architect, and executed by Mr. James Donnelly, builder, in the year 1856, and previous to disposing of them to plaintiff, who also expended £150 additional, and continued to carry on same business, alleged to be a profitable one. No 83 was in March, 1858, the property of Mr. Thomas Ferguson, of the Four Courts, who shortly afterwards let it on lease to Mr. Falkner, of Grafton-street, who employed defendant to rebuild it upon a more extensive scale. Defendant proceeded to take down No. 83 in November, 1858; but the case of plaintiff was, that having neglected to prop or shore up No. 82, as he was bound to do, that house fell in the month of January, by which he lost a considerable amount of property, &c. The amount claimed for rebuilding was £975, and £6,025 for the injury alleged to be sustained by the loss of business and the value of the goods destroyed and damaged. The proceedings in the former action were abandoned, and in the renewal pleadings it was alleged that the wall in question was a party wall. Defendant replied it was *not* a party wall.

On behalf of plaintiff the following witnesses were examined:—viz., the plaintiff himself, Mr. Hipwell, Mr. Flynn (his manager); Messrs. Louch, J. S. Butler, J. J. Lyons, and Courtenay, architects; Messrs. James Donnelly, Timothy Murphy, John Nolan (Meredyth-place), Michael Dunne, Henry Allen, and Alexander Graham, builders; and Miss Mary Bagnall, wareroom-keeper. On behalf of defendant—the defendant personally; Sir Thomas Deane, Messrs. Jacob Owen, G. Wilkinson, and E. H. Carson, architects; Benjamin Norwood and S. Leech, builders; James Toole (foreman), Doyle, Murphy, Lalor, Bacon, O'Brien, and Finney, workmen.

John Augustus Kempston—Is plaintiff in the present action; recollects when defendant commenced taking down the house, 83; defendant did so without giving him any notice whatsoever of his intentions; nor was he (plaintiff) aware of the nature of the contemplated works, until defendant, by introduction of Mr. Hipwell, of No. 84, called on him (plaintiff) during the first week of the operations, and then first apprized him verbally of the intended rebuilding of No. 83; defendant advised plaintiff to allow him to take down a portion of the divisional wall which remained after the outbuildings of 83 were removed, in which plaintiff acquiesced; plaintiff frequently drew defendant's attention to the apparently increasing dangerous state of his house, to which defendant replied that he would make it all right, and that he (plaintiff) need not be uneasy; these promises were repeated in the presence of plaintiff's wife, his manager, and Mr. Hipwell; previous to removal of 83 plaintiff never observed any cause for apprehension; on the Monday week before plaintiff's house fell, he (plaintiff) brought defendant up to the top back room, and drew his attention to the crack between flank and rere walls, and defendant undertook to have additional struts put thereto; on the Monday previous to the fall, plaintiff called on his acquaintance, Mr. Michael Dunne, a builder, who, after examining the premises, told plaintiff the house was in a very dangerous state, and as defendant had several workmen shoring up 82 interiorly at that time, and, as he was a respectable man, and in his (Dunne's) opinion knew his business, he declined to interfere; plaintiff told defendant result of interview, but defendant again assured him he would leave nothing undone to protect his house, and remained on the premises three hours directing his workmen; defendant had workmen at the house, 82, every day up to a few minutes before it fell; plaintiff deposed to the particulars of his interest in the premises, the extent of the injuries, and substantially to the value of the property, &c, &c., as stated in the first paragraph.

Plaintiff was cross-examined at considerable length, but no material deviation from the above was elicited.

Mr. Hipwell, Mr. Flynn, and plaintiff's wife corroborated the statements of plaintiff.

Mr. Michael Dunne—Knew the house and premises since 1834, when he was engaged in alterations there; subsequently, in July, 1858, executed some jobbing works for plaintiff; was called on by plaintiff on 24th January, 1859, examined the premises, told plaintiff they were in a very dangerous state; saw defendant and his several workmen setting up shoring in the shop, 82; told plaintiff defendant was a respectable man, believed he understood his business, and he (witness) did not wish to interfere; called on Thursday, 27th, went on the roof of 82, saw a number of defendant's workmen on a scaffold taking down the chimneys, when he detected the dangerous state of the flank wall, heard cracking, and begged of all hands to quit for their lives; was outside the door about two or three minutes when the house fell; proved the custom of builders in Dublin to brace and sustain adjoining houses, independent of special instructions.

James Donnelly, builder—Knew the premises in question; was engaged at the taking down of old front and the rebuilding of a new front in 1834, and again made certain alterations in 1856, under Mr. Caldbeck, an architect; believed the premises to be at that time in a substantial condition; that the alterations made by him did not affect their stability, but the contrary; that it is the invariable and customary duty of builders effecting rebuilding works to shore up sufficiently, according to circumstances, adjoining houses, and protect them from injury or downfall; that they are held to be responsible for accidents arising from want of precaution; that it is the custom of Dublin architects to put such a proviso in the specification, but that whether or not, the builder has a right to look to it, as he includes the cost in his estimate, and is paid by his employer; the scaffolding poles used were not suitable for shoring or bracing, only averaging 5 inches diameter; the struts between 82 and 84, after 83 was being removed, were placed in an unworkmanlike and incompetent manner; diagonal ties were necessary; the struts and braces between houses 82 and 84 should have been set before a brick of 83 was disturbed; defendant began at wrong end—first took down the storey and then set the struts; believed the bricks in the divisional wall to be quite as good as those in the new club-house at Kildare street. and exactly the same quality; that if bracing and strutting had been properly done, house 82 would still be standing, and likely to do so for many years. Witness entered into a lengthened explanation, at request of judge and jury, of how, in his opinion, the bracing and strutting should have been executed, and in reply stated, that a builder's first duty would be to examine the adjoining houses; would ask permission from the proprietors to take the necessary steps in trussing, bracing, and strutting, and that if refused would apply to the corporate officer for authority; would set long planks from bottom to top as vertical pieces against the flanks, and support the beams, struts, &c., tighten them with wedges between the joists, or as near as possible thereto, of adjoining houses; would stiffen the struts by diagonal braces.

Cross-examined by Mr. Brereton, Q.C., but the witness persisted in his previous statements.

Mr. John Nolan, of 25 years' experience, proved that it was invariably the custom and the recognised duty of the trade in such cases to prop up effectually adjoining premises, and that the necessary precautions depended on the character of the work; would not experience any difficulty in such a case; if the clause were omitted in the specification, it would surely be provided for in the estimate, and included in the contract.

Henry Allen, builder—Saw the premises 83 in January, 1859, and from the manner 82 and 84 were strutted, expected the house 82 should fall; deposed to the custom of the trade from 40 years' experience.

Cross-examined Mr. Fitzgibbon, Q.C.—Stated that poles used were insufficient for struts, and the vertical pieces too short; struts should be 9 inches by 6 inches.

Alexander Graham, builder, of 15 years' experience—Passed the place frequently; concluded it would fall; timber for struts should be 7 inches by 6 inches; no diagonal or spur braces.

Cross-examined by Mr. Macdonogh, Q.C.—Admitted he never served his time, and that there was an architect—denominated by the counsel "a naughty man"—called in to examine his work at Bidgood and Reside's, who directed an abutment to be built, for further security to their premises; but has since executed, under the same architect, several extensive works.

Mr. John Louch, an architect of 40 years' experience—Has executed extensive works in Dublin and various parts; proved adjoining houses were invariably braced and maintained at cost of the proprietor of the premises about to be rebuilt; the insufficiency of the struts used; examined the premises, 82, after the fall, in company with Mr. J. S. Butler, architect, and James Donnelly; compared the model exhibited to the court and believed it correct.

On cross-examination—Was not aware of a custom involving a builder in responsibility, but believed same, if any, to devolve on the employer.

Mr. F. W. Courtenay, architect, deposed to the custom and to the insufficiency of the precautions taken by defendant.

Mr. J. J. Lyons, architect, deposed that eleven years ago he was employed by Mr. Thomas Ferguson, landlord of 83, to cause to be taken down, by Mr. James Dwyer, builder, a portion of the divisional wall next 82, together with other requisite repairs; that some three square yards of brick-work were removed under his directions, notwithstanding apprehensions expressed by the proprietor as to the safety of said wall; that his services were gratuitous, and that the locality in which said repairs were effected were immediately under the front stack of chimneys.

This closed the evidence of plaintiff.*

Counsel for plaintiff—Sergeant O'Hagan, Q.C. (now Solicitor-General), Mr. Armstrong, Q.C., Dr. Denis Caulfield Heron; for defendant—Messrs. Fitzgibbon, Macdonogh, and Brereton, Q.C's., Exham and Osborne.

The Committee of Agriculture of the Royal Dublin Society advertised last month for designs for two prize cups, of the respective values of £125 and £50; and we understand that various suggestions were submitted, and that those accepted will prove a decided improvement on the previous designs.

Clarkson Stanfield, R.A., is painting a grand view of the Bay of Naples, taken from St. Elmo, looking over the port and bay, past Torre del' Greco, up the slope of Mount Vesuvius.

RATHGAR PRESBYTERIAN CHURCH COMPETITION.

THIRTEEN sets of plans have been submitted in competition for this church, in answer to public advertisement, dated 4th January, by the following authors, viz.: Messrs. Heiton, of Perth, Dewar, of Glasgow, Duncan Ferguson, E. P. Gribbon, Courtenay, Moyers, M. Moran, Raffles *Brown*, Carmichael and *Jones*, *Smith* and *Robinson*—all of whom, we believe, are practising architects—Meade, builder, and Fyffe, an *attorney* (which, however, we learn was only in trust for an architect). We are informed that at the first sitting of the judges all the designs submitted by *resident* architects, except that of Mr. Gribbon, were rejected; that his plan and those of the two Scotch architects, viz., Messrs. Heiton and Dewar, were retained for final decision; and that at the second sitting Mr. Dewar's plan was cast, and the result consequently left between Mr. Heiton and Mr. Gribbon, who will probably be joint architects of the structure, The committee generally are in favour of the *exterior* of Mr. Gribbon's design, and the *internal* arrangements of Mr. Heiton's. Whatever may be the secret interested workings *usual* in competition matters, we feel assured that in *this* instance there is a guarantee that nothing but merit will prevail, by the names of the gentlemen principally associated with the undertaking, who are some of the most respectable and responsible in Dublin, viz.: Messrs. Thomas Drury, J.P.; David Drummond, of Dawson-street, and Stirling; Robert Bell, of Scott, Bell, & Co.'s; Hugh Moore, Cremorne, Rathgar; and Henry Richardson, Court of Probate. This committee doubtless bear in mind, that they are constituted judges between man and man, that they represent the interests of the numerous body of contributors to the building as well as their own, and that they are bound both morally and virtually to adhere rigorously to the conditions stated in their advertisement and instructions, as regards limit of *time*, proposed *expenditure*, and accommodation. All these are important, as a competition may be compared to a lottery, every competitor being like a ticket holder, paying for his *chance* of the prize on the *faith* of a stipulation; and there should not be a fresh issue at the eleventh hour, else disappointed competitors, believing themselves led astray, *may*, by demands for redress—and probably with reason—cause embarrassment. The ordinary business of an architect's office is not competition, but works of every-day practice, leaving little time for speculation, though in some instances *bona fide* engagements are neglected to pursue what eventually results in a *will o' the wisp* infatuation. We are induced to offer these remarks more as suggestions to, than reflections on the purpose of, the committee, without assuming that there is a special necessity for them.

SCOTCH CRITICISMS ON DUBLIN PAROCHIAL CHURCHES.

THE *Glasgow Citizen*, in alluding to the recent destruction by fire of St. Andrew's Church, is *pleased* to say: "Like *all* the parish churches of Dublin, St. Andrew had *no claims to architectural beauty*, but was *rather* a substantial and commodious pile, with a *vast deal* of woodwork in the interior."

What a wholesale condemnation of *all* our parish churches! What a stupid perversion of fact, both as regards St. Andrew's and other churches! What of George's, for example? An insignificant production, no doubt, quoth our Caledonian critic. Is there any church in Glasgow with one-half the merit of either, ask we?

We hope to be able by an *illustration* of the interior of Andrew's to enlighten our cotemporary about this "*substantial*" and "*commodious*" structure, with its "*vast deal of woodwork;*" for evidently the writer has hazarded an opinion guided by national prejudice, and without seeing the buildings *at all*, or, having seen them, is not *competent* to form one.

With reference to the same church, a correspondent of *Saunders' Newsletter* writes: "As there is some chance that the above church will soon be rebuilt, it would be well if the present opportunity were taken of effecting some alteration in its form and position. It has always been objected to the old church, that internally it was arranged *in violation of all principles of auscultation*, while externally it had the appearance of a large mausoleum *flung into the middle of the street*. Leaving the internal arrangements in the hands of *those for whose convenience they may be intended*, there are two points in which the parishioners and the public are greatly concerned—the architectural appearance of the new church and its position. It must be borne in mind that the new building is intended for one of the most important parts of the city, and for its wealthiest parish, and that it is to be erected in an age when the country has risen to a great pitch of wealth and refinement and great taste in sacred edifices, and that therefore any new building of the kind should be elegant and worthy of the occasion. But the site must be altered. The building should be thrown back at least fifty feet; the churchyard wall must be thrown back also, and railed off; and the grounds should be laid out in plantations. These improvements must be at the joint expense of the Ecclesiastical Commissioners and of the parish, but the Corporation should lend a hand. and every interest should be brought to bear on so important a point.

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* The defendant's evidence and judge's charge will be given in full in our April No.

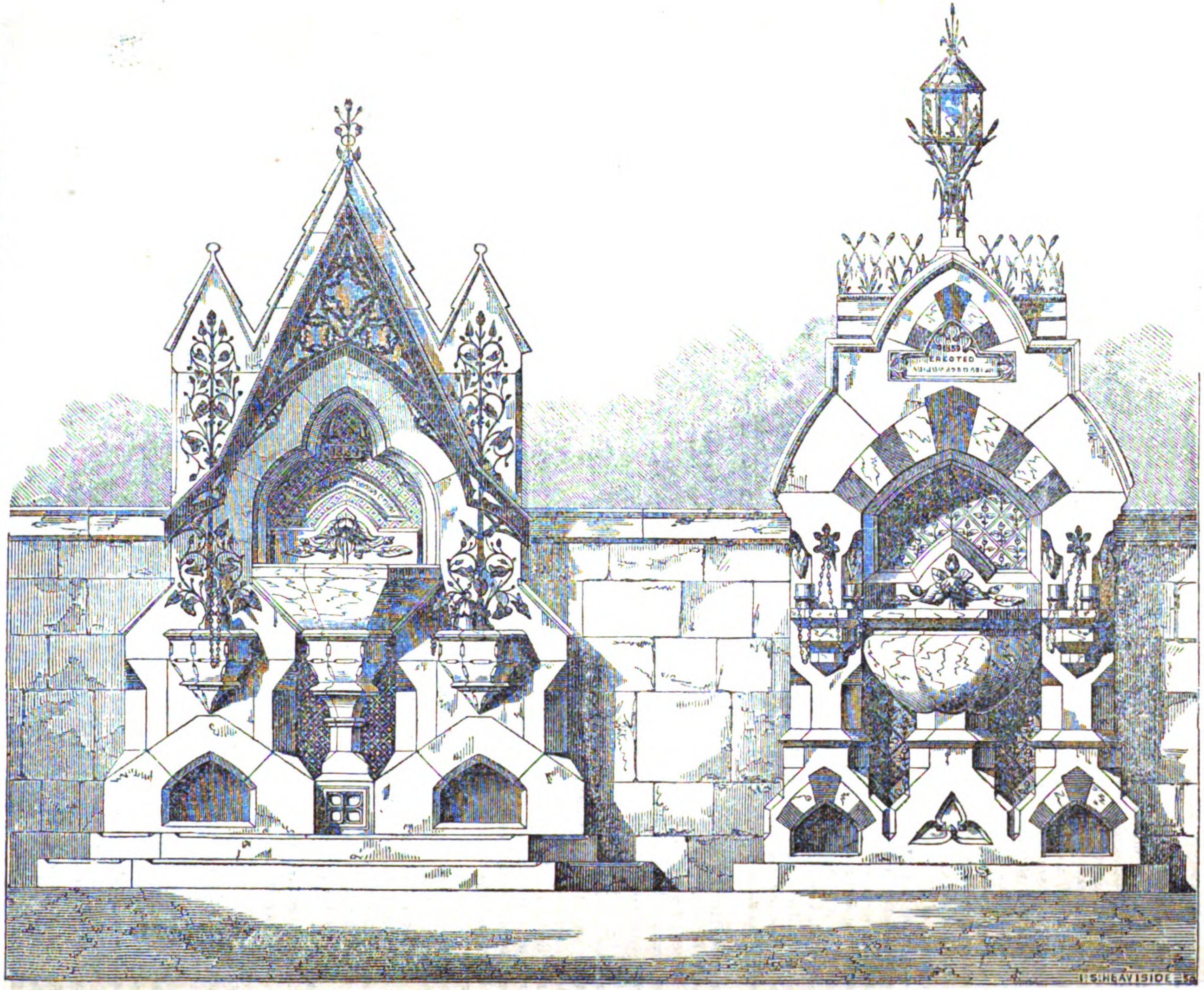
DESIGNS FOR DRINKING FOUNTAINS.

So much interest is felt in the drinking fountain movement that we have arranged to present our readers this month with illustrations of what *may*, and also what *has* been done to combine philanthropy and *art* in such structures, though we cannot as yet congratulate our fellow-citizens upon a skilful development of the artistic element in any placed in *this* metropolis.

The designs on this page are for mural fountains, in the mediæval style of architecture, and intended to be constructed of more permanent materials than those usually adopted. They are by Mr. Henry Godwin, architect, of Alexander-square, Brompton, and though previously appearing in the *Builder*, we republish them for those of our readers who may not have had access to that periodical, being enabled to do so through the courtesy of the editor. The following is a brief description of the general design:—

No. 1 shows the top of the brackets for the cups, of white marble, with the basin supported by a Bath stone pedestal. Dog-troughs below, as in the other, are in the face of the erection. A metal hood is introduced, supported by ornamental foliated metal brackets, which are continued up against the face of the stonework, tending to give additional support to the projecting hood, and rendering the design more complete. The cups are to be suspended from the brackets by slight chains. The whole is raised on two steps, the arrises of which are rounded off. The Bath stone would be indurated, to resist the action of the weather.

No. 2 is intended to have the voussoirs to the arches alternately of white and red marble; the basin which stands in the arched recess is of white marble; as also are the brackets on either side for the cups; the back of the recess to be faced with tiles having a pattern of some water-plant in blue upon a white ground. Two recesses for dogs below are proposed, through which the waste water will pass into the drain. Above is a panel for the erector's name, or an inscription. Bullrushes in metal are introduced as a termination to the stonework, with an octagon lamp surmounting the whole, supported by the same plant symbolical of fresh water.



No. 1. No. 2.

DESIGNS FOR MURAL DRINKING FOUNTAINS.—MR. HENRY GODWIN, ARCHITECT.

THE WATER SUPPLY OF DUBLIN.[*]

STILL this vexed question drags its slow length lazily along! still wars and rumours of wars prevail in the opposition camp! still meetings are organized, long speeches made, figures twisted and tortured in support of various views! and yet withal the subject is turning right back again to the point from which the disputants set out—viz., "the canals." *We* must remind our readers that throughout the series of articles which has appeared in this paper—the *only* one that devoted space freely, impartially, and systematically to the various details and phases of this important question—we unflinchingly advocated the canals as the *best*, *cheapest*, and most *natural* source for pure and wholesome water to our city; and though for a time we *did* feel that the canal companies exhibited a disposition to steal a march upon the citizens, and place the Corporation in an inextricable fix, we nevertheless hail with much pleasure the apparent probability of "a declaration of peace" on mutually satisfactory terms.

That the constitution of the bill, and the energetic manner in which it was pushed through its various stages up to the point of its second reading, has served to bring about this result, and awaken the canal companies to a sense of their duty, is certain; whether or not it was *intended* as such—and such only—from the onset, is another question, upon which we do not pronounce an opinion. We have no desire to go over a long story again, indeed from what we learn, the citizens think there has been quite enough of *talk* in all quarters, and that some definite course should be forthwith decided and acted upon. If, however, the contract be concluded with the canal companies for a guaranteed supply of *ten million* gallons per diem, for £4,000 per annum, which, after all, is only some £1,600 additional annually on the citizens, and that the arrangement be perfected beyond the possibility of doubt or contraversion hereafter, we must ask why should the "Coyford" supply bill be proceeded with in the teeth of opposition, and under the expense consequent upon it? The guarantee of the canal companies for an "unincumbered supply," and to take upon themselves the *onus* of giving compensation to millers or others having rights in connection with the canals, appears to our mind a perfect solution in the abstract of all the difficulties that beset the question up to the present, with the single exception of the cost of reservoirs, filtering-beds, &c. Who is to pay for them? is easily answered—of course, the ratepayers; but what will they cost?

For this and other information we await the report of the SPECIAL WATER WORKS Committee, to whom the proposition of the canal companies has been referred, and we sincerely trust that the question may be speedily solved, and the citizens secured permanently the advantages of water pure and in abundance.

[Since writing the above, we notice a requisition signed by numerous members of the municipal body, calling on the Lord Mayor to convene a meeting of the citizens to discuss the question, and which was accordingly done for the 28th ult., to be holden in the Round Room of the Mansion House. We wish, for the impartial solution of the problem, the requisition bore a more *general* and less *party* aspect.]

ANCIENT BRISTOL.

THE City of Bristol is replete with objects interesting to the antiquary and the enquiring traveller, and we subjoin a brief historical account, together with a passing sketch of its principal relics of bye-gone times. It is assumed—but the data are somewhat obscure—that the founder was Brennus, leader of the Gauls and conqueror of Rome, B. C. 388; and his brother, Belinus, is said to have assisted in bringing the foundations of the city to maturity, but this inference is chiefly because their statues may be seen "quaintly carved" on the south side of the tower of St. John's Church in Broad-street, most probably placed there by the *modest* gentlemen themselves in those *refined* times. In the memoirs of Bristol by Mr. Leyer, we find that a British town was founded on Clifton-hill—a picturesque and beautiful suburb of modern Bristol—but the inhabitants and the name were subsequently transferred to a village close by, but that Clifton, after a lapse of one thousand years, is now receiving back its population. Slightly digressing, we must remark that Clifton, which is situated a mile down, and at a considerable eminence over—the river Avon, has obtained a world-famed celebrity for its vestiges of an extensive Roman camp; its celebrated rock of St. Vincent, furnishing some very beautiful spars, petrifactions, &c., and a fountain spa of tepid medicinal water at 76 degs. Fahrenheit, and whitish colour, which has obtained for the place the title of "Hotwells;" also for its suspension bridge, designed by the late Mr. Telford.

Of Bristol Castle, said to have been built by Bishop Godfrey, and by order of William the Conqueror, about 1069 or 1070, scarcely a remnant is extant, though its site has been definitely ascertained at the eastern side of the town, as occupying an isthmus between the rivers Avon and Frome. William Wyrcestre's description of the castle is as follows:

"*The Quantity of the Dongeon of the Castell of Bristow, after th' Information of ——— Porter of the Castell.*

"The tour called the dongeon ys in thyknes, at fote [the foundation] 25 pedes, and at the ladyng place, under the leede-cuveryng 9 feet et dimid.

"And in length este and west, 60 pedes [feet]; and north and southe, 45 pedes [feet]; with IIII toures standyng upon the fowre corners. And the hyest toure callyd the Mayn, id est, mightiest tower, above all the fowre toures, is fyve fethym hygh [30 feet] abofe, and the wallys be in thiknes there, VI fote. Item, the length of the castelle wythin the wallys est and weste ys 180 virgæ [yards].

"Item, the bredth of the castell from the north to the southe wyth the grate garden, that ys from the water-gate to the mayng rounde of the castill, to the walle northwarde towarde the blakfrerys, 100 virgæ. Item, a bastylle lyeth southward beyond the watyr-gate, and contayneth in length 60 virgæ. Item, the length of the bulwark at the utter gate of St. Philip's church conteyneth 60 yardes large. Item, the yerdes called sparres of the hall-ryal [the king's hall] conteyneth yn length about 45 fete of whole pece. Item, the brede of every sparre, at fote, conteyneth 12 inch and eight inch."—p. 260.

After standing for 600 years, it was decreed to demolition in 1655 by Oliver Cromwell—"that distinguished friend of architects and builders."

In 1247, a stone bridge, with lofty houses on each side of it, and a chapel across it, forming a gateway, was built to connect the city and suburbs; but in 1761 this antiquated structure was taken down and replaced in 1768 by the present more suitable one.

By Chilcott's Bristol Guide we learn that

"Besides the bridge at the bottom of Clare-street, and the stone bridge at the head of the quay, there are no less than thirteen bridges of one arch, with houses erected on them, which cross the Froom.

"When the castle, the abbey of St. Augustine, and the priory of St. James were founded, a distribution of the town into parishes appears to have taken place, under the authority of the bishops of Worcester. As piety became aided by wealth, in the growing prosperity of individuals fraternities and parishes vied with each other in re-constructing their churches upon the same consecrated ground. There were likewise perpetual funds for their embellishment, which were constantly replenished, 'ad fabricam,' by testamentary bequests of the more wealthy inhabitants. Chantries for obituary masses were built, as additions to the several churches, to the number in some of them of seven or eight. Upon these shrines and altars the most delicate architecture and carving were usually bestowed, and remained to be destroyed either by the reformers and puritans, or by modern repairs. Several of these churches were very highly adorned in their interior parts. The richest particles of masonry were applied without regard to expense; and the enlarged windows were decorated with stained-glass of curious and brilliant imagery. Those churches in Bristol which are at this time the more remarkable for their beauty, were certainly built about the fourteenth and fifteenth centuries.

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[*] See page 193 *ante*, and previous numbers.

In an era when stained glass, representing scriptural stories and portraits, were the coveted ornaments of all churches, those of Bristol were probably replete with that species of embellishment. It is not, however, certain that any manufactory of it was established there, but there was at Coventry, York, and London; and much of the finer sort was imported from France and Flanders. From the facility with which it could then be procured by the merchants, we cannot doubt but that it abounded in all the sacred buildings in this town. Very few fragments, however, now remain, excepting in the Cathedral church. Fanaticism at the Reformation, and during the occupation of the town by the troops of Fairfax and Cromwell, and, more than all, the love of destroying and repairing by the same hands, and the interested motives of the repairers themselves, have banished the 'dim religious light' from almost every window; and the churches are *now* fitted up, like lanterns, with raw white or green glass, as evidenced in the windows of the churches of St. Augustine's, St. Mary Redcliff, St. Stephen's, and the Temple."

Further, that of the remarkable buildings for public accommodation and correction, Wyrcestre, in the 15th century, named the following:

"The Tholsylle, where the mayor and common council meet from day to day, as it may be required, under a cover of a ceiling leaded over, opposite to the west door of Christ Church. Upon the bridge there is a fair and large room, beautifully vaulted, beneath St. Mary's Chapel, for the session of the sheriffs and jurats of the town to consult for the public good."

"The Council House for the mayor, sheriffs, bailiffs, and principal merchants, is situate on the open space above the Tholsylle, opposite the chancel of All Saints' Church."

"The Pillorye, near the oldest gate in the wall, in the middle of Wynche-street (Wine-street), is a round building, handsomely constructed with freestone, both for dimensions and height, with chambers and windows artificially barred with iron: and upon the platform of the roof of this building is erected a *collistrigium* of timber frame work, in order to *collistrigue* or pillory infamous men, especially dishonest bakers."

Rambling through the town numerous quaint or elaborately carved timber framed dwellings, with projecting stones, barge boards, &c., and whose construction would be regarded with curiosity and afford an instructive lesson to our modern carpenters—present themselves. The merchants' houses had cellars extending the entire basement and for the storage of goods, and the business surface thereby obtained under ground nearly equalled that above. On the ground floor were the "shopæ" or stalls, with "aulæ" or halls communicating, and on the first floor were the "parlura, coquina, and camera," the proprietors' chambers, together with sometimes an apartment in the roof termed "solaria."

The churches of St. Mary Redcliff, St. John, St. Werburgh, and St. Stephen, were built by private individuals, W. Canynge, Walter Frampton, Walter Derby, and J. Shipward, respectively all mayors of Bristol, and the former—which we shall presently describe— is one of the most venerable, extensive, and costly architectural structures in the United Kingdom.

The Cathedral is a venerable structure, and was originally a monastery dedicated to St. Augustine in 1148, Sir Robert Fitzharding having begun the foundation in 1140. The gateway has been considered as the only vestige of the *original* structure; and, from its great beauty, has attracted much notice. The chapter-house, however, and part of the cloisters, are evidently Saxon, and most likely coeval. The present cathedral, consisting of a neat choir, fitted up in the gothic order, with part of the nave and the two side aisles, *all of equal height*, produces a most singularly beautiful and grand effect. It is, however, one of the smallest cathedrals in England; but it has a certain singularity in its interior construction, which produces considerable beauty and picturesque effect. In external height, the aisles equal the nave. Instead of arcs boutants, or flying buttresses, a complicated structure of crossing arches occupies the roof, and supports, in their stead, the side walls of the nave. Of this plan we know not of any other instance. The monuments in this cathedral are very numerous and interesting.

Redcliff Church is built on a red sandy rock or cliff—from which it derives its name—with stone dug at Dundry, about four miles and a half from Bristol. It is allowed to be the finest parish church in England; and is, as Chatterton calls it, "The pryde of Bristowe and the Westerne Londe." To this stately edifice there are three principal entrances by a flight of steps of Purbeck stone, viz., a north, west, and south door. The tower, which is richly ornamented by a variety of carved work, is nearly two hundred feet in height, has a noble peal of ten bells, and formerly contained a lofty steeple. On viewing the outside of this church, its appearance is majestic and venerable; and on entering it, its lofty vaulted roof, which is all of stone, and every where carved with devices and ornaments of curious workmanship—its long middle aisle, terminated by the chancel and altar—its noble pillars, which are inimitably wrought into the most delicate mouldings—and indeed, the exquisite beauty and lightness of the whole fabric, excite feelings of admiration and delight, and instinctively, as it were, awe the mind into a devotional feeling.

There are four palpable varieties of Christian architecture in Redcliff church, manifesting as many architects, and as many different times when they were respectively designed and erected. The inner north porch, or vestibule; the tower and spire; the outer north porch; the body of the church, with the lady chapel, and the south porch, we feel assured were built successively; and it is generally admitted, that an older church was removed to give place to the present nave and chancel, with their aisles, and the transept. The oldest of these members, *i.e.*, the vestibule, is of a date between A. D. 1200 and 1230.

The tower contains a diameter of 23 by 24 feet. Its height is 120 feet, and with the spire, as it now remains broken by a storm, is 200 feet high. The diameter, at the top of the fracture, is 16 feet, and it has eight panes or sides. Every stone at the beginning of the spire is two feet thick; but at the top of the fracture only four inches. The diameter of the "garlonde" [the parapet round the summit] where the cross is placed, is 11 feet. Thickness of the walls at the foundation is seven feet, and five at the top of the tower.

The whole length of the church is 63 yards, exclusive of Our Lady's chapel. The breadth is 18 yards; total. 231 feet. The said chapel 13 yards, one foot and a half by 21 feet.

The length of the first gate or north porch is seven yards, and the chapel continued from the gate of entrance, is six yards more.

The height of the arched and fretted vault (voltæ frettæ archuatæ) of the nave and aisles, and likewise the aisles of the transept from north to south, is 80 steps from the ground, from information given me by the plumber, on 7th Sept. 1480, each step containing eight inches at least. The length of the transept 67 paces. The aisles are 26 paces. The chapel of the north porch contains in circumference 44 yards, and is ornamented with the statues of the kings, (cum ymaginibus regum operatis subtiliter in opere de freestone.)

Between each pillar and arch there is a space of 10 feet. The transept has eight arches: every window in the "ovyr-storye' has five glazed divisions, and is 10 feet wide; and those in each aisle have three. There were six bells in the tower, the largest of which weighed 7,024lb. avoirdupois, and the smallest 1,300lb. weight.

In the years 1445-6, about St. Paul's tide, 100 feet of the steeple were thrown down during a violent storm of thunder and lightning, and falling upon the body of the church, it became almost a ruin. To the "everlasting prayse" of that worshipful man William Canynge, who undertook to repair, enlarge, and beautify the edifice, founded by his ancestors, we behold this fine church nearly all complete. The steeple was not rebuilt—a fortunate circumstance, perhaps, since the lightning, but a few years since, dislodged some large stones from the top of the tower.

A beautiful gothic screen to the front of the gallery, corresponding in architectural character to the whole building, was erected in 1841, chiefly by the spirited exertions of Mr. W. Ringer, one of the then churchwardens.

The church was newly pewed and beautified by brief, in 1709. It was again repaired, and the pinnacles on the south side rebuilt in 1796; and very recently important restoration works have been carried on under the direction of Mr. George Godwin, architect.

There is a large bone preserved at the west end of the church, which is said to have been a rib of the *dun cow*, slain by Guy, Earl of Warwick!!

Some very ancient grave stones and monumental brasses are preserved.

The Chatterton memorial, lately erected by subscription, is placed in the enclosed spot at the north-west angle of the churchyard, between the tower and the north porch. It is pentagonal on the plan, raised upon three graduated steps: from the base it is divided vertically into three compartments, the lowest is intended to contain the inscriptions, with buttresses at the angles, which rise up to the head of the next division, the space between them being occupied by a deep niche. In the centre niche is an open scroll, inscribed, "The Poems of Rowlie." The canopies of these niches and the buttress tops are richly carved with flowers and grotesque animals. The third compartment is formed of five small pillars, with ogee-arched heads and carved spandrills, and a central pillar for the support of the statue. These are surmounted by a deep cornice, with heads and flowers at the angles, and a pedestal cap. The figure of Chatterton crowns the monument; he is represented in the dress of Colston's school, where he was educated; from his left hand falls a long scroll, inscribed, "Ella, a tragedie."

The character of the monument assimilates to the design of workmanship of the buttresses of the north porch. The total height is 31 feet, and its cost was about £100.

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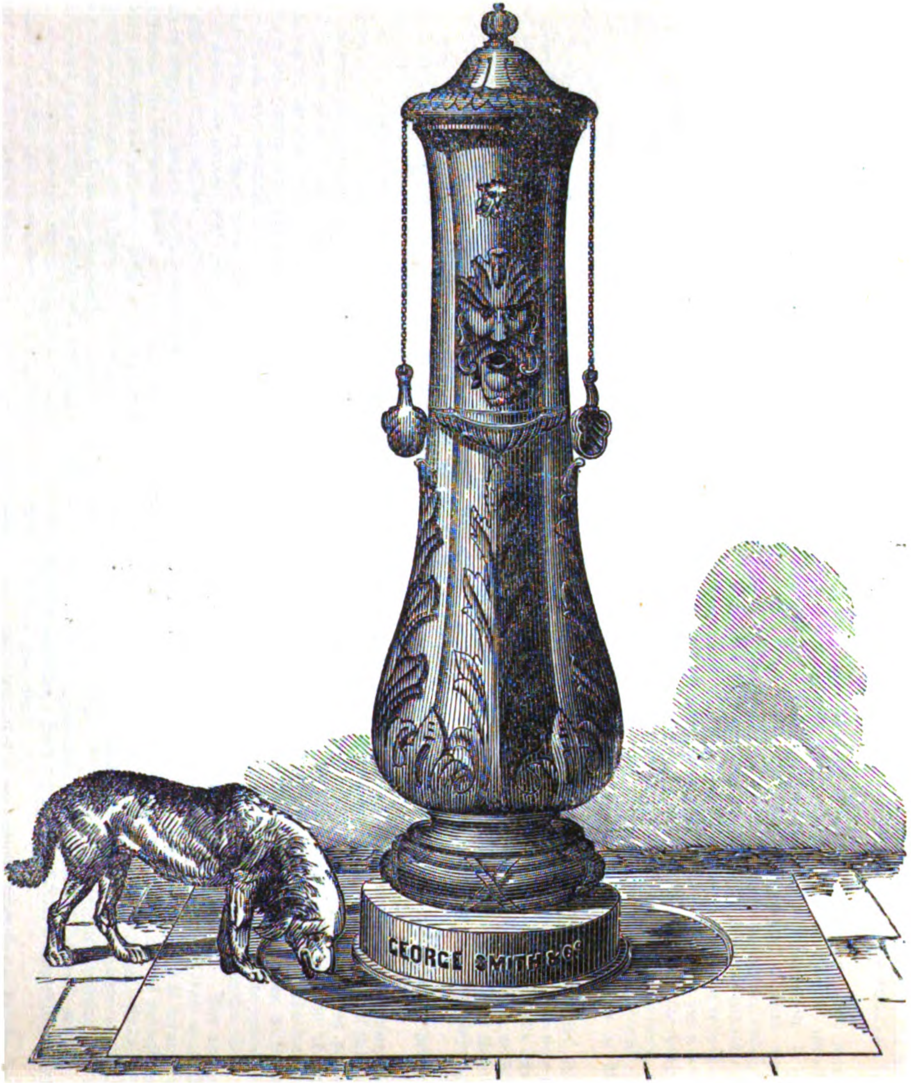
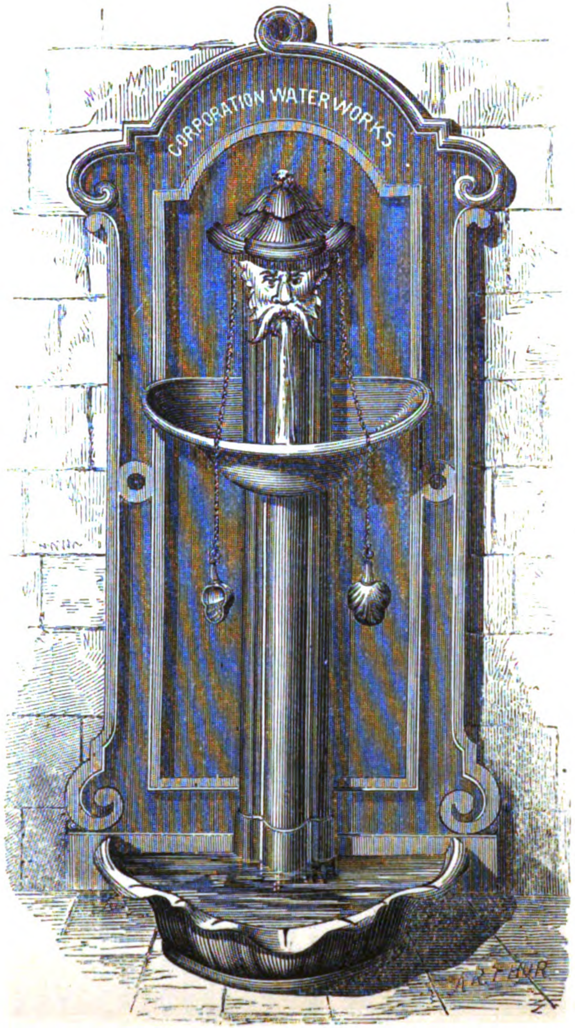
DRINKING FOUNTAINS.





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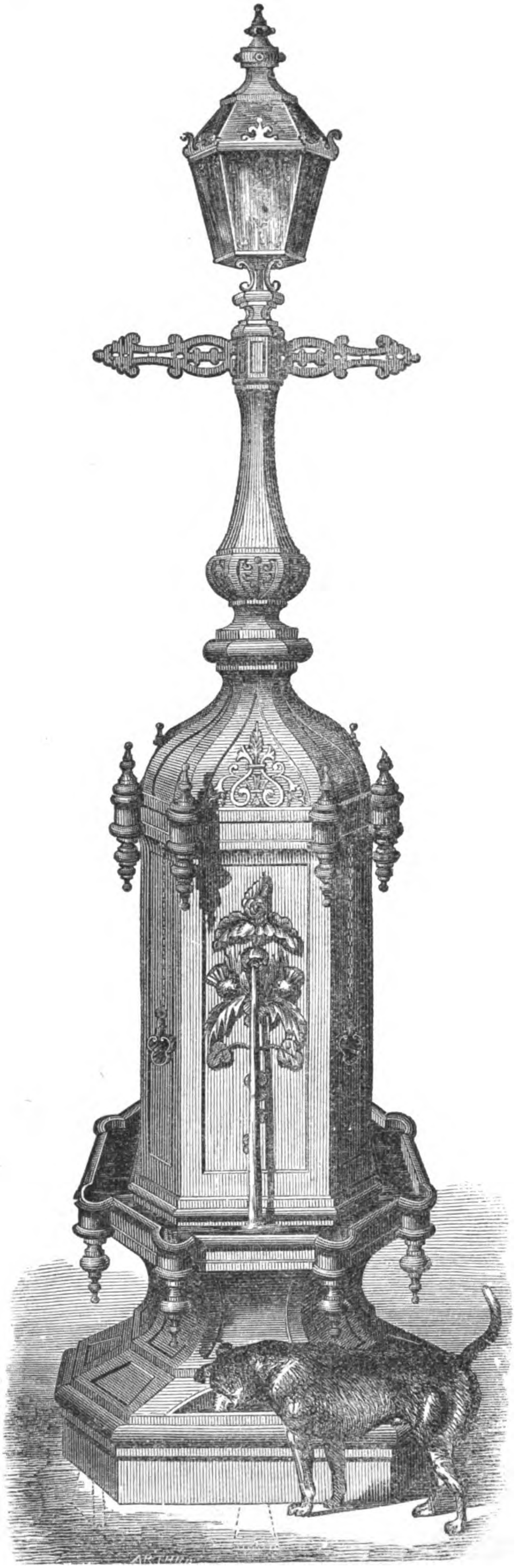
LAMP AND FOUNTAIN.



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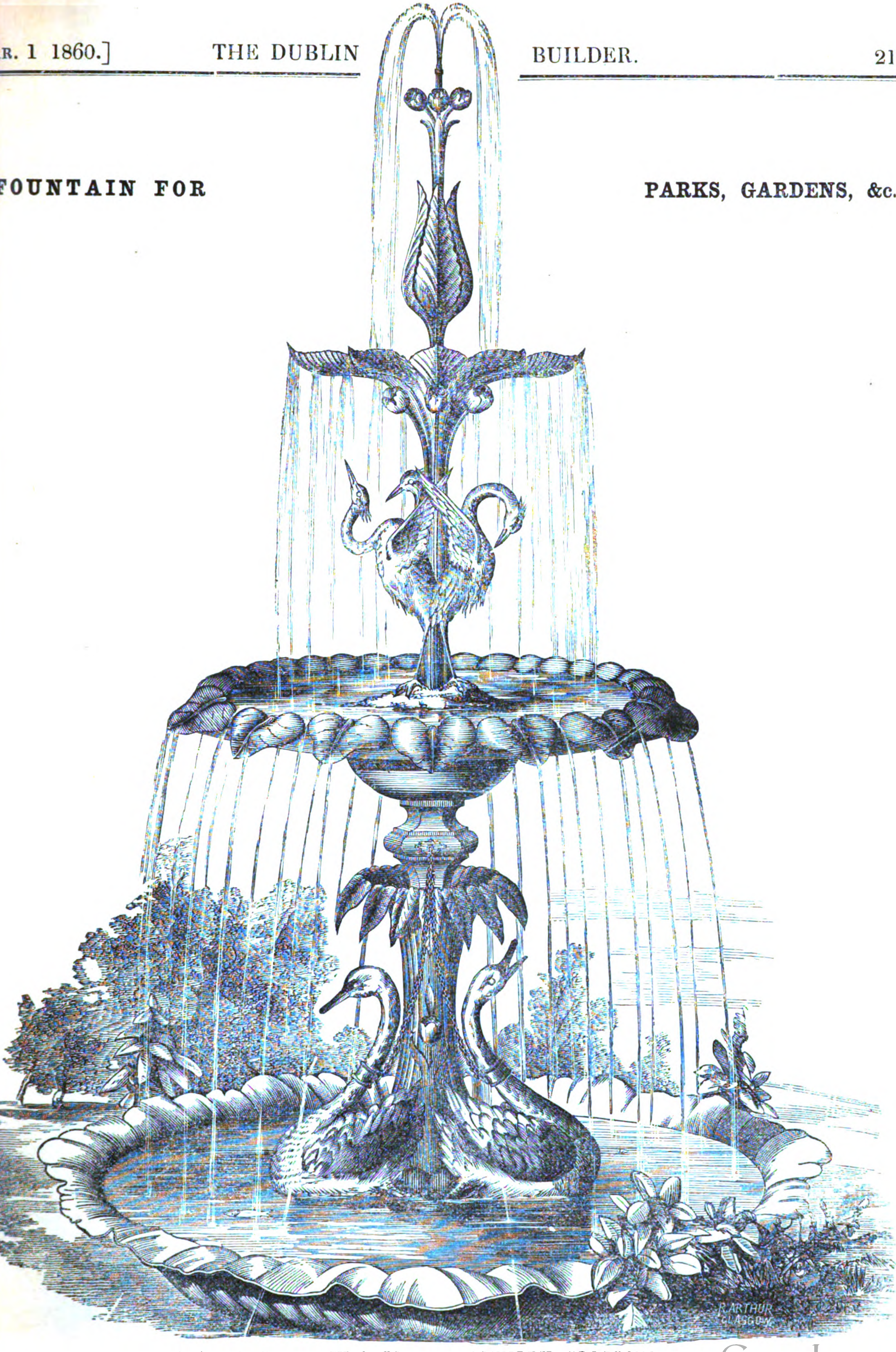
FOUNTAIN FOR PARKS, GARDENS, &c.



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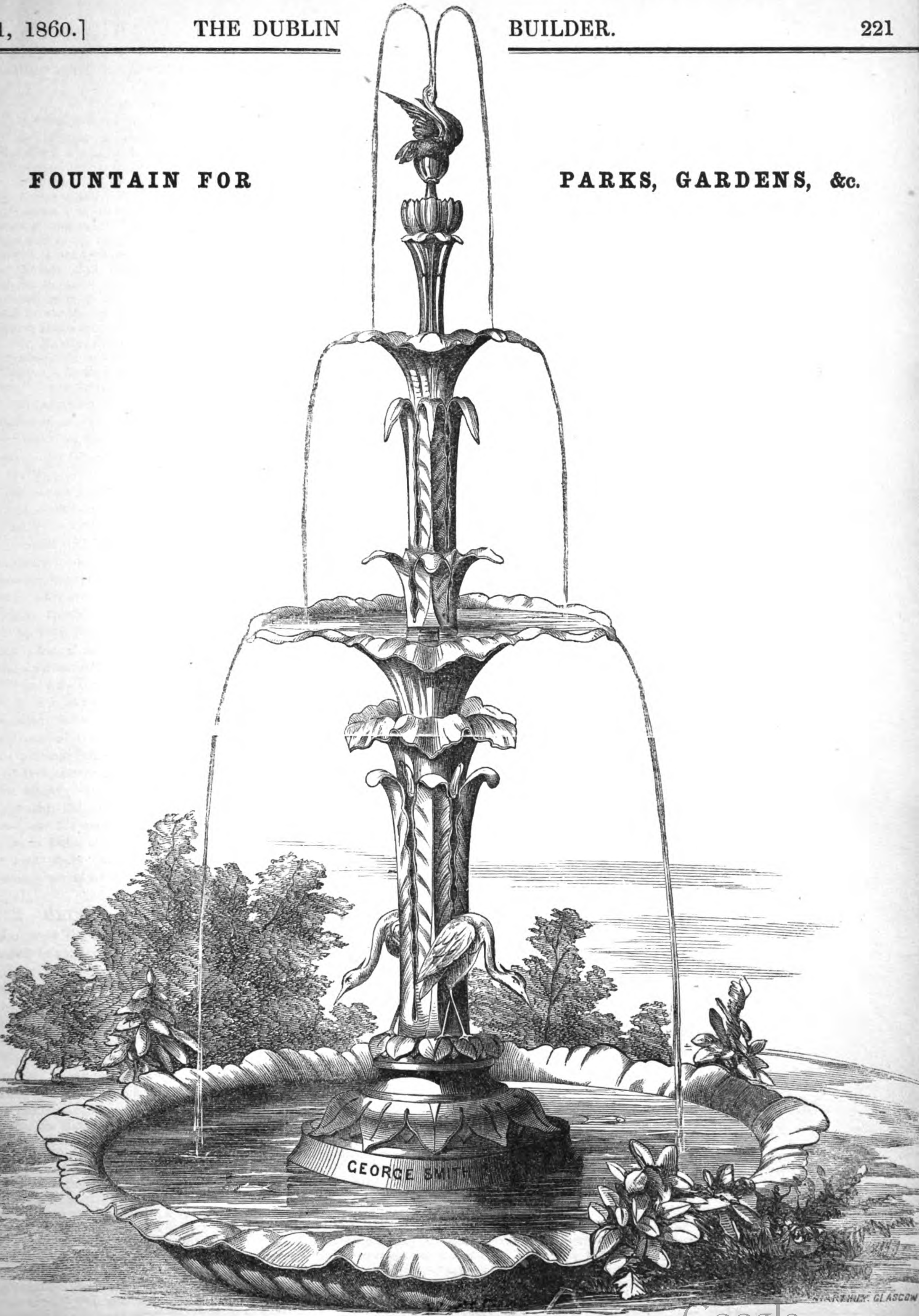
FOUNTAIN FOR PARKS, GARDENS, &c.



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CORPORATE INTERFERENCE WITH THE RIGHTS OF ARCHITECTS.

THE COUNCIL CHAMBER, CITY HALL.

AT a recent meeting of the Corporation we find the following:—

Mr. Whelan submitted a plan which *he* had prepared for remodelling the council chamber, and suggested that it should be adopted on the principle of competitive examination.

Alderman Reynolds had no objection to the plan being referred to a committee. He was happy to be able to say that he and Alderman Roe had been asked to see a plan by Mr. Neville. It was most fortunate that Mr Neville happened to be in London, for he was able to get the plan of the House of Commons (laughter). That might excite a smile, but the House of Commons had the advantage of the best skill, and they could not do better than adopt the plan of the House of Commons in miniature. They ought to have that council-room so as that it would be a model worthy of imitation, and he would, therefore, be a party to sending the plan to a committee summoned specially for that purpose.

Mr. Martin (Fitzwilliam Ward) said that as his lordship was to be placed in a position similar to the Speaker of the House of Commons, he thought it well to remind the house that there would not be room for a "cage" for the ladies (laughter).

We apprehend that in this matter there is tampering with the rights of others. Mr. Whelan may be a very excellent municipal legislator, as also a very competent builder, for aught we know; but within the corporate walls he should not seek to blend the *two* capacities, and while enjoying the councillor's toga, volunteer likewise the office of "an architect." Mr. Neville holds the appointment of city engineer and local surveyor, and no doubt very efficiently; but there is a *city architect* likewise, on whom any matters connected with building alterations, &c., would appear more consistently to devolve than upon an engineer or surveyor, who, we assume, has quite enough to do in his own legitimate occupation to engage his attention. If the office of city architect to the corporation of Dublin be a mere *honorary* title, and that the engineer is to do *his* duty, better abolish it altogether, and get rid of the "mockery"; but, if it be a *bona fide* appointment, the holder should enjoy the gain as well as the name, and his province not be intruded on. We have no reason to assume that the city engineer *volunteers* his services in any capacity to which he is not strictly and honourably entitled; indeed, on the contrary, judging from both his private and professional character, we believe he would scorn such an act,—so no *personal* inference must be drawn from the foregoing remarks. What if the city engineer in London were called on to give a plan for altering the Guildhall, or other municipal building, and Mr. Bunning, the city architect, be passed by? English blood would boil, and the council demand satisfaction for the innovation. The case is identical here, and we hope to see each man occupy his "right" place. An appropriate motto for adoption amongst corporate officers, would seem to be "Ne sutor ultra crepidam."

EXTENSION OF LOWER DOMINICK-STREET.

AMONGST the many municipal improvements which suggest themselves to our usual review, none appears much more desirable under present progressive circumstances, and when the great transatlantic highway may fairly be designated the *national* topic, than that the approach to the Midland Great Western Railway terminus—one of the great arteries—from the chief thoroughfares of the city should be divested of every incumbrance. To effect this more perfectly than at present—when a circuitous route for vehicles is indispensable, and not a very pleasing mode of access afforded to pedestrians from certain localities by bye-lanes or streets of indifferent character—would be to continue, of equal width, or nearly so, Lower Dominick-street to Henry-street. The western side of the former ranges pretty closely with Cole's-lane, and by producing the eastern on a line now occupied by the sites of the houses in Britain-street—viz., 42, 43, and 44—thence to Henry-street, where Nos. 51, 52, and 53, at present occupy positions, a width of 60 feet of thoroughfare, or thereabouts, exclusive of Cole's-lane, would be obtainable. This would undeniably open up a spacious street for public and private business purposes, and be a decided improvement both to the locality and the city generally. What a desirable site would then present itself for a metropolitan market? by dispensing with Moore-street altogether, and substituting, in the intervening square, a properly-arranged covered area in lieu of the heterogeneous, inconvenient, unhealthy, and uncleanly disposition of shambles and shops for potables now in existence.

MANUFACTURE OF DRINKING FOUNTAINS.

FEW movements of late years have so successfully and simultaneously attained the double purpose of contributing to the requirements of a large section of the community and opening up an emulative field for artistic progress, as that for establishing drinking fountains in cities and towns. In London, Glasgow, Liverpool, Manchester, and various other towns in England and Scotland, some architectural acquisitions of this class have been erected; but, slow as we Dubliners are generally in matters of improvement, those erected by us—however laudable the intention—are, in an artistic view, a positive disgrace to our city. In the hope of effecting some reformation in the taste at present displayed, we devote several pages of this publication to the illustration of what *has been* done elsewhere, and what clearly yet remains for us *to do.* It will be seen that this character of structure is capable of a variety of treatment, each contributing more or less both to embellishment and utility. In addition to the "mural" fountains already described at page 212, we illustrate a design (see page 216) for one in cast iron, also intended to be fixed against a wall, and provided both with a "drinking tap," chains, and cups, and a dog trough below, with an overflow outlet to prevent flooding on the street. The price of this would be about £3. For isolated fountains, see the figure next to that described, which illustrates a design in pillar form to be erected on a footway, and with a dog trough surrounding the base. This design was adopted in public competition by the Commissioners of the Glasgow Corporation Water Works, and has been placed in several wards of the city. A pillar fountain of this fashion, and 3 feet 6 inches in height, is obtainable for £3 5s. The illustration at page 218 displays a design for an isolated fountain, combining also, by a very clever treatment, an ornamental lamp-post, and thereby serving a double purpose. The body is of octagonal form, and the capping of the pedestal receiving the waste water from the tap forms a basin for washing hands, or, if desirable, can be sufficiently enlarged for a horse or cattle trough. The dog trough at bottom is better protected from probable pollution of the water by accident than in the other instances. The arms of the lamp, by a slight modification, might also be used—as in London—as indicators of thoroughfares; or portion of the shaft and pedestal for advertising media injudiciously arranged pannelling or other contrivance. How many desirable sites present themselves in our city for such a construction as this? For example, at the end of Sackville-street, next Carlisle-bridge, the junction of D'Olier and Westmoreland streets, Barrack or Thomas streets, the squares, &c. The designs at pages 219 and 221 are for *jets d'eau* and drinking fountains, likewise applicable for a public *place*—such, unfortunately, as Dublin cannot boast of—like Paris, Brussels, London, Manchester, and other cities, for parks, pleasure gardens, &c. What an improvement if such as these were introduced in the area in front of Trinity College, and the old railing replaced by a new one? The water in design at page 221 is intended to fall over eight different outlets in basins, though not shown herein. The prices are respectively £25 and £30. What a boon, if at our cab-stands and railway stations, our cattle markets and localities adjoining the shipping, fountains for thirsty brutes were placed at intervals? And what a shame that it is not so? Foremost amongst the manufacturers of this class of structure are MESSRS. GEORGE SMITH & Co., of Sun Foundry, GLASGOW, to whom we are indebted for liberty to publish these designs, which we may remark are *duly registered.*

PEAT GAS IN MULLINGAR.

IN the course of an address from the shareholders of the Mullingar Gas Company to Mr. R. L. Johnson, patentee of the process by which the town has been recently lighted with gas obtained from common turf, we find the following paragraph:—

"We now gladly bear testimony to the complete success of the undertaking. We beg to say that the gas obtained from the turf peat far exceeds our expectations, and we joyfully congratulate you on the result of your discovery; and further, we fondly hope that many other towns throughout Ireland, particularly the more inland towns, and those situate in the vicinity of extensive bog districts, will avail themselves of the treasure which Nature has so bountifully put within their reach, by lighting their respective towns with peat gas, and thus give a stimulus to home industry, which is one of the most effectual means to ameliorate the social condition of the people."

Mr. Johnson in his reply remarks—

"Your high testimony to the satisfactory manner in which the gas works have been inaugurated with turf gas, possesses, for the lovers of Irish industrial advancement, considerable importance. My first experiments were made with a few pounds weight of turf only and a gas receiver, the contents of which were a cubic foot. The consumption of turf in your town for gas purposes is at present considerable, and your gas receiver contains nightly *ten thousand* times the quantity of gas to that produced in my first experiments; the gas, too, passes, as required, through more than 25,000 feet of piping."

We believe, from the peculiar applicability of this invention to numerous and extensive districts in Ireland, and opening up, as it must of necessity, an important field for employment of the poor, it deserves to meet with every encouragement.

GAS IN THE PROVINCES.—The Town Commissioners of Tuam have granted £500 towards the expense of introducing gas into that town.

WEXFORD MECHANICS' INSTITUTE.

A NEW Mechanics' Institute has just been finished in Wexford by Mr. Richard Pierce, builder. Little can be said for the architecture of the design, which is a local production, supplied to the Committee gratuitously with a view of obtaining the contract, and, as usual in such cases, proving to be *dear* in the end. The building consists of a hall (in which are to be placed the books of patents, for the in-inspection of the public), library, and reading-room, committee-room, museum, and librarian's apartments. The structure is a prominent feature in the principal street, and its external appearance has been improved by an alteration of the builder's in front. Cost £500.

Monthly Railway Memoranda.

Bagenalstown and Wexford.—By this bill it is proposed to enable the company to make a railway from their main line at Shanahona to Enniscorthy; also a railway from their main line at Clomony to Ballyellin quarry; and an approach road from the quay to New Bridge, and to the authorized terminus of the company, at Wexford. To be completed in five years.

Cork and Kinsale Junction.—The contractors have been put into possession of nearly one-half the length of land required for the railway, commencing at the point of junction with the Cork and Bandon line, and terminating at the summit station beyond Templemichael, a distance of nearly five miles, and the works on this portion of the line are progressing rapidly. The board are of opinion that the railway could be completed by June or July next to within five miles of the town of Kinsale. All the necessary arrangements had been made by an independent company for commencing the building of the proposed marine hotels and baths at Kinsale forthwith.

Cork and Youghal.—This line will be opened in a few days to Killeagh, and in all probability to Youghal, by next May. A station will be erected at Mogeely, close to Castlemartyr, and between Midleton and Killeagh. The works of the Queenstown branch will be commenced immediately.

West Cork.—It is proposed to incorporate a company for making a railway in the county of Cork, to consist of the following sections—viz., a junction with the Cork and Bandon Railway, near Bandon, to Ballineen; line from Ballineen to Dunmanway; from Dunmanway to Dromdaleague; from Dromdaleague to Skibbereen. To be completed within five years. The capital of the company to be £200,000.

Dublin and Belfast Junction.—The additional portions of second line have been opened for traffic, so that the double line is now complete from Drogheda to Newry main line station, and contracts for rails and sleepers for an extension of the second line thence to the junction of the Banbridge Railway at Scarva, a distance of ten miles, have been recently concluded on favourable terms; the work will be commenced as soon as possible, and when completed there will remain only eight miles of the line to be doubled. The directors have contracted for the erection of 12 houses on the company's land adjoining Dundalk station, for the *employés* on the locomotive works.

Dublin and Drogheda.—The objects of the proposed bill are to enable the Dublin and Drogheda Railway Company to make a railway from a junction with the Navan and Kells branch of their railway at Kells to Oldcastle, in the county of Meath. To be completed in five years. The engineer reports that preparations are in progress for the renewal of the Malahide viaduct in the course of the present year.

Dublin and Meath.—The objects of this bill are to authorise the Dublin and Meath Railway Company to abandon the construction of their authorized line between Piercetown and its intended junction with the Midland Great Western of Ireland at Clonsilla, and in lieu thereof to make an extension from the remainder of their authorized line into St. George's parish, at Dublin. To be completed within five years. Between Navan and Kilmessan the earthwork is nearly all completed, and the line fenced in. Two public road bridges have for some time been open to the public. Two others are also in a very forward state, and will be open for public traffic immediately. The bridge over the River Boyne, consisting of four arches of 85 feet span, and two arches of 28 feet span, is nearly finished. A new mill-race has also been formed. The works on the branch to Trim and Athboy have not been increased since last half-yearly report, with the exception of making some level crossings and putting up some field gates. The line between Navan and Kilmessan could be formed, and the rails laid in six weeks or two months, and the whole line from Navan to the Black Bull, where the extension into Dublin is proposed to commence, could with ease be completed and ready for traffic by the middle or end of October next.

Dublin and Wicklow.—It is proposed to change the name of the Dublin and Wicklow Railway Company to "The Dublin, Wicklow, and Wexford Railway Company." To enable the company to make an extension railway from a junction with their authorized line to Gorey at Clonatin Lower to Templeshannon, near Enniscorthy, in the county of Wexford. To be completed within five years. The turn-tables, carriage-dock, and sidings at Harcourt-street terminus, have been completed; the second line of rails has been laid from Dublin to Dundrum; and the branch to the Jetty at Kingstown has been completed and opened for public traffic. Some alterations are being made at Westland-row terminus to facilitate the English traffic and the conveyance of mails.

Dundalk and Enniskillen.—The Cootehill extension is expected to be open for public traffic by August. The working plans of the Clones and Cavan extension are ready, contracts advertised for, and all other necessary steps taken to have the work completed by the time specified. The works on the main line have been taken up from the contractors, except the last four miles, which, by arrangement, are maintained to the 14th instant at their cost. The renewals of permanent way have been necessarily large, but not more than were required to maintain the line economically in good working order. The terminal station at Enniskillen, as already described in the DUBLIN BUILDER, has been completed, and small stations at Monaghan-road and Maguire's-bridge are in progress. The works on the Cootehill branch are progressing favourably. 190,000 cubic yards of earth have been moved, and 5,000 yards of rock; 18,000 lineal yards of fencing have been erected, and 720 yards of culverts and drains have been put in. New bridges have been built, containing 3,900 cubic yards of masonry. The whole of the Clones to Cavan and Belturbet line, with Belturbet branch, has been laid out carefully and lockspitted.

Waterford and Limerick.—It is proposed to enable the Waterford and Limerick Railway Company to make a tramway from their main line to the market-place at Limerick; an extension railway from the terminus at Waterford to the River Suir; and a pier or wharf on the north bank of the River Suir. To be completed within four years. To dispose of the bridge over the River Suir at Fiddown.

Notes of New Works.

METROPOLITAN.

The National Gallery is ready for roofing, and estimates are required according to plans and specifications to be seen at Sir Richard Griffith's office, 6, Ely-place.

St. Anne's Parochial Church is undergoing alterations and repairs, shall we say improvements? This structure—fine and venerable even in its incomplete state and without its lofty superstructural Palladian pediment and staged spire, as intended by the original design—is one of the oldest of our churches, and demands more important restorative works than are now being proceeded with. The exterior is undergoing a painting process by way of preserving a clean face, but no steps are being taken to remedy the eyesore of a blank wall following rake of the roof, and surmounting an entablatured façade, having much architectural pretensions of the old school. Internally the galleries are being reconstructed after the same fashion, in same position, but with a range of timber columns with metal cores and floriated caps to sustain the bressumers; windows also have been introduced to light the aisles, but the necessity for this appears very questionable, in as much as their previous darkness was owing to the extreme lowness of the galleries—9 feet in height—and had they during the progress of reconstruction been elevated some 3 or 4 feet, the light from the present spacious windows would have, to our mind, proved ample, and their proportion have been far more consistent with the general internal elevation of the church. In the west wall a large niche has been formed for the reception of the organ, a new Caen stone pulpit erected, the apsidal floor laid with Minton's encaustic tiles, and various works of lesser character effected throughout. The ceiling is of waggon shape, and capable of receiving characteristic ornamentation. The contractor is Mr. Hall, under the directions of the Ecclesiastical Commissioners architect; the Parish and other resources, being as we are informed, as is unfortunately too frequently the case, insufficient at present to accomplish all that might be desirable; the expenditure being about £2,000. As regards the facade our remarks are peculiarly applicable to St. Thomas' and Werburgh's churches likewise.

PROVINCIAL.

A new convent has been erected at Dungarvan, Co. Waterford.

The foundation stone for the new schools about to be erected at Tuam by the Christian Brothers has been laid.

The Dundalk and Enniskillen Railway Company purpose proceeding immediately with the construction of their line between Clones and Cavan. Tenders will be received till 6th inst.

The Grand Jury of the Co. Mayo, for the improvement of the harbour of Killala, have advertised for tenders for deepening and straightening the channel from the pier-head to deep water; likewise for repairs of the pier of Clare Island and Bay, Co. Mayo. Henry Brewster, Esq., C.E., Castlebar.

The Corporation of Drogheda will receive, up to the 30th inst., proposals for the erection of one or two drawbridges across the River Boyne.

Additions and alterations are to be made at the court-house, Enniskillen; cost not to exceed £2,500.

A new church of a very splendid character is to be erected at Piltown, on the property of the Right Hon. the Earl of Besborough.

Driminiskil Church, near Florence-court, is to be completed, and tenders will be received up to the 1st of March.

Correspondence.

[ADVERTISEMENT.]

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR, – It being thought by many persons that *I* was the plaintiff in the case of O'Reilly v. Brennan (Court of Exchequer). I beg to apprise the readers of your journal that I have no connexion with the party bearing a similar name, and shall feel obliged by your inserting this in your next publication.— I am, sir, &c.,

EDWARD O'REILLY,
25th February, 1860. 100, North Brunswick-street.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—It is apparent that from the expense of architectural and engineering works most of the junior members of the profession are debarred from obtaining a suitable library. And, with a view of bringing the more expensive publications to some, by means of a moderate annual subscription, I would suggest that an association be formed on the principle of "Art Unions," for the purchase of architectural and engineering works, with annual distributions of money prizes, each subscriber of 10s. to have one chance of a prize. The holders of prize tickets to select the works. subject to the approval and through the committee. I am sure the majority of the profession would join such an association, and for its success only requires the valuable notice of the building press.—I am, sir, your obedient servant,

C. E.

Londonderry, February, 1860.

THE SHILLING ART UNION OF DUBLIN.

The success which has attended the Art Union lately established by the French government in Paris, at one franc a share, has induced the formation in Liverpool, Manchester, Birmingham, and other large towns of Art Unions, at a shilling subscription, and the results have been most satisfactory. 34,000 subscribers have been obtained in Liverpool, and pictures to the amount of £1,800 distributed as prizes. As such societies are peculiarly adapted for diffusing a more general taste for art, and spreading its refining influences amongst all classes, it has been deemed advisable to establish a similar association in Dublin, and a committee has been recently formed to arrange and carry out the necessary details. The Art Union is to be based upon the money prize system; each prize-holder to have the right to select for himself from the Dublin Exhibitions a picture or work in sculpture to the value of the prize. The shares to be one shilling. The drawing of the prizes to take place on the 1st of June, and the highest prize not to be less than £100. Mr. White observed that it might be supposed by some that this society was established in opposition to the Art Union of Ireland; but such was not the intention or wish of its promoters. The only rivalry ought to be, which should do the most to advance the arts in Ireland.

WAR DEPARTMENT ARRANGEMENTS FOR BUILDERS.

BUILDERS tendering for government contracts in the War Department are by a recent arrangement supplied with the quantities of the works required, and are not subjected to the troublesome and expensive previous process of each having to prepare his own calculations of quantity,—now it is only a matter of pricing an account. Competition is greater under the present system, no doubt, and prices lower; but against this there exist facilities and advantages of much importance, both as regards the taking and working of contracts and the final settlement of building accounts. Eminent surveyors, selected by the government, in England, Scotland, and Ireland have contracts for supplying the quantities at the usual percentages for such works, viz:—

30s.	per cent. under	£10,000	20s.	per cent. under	£75,000
28s.	„	20,000	19s.	„	100,000
26s.	„	30,000	18s.	„	125,000
24s.	„	40,000	17s.	„	150,000
22s.	„	50,000	15s.	„ above	150,000

The per-centage is paid on the amount of the accepted tender; and when no tender is accepted, or when any portion of the work measured is abandoned or postponed, one quarter per cent. less is paid on the part abandoned or postponed. For works not exceeding £5,000 the government surveyor and his assistants alone make the quantities, and the whole per-centage is paid to him. For works over £5,000 a second surveyor, appointed by the contractors, joins the government surveyor, and the two perform the service between them and divide the commission. The surveyors and their clerks are allowed their travelling and hotel expenses, when any are incurred, and three guineas per day to each surveyor for time lost in travelling.

The Government Surveyor for Ireland is Mr. E. P. Gribbon, Architect, of 57, Lower Gardiner-street, Dublin.

RUMOURED ELEVATION TO THE PEERAGE OF PROFESSOR COCKERELL, R.A., ARCHITECT.

ONE of the most gratifying incidents connected with the history of the architectural profession in this century will be the payment of a tribute—honourably earned—to this distinguished and erudite professor of architecture, zealous antiquarian researcher, eminent author, and polished gentleman The venerable professor may be designated the "Father" of *our* bar; and his recent election as President of the Royal Institute of British Architects, after the demise of Earl De Grey. confirms him in his patriarchal position,—one, however. which he modestly *thrice* declined, believing it might be filled with more advantage to the body by a nobleman. Such an act of self-denial has it is said suggested in high quarters the reward of its *nobility*, an act which, when consummated, will be universally appreciated as a gracious distinction by a "gracious" donor, and be recognized as an additional incentive to "art and artists" to those so liberally offered during the reign of Her Majesty. It is usual on the elevation of a successor to the presidency of the Royal Academy that he "be dubbed a knight"; the same rule is observed as regards the bench, and the attorney and solicitor-generalships in England, the latter so frequently but a temporary position; but, with few exceptions, the other learned professions are not even so honoured. The architectural points with much pleasure to an efficient representative in the House of Commons in the person of Mr. Tite, M.P.; and we doubt not that among the "ermined lords" the newly elected peer will maintain a dignified position, and carefully guard the interests of the profession, now so extensively intruded upon.

THE VICEROY ON THE IMPROVEMENT OF DUBLIN.—His Excellency the Earl of Carlisle in the course of his, as usual, happy address at the Lord Mayor's inauguration banquet on the 20th ult. made the following remarks relative to metropolitan progress: "No one can walk the streets and squares of this metropolis without being struck with the great improvement in the appearance of the shop fronts and the buildings which are springing up in so many quarters, and I trust you will persevere in adorning your noble spaces with more statues of her most eminent poets, warriors, and statesmen; and altogether, not to intrude upon you longer, I feel that the Ireland of to-day deserves a large share in those noble lines, which were addressed to an Irishman of a former generation:—

"Bid harbours open—public ways extend,
Bid temples worthier of the God ascend;
Bid the broad arch, the dangerous flood contain,
The mole projected break the roaring main.
Back to his bounds the subject sea command,
And roll obedient rivers through the land;
These honours, peace to happy Britain brings;
These are imperial works, and worthy kings."

His Excellency likewise briefly alluded to the "water supply," without however pronouncing any opinion on the present project, and stated that "he is at present engaged in erecting a drinking fountain."

The Tramways to the Quays, Belfast.—The directors announce that the project of a tramway from the terminus to the quay has been abandoned for the present.

New Church at Clontarf.—We understand that a new church is about to be erected near Dollymount, Clontarf, in order to afford sufficient accommodation for this extensive suburban district. The church at Clontarf holds only 350, while the Protestant parishioners exceed 1000. To meet this want the parochial clergy have been obliged to hold weekly lectures in the parish schoolhouse.—*Irish Ecclesiastical Gazette.*

Proposed Tramways in Dublin.—This project is not likely—and very properly so—to find much favour here. The corporation originally opposed a "private bill" for this purpose, the Rathmines Commissioners set their faces against it *in toto*, and the disfavour of the citizens generally is pretty manifest. The principle may have its advantages in mining, coal, or quarry districts, on country roads, and in suburbs of cities; but it will not be favourably regarded in crowded thoroughfares, especially in the streets of our metropolis.

Good News for Stone Masons.—"We have just seen in operation," says the *Journal de l'Aisne*, "an ingenious machine for cutting stones, invented by a clockmaker of Fessieux, M. Jean Marie. This machine hews, scapples, and carves the hardest stones with remarkable precision. The bed on which the stone to be worked is laid runs on iron rails, backwards and forwards, as may be required. We saw it hollowing out, although it was very hard stone, a job which would occupy a man three or four days, but which was scarcely an hour's work for the machine."

NOTICE.

Post-office Orders and Remittances should be made payable to Mr. Peter Roe, 42, Mabbot-street, Dublin

☞ *NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the* Dublin Builder." *All other Communications should be addressed to the "Proprietor and Editor,"* 17, Lower Gardiner-street.

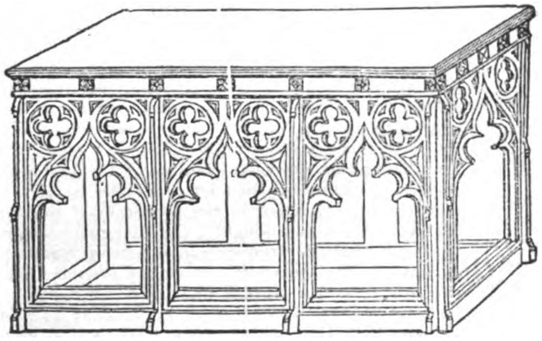
TO BUILDERS, DECORATORS, CONTRACTORS, ETC.

Genuine White Lead, best manufactured Zinc Paint. Pure Raw, Boiled, and Refined Linseed Oils. Fine American Turps Rosin, Pitch, and Stockholm Tar. Ground Paints of all colors, Patent Dryers, Red Lead and Putty. Gold Size, Torch Oil, Coal Tar. Black, Red, Pine, Oak, and Copal Varnishes. Unadulterated Colza, Petroleum, Phenola, Photogen, and all Lamp Oils. Superior Olive, Lard, and Sperm Oils, for engine use. White and colored Cotton Waste. Best Glue, Russian Tallow, Cart Grease. Paints to any color, mixed ready for use, in small and large quantities, to order, well adapted for the country and exportation. Export orders promptly executed, with goods of *best quality*.

GEORGE SPILL, OIL AND COLOR MERCHANT,
65, 66, & 67, ST. GEORGE'S STREET, LONDON DOCKS.

WILLIAM BISSELL,
UNION STREET, WOLVERHAMPTON,

SOLE Proprietor of the Improved MORTISING MACHINE, the newest, most easy, simple, and powerful, yet invented. Also the universally and justly-celebrated Equi action RIM and MORTISE LOCKS.
Patentee of the well-known Flooring Dogs, and 4-Ton Lifting Sacks.
Factor and General Manufacturer of Builders' Ironmongery.



(Executed for Grangegorman Church.)

JOSEPH DIGGES,
ECCLESIASTICAL UPHOLSTERER,
AND
Manufacturer of Church Furniture and Appointments.

COMMUNION TABLES, CHAIRS, LECTERNS, KNEELING STOOLS, BENCHES, ETC.,
In Plain or Carved Woods.
ALTAR CLOTHS, TABLE COVERS, CHANCEL CARPETS, CUSHIONS, AND PULPIT DRAPERIES,
All made to order, with good taste and economy.

Blinds to suit every description of Church Windows. Architects and others can depend on having their Designs carefully carried out.

27, LINCOLN-PLACE, DUBLIN.
(Opposite the Turkish Baths.)

WATSON'S PATENT SELF-ACTING VENTILATOR.

VENTILATION WITHOUT VIOLENT DRAUGHT.

THE SIPHON PATENT VENTILATOR is to be had only of CHARLES WATSON, F.R.S.A., &c., the Patentee, at his Works, KING'S CROSS, HALIFAX, YORKSHIRE, and of

JAMES W. GATHERAL, 93, VIRGINIA-STREET, GLASGOW.

SIX THOUSAND of these Ventilators have been successfully applied to Churches, Schools, Factories, Dwelling-houses, Stables, Stores, Workshops, Warehouses, & Farm Buildings.

NOTICE.

Subscribers who have preserved their copies for 1859, are informed that they can have a Wrapper and Index by remitting Four Stamps to the Publisher, or the Vol. complete for 3s. 6d., or 4s. 6d. per post.

Advertisers in London will please take notice, that the authorised local Collector of Accounts *is* Mr. William H. Sterling, 24, *Charrington-street, St. Pancras.*

SCIENCE & ART DEPARTMENT,
MUSEUM OF IRISH INDUSTRY,
STEPHEN'S GREEN, EAST.

Government School of Science, applied to Mining and the Arts.

A Systematic Course of *Thirty Lectures* on "*Chemistry*, and its application to the Arts," by William K. Sullivan, Ph. D., M R.I.A., will be commenced in the Theatre of the Museum of Irish Industry, on Tuesday, February 14, at Four o'Clock p.m., and be continued at the same place and hour on every day of the week, except Saturday, until the course be completed.

For the above course of *Thirty Lectures*, a *Fee* of 3s. 6d will be charged.

Copies of the Programme of Educational Arrangements for the Session of 1859-60, may be obtained on on application at the Museum of Irish Industry, Stephen's-green East.—By Order,

GEORGE PENNY, Clerk to the Museum.
Museum of Irish Industry,
January 30, 1860.

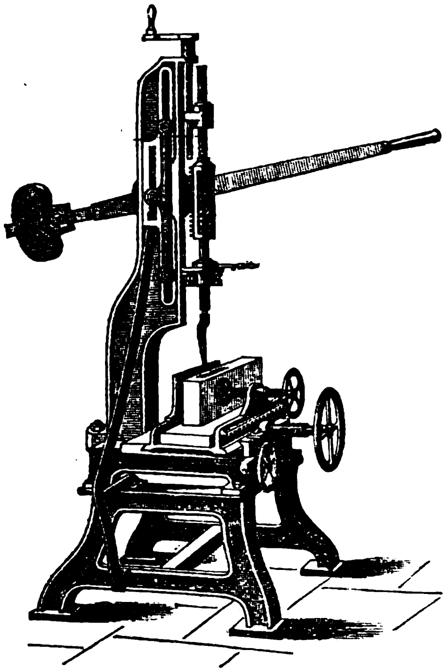
THE STATIONERS' COMPANY'S SHEET ALMANAC for 1860, price 2s. on a large royal sheet, equally adapted for the counting-house and the library, is embellished with a beautiful view of the proposed ATLANTIC HARBOUR at GALWAY BAY, from a drawing by Phillips, of which plate proof impressions may be had at 3s. each, as well as of the plates of preceding years.

Published by the Stationers' Company, at their Hall, Ludgate-street; and may be had of all Booksellers and Stationers.

WM. M'CLEARY WIGHTMAN,
PRINTSELLER ARTISTS' COLORMAN,
22, *NASSAU-STREET.*

Has always on hand a large and varied Stock of Drawing Materials, Paper of different sizes, Colors Brushes, Pencils, &c., which professional gentlemen and others will find adapted to their requirements, & moderate in price.

Artists' Warehouse and Photographic Gallery,
22, NASSAU-STREET.



JOHN CLARK'S

MORTISING MACHINE

(GREEN AND JACKSON'S PATENT).

MAY be seen at work with Messrs. Cockburn, Crowe, Meade, Moyers, Kelly, Geraty, Kennedy, T. H. Carroll, J. H. Carroll, Roberts, Bolton, G. Farrell, R. Farrell, Douglas, Hughes, Alford, Rooney, Builders, DUBLIN; Messrs. Rogerson, Dawson, & Russell, Railway Carriage Manufactory, Atlas Works, Dublin; Great Southern and Western Railway Co.'s Works, Inchicore; at BELFAST, with Messrs. Fulton, Carlisle, Lowry, M'Creary, Kent, M'Cracken; at CORK, with Messrs. Hill, Evans, Joyce; at LONDONDERRY, with Messrs Boyd, Brothers. Testimonials from all parts of the United Kingdom.

JOHN CLARK, JUN., Manufacturer of Self-acting Circular and Upright Saw Benches, for

SAWING, TENONING, GROOVING,
RABETTING, BORING WOOD,

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IMPORTANT—THE ONLY MANUFACTORY OF OIL-CLOTH IN IRELAND!!!

61 & 62, GREAT STRAND-STREET, DUBLIN,

Entrance, 69, JERVIS-STREET. Established 1791.

JOHN D. FRANKLIN, PROPRIETOR.

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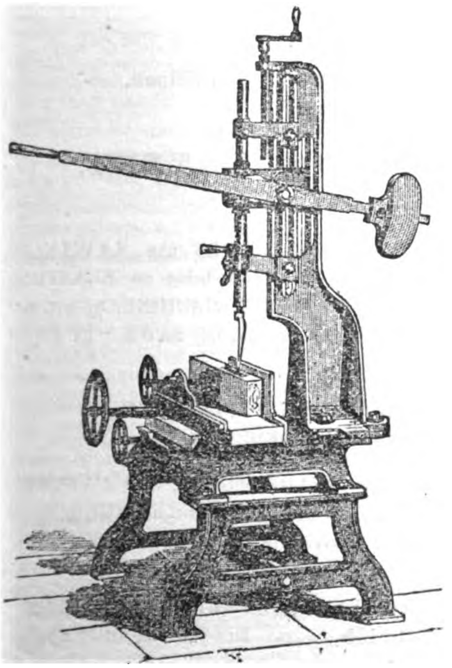
HOUSE PAINTING, DECORATING, &c., carried on as usual in the same superior style, with that economy and despatch for which FRANKLIN'S Establishment has been celebrated for the last Sixty Years J. D. F. begs to inform the Nobility and Gentry that he has been so fortunate as to secure the entire services of two of the first GRAINERS and Ornamental PAINTERS, LETTERERS, &c., in Ireland, and can with confidence undertake the most superior class of work, in addition to the plainest description.

N.B.—A carefully-selected Stock of Room Papers, Decorations, &c., suitable for all description of rooms, at prices not known before. Workmen sent to all parts of the country.

GALLON AND BEAN, LEEDS,

Cut & Wrought Nail Manufacturers, & Hardware Merchants,



RESPECTFULLY request all BUILDERS, CONTRACTORS, CARPENTERS, &c., requiring Mortising Machines, previous to purchasing, to examine and test *their patent combined Crank and Lever Machine*, which will Mortise (Tenon and Bore, if required) both Hard and Soft Wood, and is also adapted for Drilling and Punching Iron.

The superiority of this Machine over *all* others consists *in the substitution of a solid wrought-iron plate Crank or Eccentric, by which greater power is obtained, in place of cast-metal Rack and Pinion Wheel, the Teeth or Cogs in which are so liable to strip or break out*—in the direct and perpendicular action of the Lever and Crank on the Cutting Tool, and consequent diminution of friction--in being *stronger* and *less complicated* in its construction, and more *powerful* in its motion—in the *facility* of its *adaptation* to the various depths of material —and in its *non-liability to break* or get out of working order.

This Machine has now been adopted in preference to *all others* by some of the principal Builders in London, Glasgow, Edinburgh, Dublin, and Belfast, who will bear testimony to its being the most powerful and efficient yet made

For further particulars apply to the Patentees and Makers, GALLON, BEAN, and LUMB, LEEDS.

Extract from the Report of the Royal Dublin Society's Spring Show, 1859:—

"Gallon, Bean, and Lumb, Leeds, exhibited a very useful and complete Mortising Machine, which was highly commended."

N.B.—The Patentees respectfully intimate that this Patent extends to, and comprises Machines for Mortising by Steam and other motive power, as well as by hand: and makers and vendors of, or parties buying or using Mortising Machines, *are cautioned against any infringement*, as the patent right will be strictly maintained.

CONTRACT FOR WORKS.

THE Directors of the DUBLIN and WICKLOW RAILWAY COMPANY are ready to receive Tenders for the Construction of the First division of their Extension Railway from WICKLOW to GOREY, under the Company's act of 1859, according to Plans and Specification of their Engineer, W. R. LeFanu. This division extends from Wicklow to Tigroney West, 14 miles or thereabouts; the contract to include all works, except Stations; the Company finding Iron and Timber for the permanent way.

The Plans and Specification may be seen, and any further information obtained, on application to the Company's engineer, 59, Fitzwilliam-square, North, Dublin.

Tenders, on forms to be had at Mr. LeFanu's Office, to be addressed to the Secretary, 48, Westland-row, Dublin, and marked "Tender," will be received up to Thursday, 29th March, 1860, inclusive, to which date the time for reception of Tenders has been extended. A. MOORE, Secretary.

16th February, 1860.

Auctions, Sales, &c.

AUCTION OF WOOD GOODS.

JOHN MARTIN AND SON
WILL OFFER BY AUCTION,
ON THURSDAY, 1st *MARCH*, 1860,
AT THEIR STORES, NORTH WALL,

The following Goods:—

The entire cargo of Spruce Deals, per Ganges, from St. John's containing

16,500 Pieces of Deals, and
2,800 „ of 1st quality Spruce, per Hector, from Quebec.
2,400 „ 2d do do do do.
60 „ large sized St. John's Pine (now landing)
500 Tons Crown Memel.
300 „ of Red Pine.
500 „ large sized Quebec Pine.
60 „ Quebec Oak.
124 Pieces of Birch.
60 „ Ash.

And if arrived in time, the cargo of Spruce Deals, per Empire Queen, from St. John's. Sale to commence at half-past Twelve o'clock.

JAFFRAY BARCROFT, Broker and Measurer.
North-wall, Dublin, 4th Feb. 1860.

FOR SALE, at the WATERFORD SHIP YARD, Ferrybank, a very superior highly finished NEW STEAM ENGINE,

Estimated at about 40 Horse Combined Power, which highly improved construction is admitted to be the most economical in the consumption of Fuel. Condensing Cylinder, 21 inches diameter, with 5 feet stroke. High Pressure Cylinder, 18½ inches diameter, with 2½ feet stroke.

This Engine has been built with the best materials and workmanship, regardless of expense, and is particularly well adapted for a Flour (or other) Mill. The very great falling off of late years in the supply of water-power renders it almost indispensable that auxiliary steam power should be attached to Flour Mills to ensure constant working of the establishment during the period of scarcity of water.

Further particulars can be had by application at the Ship Yard.

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DRAUGHTS of COLD AIR round DOORS and WINDOWS prevented by GREENWOOD'S PATENT INDIA RUBBER STOPS, and Self-acting Slides, for the bottoms of Doors, which have proved to supersede all previous invention for the purpose of Making the Joints of Doors, Windows, Show Cases, &c., AIR TIGHT.

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Works and Depots:—Derrymullen, Robertstown, Co. Kildare; Newcomen-bridge, Dublin; 5, Donegal-square, North, Belfast. General Agent—JOSIAH G. THOMPSON.

Thomas Brawn Manufacturer of

ECCLESIASTICAL AND DOMESTIC MEDIÆVAL

METAL WORK,

IN SILVER, BRASS, AND WROUGHT IRON;

Sacred Vessels, **Memorial Brasses, Metal Screens, Altar Rails and Gates, Hinges, Handles, &c.**

METAL READING DESKS, LECTERNS,

Pulpit Lights, **Coronae, Chandeliers, and Standards for Gas and Candles,**

SPIRE AND GABLE CROSSES,

And every description of GAS FITTINGS—Candlesticks, Lamps, Branches, and Branch Candlesticks, &c.

T. B. begs to inform the Clergy, Nobility, and Architects in general, that he has been practically engaged for upwards of 14 Years in the Execution and Manufacture of Mediæval Metal Work, from Drawings of the most eminent Architects.

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Magic Horse Taming Nose Pinchers (Geyelin's Patent),

Warranted to subdue the most vicious horse at the instant. Kicking, rearing, plunging, and running away rendered impossible. Sold only by W. H. KENNEDY, Agent, 462, Oxford-street, London, W.C. Price £1 1s. each.

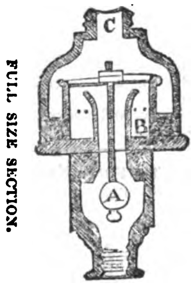
The Universal Gas Burners' Regulator (Geyelin's Patent),

The only one in the world by which the flame from Argand, Fish-tail, and all other burners remains invariable under all variations of pressure, and the cost of each light is less than One Farthing per hour.

Can be fixed horizontal, close to, or distant from the burner; is ornamental—simple in construction, consisting of a double chamber, the inner perforated, covered with a diaphragm giving action to a spherical valve.

Price 3s. each. One sent on receipt of 3s. 6d. in postage stamps.

W. H. KENNEDY, Agent, 462, OXFORD-STREET, LONDON, W.C.



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Patent Endless Brick, Tile, and Socket Pipe Machine,

The most perfect, compact, and portable ever invented.

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Combining the advantages of Metallic Bedsteads with the comfort of a Spring Mattrass, at less than half the cost. Certified by medical men as the best and most comfortable bedstead ever invented; invaluable for hot climates; cannot possibly harbour vermin. Sold by W. H. KENNEDY, Agent, 462 Oxford-st. London, W.C.

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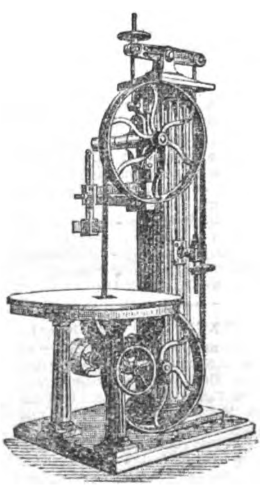
Engineers, Patentees, and Manufacturers of all kinds of Machinery for working in Wood.

VICTORIA WORKS, BLACKFRIARS, LONDON.

ENDLESS BAND SAWING MACHINES, NEW PATENT.



NO MORE BREAKAGE OF SAWS.

POWIS, JAMES, AND CO., beg to call the attention of all who use SAWING MACHINERY to their NEW PATENT, dated August, 24, 1858, being an ELASTIC COMPOUND ADJUSTING LEVER MOTION ENDLESS BAND SAWING MACHINE, by which the STRAIN upon the SAW USED is so REGULATED that BREAKAGE OF SAWS "IS ENTIRELY DONE AWAY WITH."

ONE OF THESE MACHINES, UPON A LARGE SCALE, IN FULL WORK,
AT HER MAJESTY'S DOCKYARD, DEPTFORD.

A STOCK OF MACHINERY FOR WOOD ALWAYS kept READY, including their PATENT MACHINE for MORTISING, TENON-CUTTING, and BORING, of which upwards of a THOUSAND have been sold in ENGLAND ALONE, and is the ONLY MACHINE which is SELF FEEDING, and doing the THREE KINDS of WORK by ONE MACHINE.

One of these MACHINES to be seen at Work at Mr. MAURICE BROOKS', Wholesale Builders' Ironmongery Stores, SACKVILLE-PLACE, DUBLIN, Agent for Sale for the whole of Ireland.

The Dublin Builder.

VOL. II.—No. 16.

THE ULSTER HALL (BELFAST) COMPANY'S RECENT COMPETITION.

WE have over and over again in this journal expressed our opinion that there is no word in the English language referring to architectural matters more perverted than "Competition," that as conducted in these countries it is a mere myth, an *ignis fatuus* at which all *may* grasp, but none but the charmed few *can* clutch. Each succeeding month strengthens our opinion, and hosts of communications—quite too numerous for publication—reach us from all quarters disclosing some new "mystery," stating some fresh "cause of complaint" against committees for breach of faith, &c., and from some of these forwarded to us recently, relative to a matter at home, we, in another portion of this current number, insert a collection. It seems, however, that our northern friends occasionally distinguish themselves in such a manner as to provoke censure likewise, and though we but recently felt pleasure both in announcing a proposed "competition" for the new Ulster Hall in Belfast, and the decision in favour of a talented and rising member of the profession resident in the district, yet our attention is directed in no very flattering manner to the subsequent doings of the committee. This worthy body met on this day week when, as we are informed, various supplemental plans for a hall were taken into consideration—viz., oblong, circular, horseshoe, &c. Mr. Corry, who said he was *not* a professional man, submitted a plan of an octagonal hall, which was referred, with others to the committee. It was also agreed to make an increase of £10,000 to the capital of the company. We have already urged on this company the propriety of erecting a hall in Belfast which shall meet the requirements not only of the present but of the future, looking forward to the *certain* extensive increase of the town in numbers, wealth, and musical taste. With regard to the proper shape of the hall, to obtain all the requisite acoustic properties, we presume the committee should be guided by the experience of their architect—a gentleman whose professional antecedents proclaim his competency—and by the examples of such plan already built, either for imitation or avoidance. One paragraph of the instructions to architects in reference to the competition is as follows:—

> "As the hall is especially intended for musical purposes, its acoustic properties are of the highest importance, and it is therefore desirable that there should neither be great projections nor deep recesses, but that for decoration colour should be to a great extent relied on."

We are ignorant of the motives which led the committee to adjudge a prize to any of the competing architects; but, surely, one essential element, where a plan was required for a hall intended especially for musical purposes with acoustic properties necessarily of the highest, was their having the design of a hall placed before them possessing those acoustic properties; and, if so, why is it that the shape and proportions of a musical hall, with "acoustic properties," appears to *be yet a matter of search* to the committee, as well as the shareholders? Are we to presume that the £50 and £25 given, or rather offered, as prizes, have been as yet unproductive? From one of the paragraphs already quoted, which says,

> "No prize to be paid until the directors are satisfied that they can effect a contract for the execution of the work at the price estimated by the architect of the design selected,"

we think it not improbable that this clause will save the money-prizes from being paid away. A previous clause limits the total expenditure to £7,000, and we have heard that the lowest tenders were more than double that sum.

Such a proceeding by a committee would seem first, "after careful consideration, no doubt," to proclaim the right of a certain professional man to priority over his fellows, and then, by tampering with his suggestions, to ignore their own capacity of judgment and question his competency, A reference to a properly qualified architect, of all the designs submitted in competition, with a view of abiding by his decision, would have been, to say the least, the most judicious course for a committee to pursue who seem to be mentally straitened, rather than adopt their own ideas, and, through timidity of purpose, subsequently seeking other advice outside the pale of the profession, cast a slight on their own choice. Reviewing this and other proceedings, we must exclaim, that "the path of competition—like true love—never runs smooth."

NOTES ON THE ROUND TOWER CONTROVERSY.[*]

THE names by which the Round Towers of Ireland are locally known has not received that attention and investigation which the subject deserves; not that I would expect to arrive at very decisive results, as affecting the question at issue in this still undecided controversy. I have always endeavoured, however, when possible, in examining these structures, to ascertain the names by which they are known to the Irish-speaking people of the neighbourhood. In the south and west of Ireland, where the ancient language is still generally spoken among the peasantry, this is not difficult to ascertain, especially if the inquirer knows how to go about, as with strangers a little diplomacy is sometimes requisite to gain the confidence of the people. The first answer I generally receive to my question of "What do you call that building?" is, "Wisha then, sure isn't it the steeple of Cloyne;" or, "Sure, your honour, they call it the big steeple of Ratto;" but when I followed up the inquiry by asking them what they called it in Irish, I soon found out it had its peculiar and distinctive name in that language.

As far as my inquiries have gone, then, I find that our Towers are known by *three* distinct Irish appellations—namely, *Clugaugh*; *Clugaus*, or *Clochais;* and *Giolcach*, or *Quilcach*. I have written the names as they are pronounced.

Dr. Petrie considers that the first of these appellations is the *Clochteach* or *Cloichteach*, of the Irish annals, and that it means a round tower belfry; that wherever it is met with it should be so translated; and that all notices where the word occurs refer to our Round Towers, and that, consequently, they fix the age and use of these structures. This learned writer has devoted a considerable space in his work "On the Ancient Architecture of Ireland" to this branch of his subject. He has treated it with great ingenuity, and has given it such a manifest importance that the reader cannot fail to recognize the fact that it is at once the foundation and cap-stone of the structure he has laboured to rear. Most readers on the subject are aware that the Round Tower controversy has been narrowed by two theories, the Christian and pre-Christian. Dr. Petrie has ably and ingeniously advocated the first theory in his work, which is an invaluable contribution to our knowledge of the early architecture of Ireland, but in my opinion a failure as regards the theory he supports. Many seem to think that the high standing the author has deservedly attained in the archæological world is quite a sufficient warrant for the correctness of the statements and opinions put forward: but this I hold as not sound discretion. If we are to be carried away by the *prestige* of names, by far the greatest amount of Irish antiquarian learning and research has been on the other side. The Christian theory found advocates in Lynch, Ledwich, and Molyneux, who advocated their Danish origin (the Danes being Pagans), as also Harris, Milner, Smith, Sir R. C. Hoare, Bell, Wilkinson, and finally Petrie. Of these Milner and Hoare had no knowledge of Irish antiquities. Bell and Wilkinson's treatises are purely descriptive.

On the side of Pagan antiquity are, Vallancey, editor of the "Collectanea de Rebus Hibernicis"; Dr. Lanigan, author of the "Ecclesiastical History of Ireland"; Dr O'Conor, the learned librarian of Stowe, and editor of the "Hibernicarum Scriptores Veteres"; Sir William Betham, author of the "Etruria Celtica"; "the Gael and Cimbri," &c.; Beaufort, Dalton, O'Brien, Moore, and Windele, all deeply versed in the literature, language, and monumental antiquities of the country. To these I could add the names of many who have made the Irish language and antiquities the study of their lives, but who have not come before the public as authors.

The earnest inquirer, however, will not be carried away by the mere pretensions of individual learning, however well founded; but will patiently investigate all sides of the subject, examine the buildings themselves in all their details and analogies, compare the peculiarities of their construction, and their architectural features with those of similar erections in other countries. He must study the language, religion, and customs of the people amongst whom they are found, and the traditions connected with them, the known history of the people, their origin and migrations. Such a mode of investigation is requisite, in order to form sound opinions upon the subject before us, and is obviously the only mode, in the absence of all *historical evidence* as to their origin and uses; and I fearlessly assert, that up to the present time, we have no such evidence whatsoever as to the erection of a single *round tower* in Ireland.

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[*] By Richard Rolt Brash. From the "Ulster Journal of Archæology."

I proceed now to advert to the several local names applied to these mysterious buildings.

1. *Clugaugh.*—This term, as a local designation for a round tower, is very rarely used. The only instance I have been able to ascertain of its application is to the tower of Fartagh, county Kilkenny, which is called *Clugach-na-Feartagh.* Mr. John Windele, of Cork, who has made a personal examination of all our southern Round Towers, informs me it is the only instance he has met with of its use. This word may be derived from some of the following sources:—

Clogad, a helmet. [O'Brien's Dict.] The ancient Irish helmet was conical, and bore no inapt resemblance to the conical covering of the towers.

Clogad, *Clogaide*, a helmet, a cone, a pyramid. [Dictionary of the Scottish-Gaelic language.]

Clogad, a helmet. [O'Reilly's Irish Dictionary.]

Clogad, a cone, a pcramid. [ibid.]

It will require no stretch of imagination, or straining of the etymologies to make application of the above. Again we have—

Clogachd, a belfry. [O'Reilly's Dictionary.]

Clogachd, a belfry. [Gaelic Dictionary.]

It is curious that the more ancient dictionary of O'Brien has not that word; and O'Reilly has taken it from Shaw's Gaelic Dictionary.

2. *Clugaus*, *Clochais.*—The term *Clugaus*, *Clochas* or *Clochfas* is locally applied to a great many of our Round Towers, as—Dysert O'Dea, county Clare; Kilmaoduagh, county Galway; Clonmacnois, King's County.

At the latter place, where there are two towers in existence, they are respectively called *Clochaus Mor* and *Clochaus Beg.* O'Brien's Dictionary gives us *Clogas*, *i.e.* *Clog-cas*, a belfry or steeple; O'Reilly, *Clogas*, *Clogchas*, a belfry.

Mr. Windele has suggested to me the derivation of this name from *Cloch*, a stone, and *fas* growth; "the growth of stones," in allusion to the superstitious traditions so prevalent concerning Round Towers, of their being built in one night: thence termed in the Irish language familiarly *Fas-non-oidhche*, "the growth of one night." This tradition respecting business of great antiquity, or whose origin is involved in obscurity, is prevalent all through the East, and particularly in China.

Another derivation suggests itself from *Cloch*, a stone; *fas*, hollow, vacant [see O'Reilly, also M'Leod and Dewar's Gaelic Dictionary]; "the hollow stone," a term peculiarly expressive of the nature of the building.

But another suggests itself to me of more force and probability than any of the preceding, and one the earnest consideration of which I would recommend to those more competent to analyze these etymologies than I am—namely, from *Cloch-ais*, the stone of death: *Aise*, death. [O'Reilly's Dictionary.] *Aise*, death, applied to a dead person; a shroud. O'Brien's Irish Dictionary.] It may be strange to some that a tower should be called a "stone," but this is a figurative mode of expression very usual among the Irish. Thus, we have near Macroom, county Cork, a mediæval castle called *Clach-Dhaibhi*, or "David's stone," from the builder's name; another, in the same county, is called *Cloch-Philip*, at page 2174 of the "Annals of the Four Masters" (O'Donovan's translation) we have also the Knight of Glynn's castle, on the Shannon, called *Cloch*-Gleanna; and again we have the oratory of the recluse called *Cloch-ancoire*, "the stone of the Anchorite." Amongst the Highlanders, to the present day, it is customary to intimate going to church by the expression, going to the *Clochan.*

But some may ask why should a Round Tower be called *Cloch-aise*, "the stone," or "pillar of death"? My answer would be, because the pillar towers of Ireland are *monumental* and *sepulchral.* I cannot now go into all the facts and arguments which suggest themselves in support of this theory, but would briefly state my reasons for holding this opinion. It has been the custom in the remotest ages, and amongst the rudest tribes, to set up some object to mark the resting-place of the distinguished dead, or to commemorate some remarkable event: thus, the pillar-stone became the prevailing monument of uncivilized nations, and was sometimes erected of a height that almost rivalled the masonry-built towers of more polished nations. All the megalithic monuments ascribed to the Celts are still found among the Khasia mountaineers, in Northern India; amongst which are pillar-stones 30 feet in height, standing by *Cromlechs*, and marking the graves of their deceased friends. [See Hooker's "Himalaya Journal."] At Carnac, in Brittany, exist pillar-stones 40 feet in height. [See Deane's "Worship of the Serpent."] In our own country pillar-stones from 15 to 20 feet in height are not uncommon. The monumental pillar-towers of the Chinese go back to a date of near 1,000 years before our era. The Buddhist Minar, and the Jain towers of India are of a similar class. The Romans likewise adopted the hollow pillar, both for sepulchral and monumental purposes. On a tumulus at Cocumella, in Etruria, is a sepulchral Round Tower. Remains of conical towers surmount the tomb of Aruns, at Albano. The *hollow column* of Trajan was erected by Apollodorus, for a tomb, and as a memorial of his victories. The column of Antonius Pius was erected by Marcus Aurelius in memory of that emperor. There are numbers of circular tower sepulchres at Palmyra; and in Armenia the ancient form of sepulchre was a low circular tower, with a dome-shaped covering. We, too, in our day, have followed the prevailing fashion of antiquity: our cities and towns present numerous examples of pillar towers, which, though not sepulchral, are monumental and commemorative. And it is a curious and suggestive fact, that national instinct so far overcame prejudice and theory, that a pillar-tower after the veritable ancient Celtic type has been erected to perpetuate the memory of Daniel O'Connell, in the cemetery at Glasnevin, near Dublin.

That the ancient Irish, in the progress of civilization, should be led to relinquish the lofty, unshapen, and ponderous pillar-stone for the more symmetrical and aspiring hollow column, is but natural; and that they erected these columns, at least many of them, for sepulchral uses is certain, if stubborn facts are to be relied on.

The South Munster Society of Antiquaries were the first who turned their attention to the sepulchral character of our towers. The idea, I believe, originated with Mr. John Windele, of Cork: in the year 1841 they explored the towers of Cloyne, Ardmore, Kinneigh, Cashel, and Ardpatrick. In Ardmore and Cloyne they found human remains, placed in the basement of the towers, under circumstances indicating great care and forethought. Cashel and Ardpatrick were found to have been previously ransacked, as was proved by indubitable evidences.

Some gentlemen of Ulster also took up this interesting subject, and made explorations within the basements of most of the towers in that province: the result of their labours has been published in the *Ulster Journal of Archæology*; from which we find that human remains, deposited under similar circumstances, and with evident care, were found in the Round Towers of Clones, Maghera, Armoy, Drumbo, Drumlane, and Inniskeen. The exploration of Antrim tower was imperfect; at Ram's Island, the usual concrete floor, generally found protecting the remains, was found broken through, corroborating a previous statement made by Mr. Windele, of Cork, that human remains had been at one time found there. At Nendrum no discovery was made; at Devenish there was also no result; at Tory Island merely a portion of a sepulchral urn was found. Sir William Betham states that Dr. John Leslie, Bishop of Raphoe, removed a Round Tower which formerly existed there, and discovered the bones of a man under it. Human remains were also found at Roscrea tower. At Timahoe such relics were also found, and a sepulchral urn.

Dr. Small, in his account of the Round Tower at Abernethy, Scotland, states that the ancient tradition of the place was, that the Tower was erected as a mausoleum for the Pictish kings: to verify, or rather to test the tradition, the Tower was excavated, and several skeletons were found therein. I remember well that, on visiting Abernethy myself, the aged sexton who assisted me in measuring it, stated, in answer to my enquiries respecting the traditions, that the old people informed him it was built by the *Peghts* as a burial place for their kings; in confirmation of which he pointed to the remains of the palace of the kings of the *Peghts*—a mighty ruined *Dun* on a prominent spur of the Ochill hills, and about half a mile from the Tower.

The scope of the present paper will not permit me to follow up these investigations. I have barely touched upon the reasons that have induced me to give my attention to the sepulchral and monumental character of these unique structures, and I submit that they are of a nature deserving of serious consideration. Should this theory be the correct one, the derivation of the term *Cloch-ais*, *Cloch-as*, or *Clogas*, would no longer be doubtful as the "Stone (tower) of Death."

3. *Giolcach.*—Among the towers locally called *Giolcach*, or as it is pronounced, *Quilcach*, and sometimes *Kilcach*, we have—Ardmore, county Waterford; Kinneigh, county Cork; Cloyne, county Cork; Ratto, county Kerry; Ardpatrick, county Limerick.

With reference to the Tower at Ratto, Dr Petrie says [page 397] it is now popularly known by the name *Giolcach*, by which *is understood a Bell-house*, and which is *obviously a local corruption of Cloighteach, or Cloichteach.* Now I beg to state that

I lived two months in the neighbourhood of Ratto, and that there is not in Ireland a locality where the Irish language is better spoken and understood. The local people do not understand the word *Giolcach* to mean a Bell-house; they would be astonished at the Doctor's convenient assumption if they heard of it; and it is not so found in any Irish dictionary; neither is it a local corruption of *Cloigteach*, as the people there know the meaning of the term perfectly well, and have very truthfully applied it. By reference to O'Reilly, we find *Giolcach*, "a reed, cane, broom; a place where reeds or canes grow." Now, any one who knows the locality of Ratto will remember that it stands about a furlong from the river Brick; and that the river, with the extensive marshes which bound it, and the banks of a canal running from the river up to the tower, are prolific of those enormous *reeds* with tufted tops, called in Irish *Giolcach*. What, then, can be more natural, than that a highly imaginative and poetical people like the Irish, should call their lofty, slender, graceful towers from those elegant and tapering reeds, which, with their tufted conical tops, offer so striking a similitude. How numerous are the instances of such appropriations in our topographic nomenclature. Besides its application to some of our towers, we find this word used in many places as a topographical designation. In the county of Waterford we have a parish called *Guilcach;* in the county of Cavan is the celebrated hill of *Cuilcagh*, of which so many legends are current, and which was the Mount of Inauguration of the Maguires; there is also another locality near Bailieborough called *Quilcagh*. These instances show that the term is a well-known and properly applied designation, and not a corruption of *Cloigteach*, as Dr. Petrie would lead us to suppose.

(To be continued.)

LAW NOTES—BUILDING QUESTIONS.

COURT OF COMMON PLEAS.

Continued from page 210.

Kempston v. *Butler*.—Mr. Timothy Murphy,[*] builder, of over 30 years' experience—Saw the manner in which the houses 82 and 84 were braced; considered the struts too light; knew the custom always in Dublin for contractors making alterations to protect houses adjoining; on cross-examination, stated he never was in the house or examined it.

John Sterling Butler,[*] architect.—Considered the pieces used for struts insufficient, and the absence of a brace in the street a great omission; proved the accuracy of the model of the house after the fall (having examined the premises in company with Messrs. Louch and Donnelly), showing the bressumer and uprights in front, also the bressumer, metal pillar, and story-post adjoining No. 81, which were as firm as the day they were set. Cross-examined by Mr. Fitzgibbon—if the front of the house and bressumer had been braced, and a sufficient number of proper pieces used for horizontal struts, the house could have been maintained; if there was an offset on the old foundation, and the new wall built on same, it would have the effect of raising the flagging in the kitchens of 82.

The following witnesses were produced on behalf of the defendant:—

Mr. John Butler, the defendant, testified to being an architect and builder of considerable experience—stated that the front wall of 83 overhung very much, it might have fallen in a moment or last for one year; the front wall required rebuilding; the angle chimney-stack was built against 84, and quite unconnected therewith from the foundation to outside of roof. The shop, the upper staircase, and garret divisional wall between 82 and 83 were plastered; the drawing room and attic were wainscotted; first saw plaintiff in company with Hipwell the day or day after commencing work, on the 17th November, 1858; plaintiff, Hipwell, and defendant went up to the top rooms of 83, and spoke together as to the propriety—and advised Hipwell, who consented—of taking down the top of his high chimneys; defendant had it done within an hour. When the roof and walls, chimney, &c., were down to top story floor set first range of stays; cracks appeared below gutter in flank of 82, about half an inch wide, an old crack (sketch produced, made in March following). The next story removed, three more cracks were discovered; 50 cracks—probably 100 nearer the mark; on attic floor another range of stays set; next story (first floor), removed another range. Plaintiff at this stage brought in defendant to examine 82, and pointed out separation between floor and wall in garret and attic stories. Defendant remarked, if nothing worse than that occured plaintiff had little to fear; heard no further complaint until after 83 was removed; weather continued stormy and wet from this time up to the fall, knew nothing about 82 house, flank wall in dilapidation, bricks loose; at 35 feet from rere of 88, 8 feet of division wall were underpinned 2 feet deep; commenced new building in the rere 40 feet from rere wall; cleared entire surface 2 feet deeper than old kitchen of 83; old foundation of 82 flank deeper by 7 inches than new foundation; 82 house so bad that the public officer should have condemned it; a party wall is half and half on each land; in 1767 the house 83 was leased (lease produced)—26 feet front, 26 rere, and 130 from front to rere. In 1834, 82 was refronted; no notice required on adjoining parties to take down their own house. Defendant produced contract (dated 16th October, 1858,)—to take down 83, stack the bricks, stay and shore up adjoining house, for £120—with Mr. Ferguson, the owner; commenced this contract on 17th November, and completed it on 11th December, '58. On 23rd November contracted with Falkner to build a house on the site of 83 for £1148, and commenced to clear for foundations on 12th December, and to build on 30th of same month following. Plaintiff brought defendant on Monday week before 82 fell, to the top room, and the flank was cracked one inch at the rere; old cracks showed very much; examined the house generally, and the old cracks in shop also showed very much; remarked to plaintiff, he wondered it was not worse, owing to its own weakness, and said, "My God, my God, how does this house stand?" first saw the chimneys in shop cut away on this day. The Monday before house fell, examined it three times; asked plaintiff again, as he had done ten days previous to fall, to send for his builder to take charge of 82; plaintiff said he wrote for Dunne; pointed out to plaintiff how rere bressumer was resting on flank wall without an upright; told plaintiff he would not guarantee the safety of the house one hour; plaintiff asked defendant to protect it; remained to see rere bressumer shored, as he (defendant) did many civil things for him; never got permission to lay beams or other pieces against plaintiff's wall; never contracted with plaintiff; not aware of a *custom* of shoring adjoining houses; could not shore up without entering, but could brace externally; if a house was shored business should be suspended; hard to tell how 82 could be kept up; shoring a house not an expensive business; if shored thinks it would have stood; took more than ordinary care.

Cross-examined by Dr. Heron.—Did not know were there 50 bricks in the 33 feet depth of 83; could not tell where 50 cracks would be in 33 feet—all cracked; considered front of 82 safer and better without front stays or lateral braces similar to those set to 84, as the front and flank of 82 were not bonded. Employed one foreman at 30s. per week, and two labourers at 10s. per week each, to take down; would not put many men on the work from cautionary motives; had the bricks lifted from wall to hods and carried down, so that no weight might be on floors; contracted with an excavator to clear premises; never took a house down entirely before, nor used lateral braces to fronts or reres; cleared the under part of William's & Gibbon's house, in College-green, and put it on its legs, used no braces. In answer to juror, 83 was 45 feet high, 82, 48 feet, and chimney-stacks 17 feet high, top of roof about 56 feet; not a shade of danger at this time; directed chimneys of 82 to be taken down.

James Toole, foreman, stated there were 7 struts in top range, and vertical pieces 10 to 12 feet long and 9 in. by 3 in.; cross cut all the struts 26 feet long, except 3 or 4. Basement of 82 overhung 1½ inches in 9 feet; did not touch wall at that point; built wall on old foundation; could not discern any failure in plaintiff's story post. Trimmers of stairs of 83, 9 in. by 3 in., were let 4½ inches into flank wall of 82: roof of 83 was supported by a piece 4 in. by 5in., leaning on front, centre, and rere walls, and bearing against flank of 82; gutters, sheeted, leaded, and protected by weather slating nailed against 82 flank. Is sure there was an ancient angle stack in 82; the poles or struts never buckled. Cross-examination—set three struts to rere 5 days before house fell; struts were barely tight enough between walls to bear their own weight; first trial of his skill in works of this nature; struts vibrated by storm and omnibusses passing; might be agitated by those and the coal drays.

Benjamin Norwood, a retired builder—Saw the premises braced, which, in his opinion, was well done, and defendant said so; was not aware of the alleged custom; but, whenever he executed works of this kind, he shored, braced, and strutted without accident.

Samuel Leech, builder, refused to make an alteration in 1854, for O'Reilly, in consequence of the rere of 82 being so bad—being previously employed on the premises in jobbing.

Michael O'Brien, Bacon, Finney, Lalor, Murphy, Doyle, were examined severally as to their departments in connection with the premises, and substantially deposed to the previous evidence of the defendant and his witnesses

Sir Thomas Deane, on direct examination, deposed that at request of defendant he examined the premises after the fall of house No. 82, in company with Mr. Jacob Owen (late architect to the Board of Public Works); found that the foundation of No. 83 was about 7 inches above that of 82; believed that it was marvellous how the fallen fabric stood *at all;* would not sleep a night in the house. Gave it as his opinion that if props were put in front they would have pushed the front wall in; that it was an impossibility for 82 to stand during the taking down of 83, without internal shoring, and even doubtful with that precaution; that it might have kept up the floors, but not the chimney-stacks, whose great weight was the main cause of the fall, owing to their topheaviness, and combined with the storms prevailing in January, 1859, the antiquity of the house, and the ruinous character of the alterations carried on in

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[*] Omitted from plaintiff's evidence.

1856, by Mr. James Donnelly, under the direction of Mr. Caldbeck, an architect; was not aware of any *custom* in Dublin rendering it incumbent on the contracting builder to prop up adjoining premises on his own responsibility; could not account for the front wall not bonding into divisional wall between 82 and 83; believed the precautions taken by defendant in shoring up were sufficient, and that circular struts were better than squared pieces of timber; knew defendant to be a most competent and respectable man; executed many important works under his (Sir T. Deane's) directions—amongst the rest, the Queen's College, Cork, at a cost of some £30,000 or £40,000; had the highest confidence in his integrity.

The cross-examination by Mr. Armstrong, Q.C., elicited, in addition to various other matters, that if the *style* of the new Kildare-street Club-house could not be pronounced by him, that he should promise it to be *stylish;* that he had *not* read in one of Smollet's works of a man who, to convey an idea of the quality of his house, always carried a brick in his pocket, and, presenting it to enquirers, said, "Judge for yourself;" that as regards the fallen house, and the proprietors of those adjoining, he (Sir T. D.) would say, "A plague on *both* your houses" (laughter); could not say whether the storms in question occurred *before* or *after* the fall of the house; was in Cork at that period, and read of the storms in the newspapers; had never particularly noticed the house 82, though he had passed through the street, thought that if more than ordinary precaution had been taken. the house might not have tumbled so soon.

Mr Jacob Owen, architect—Was for many years architect to the Board of Public Works; was present with Sir. T. Deane at the inspection of the ruinous premises, and corroborated his statement, but admitted that the house 82 could have stood without 83, if effectually shored. braced, strutted, &c.

Mr. George Wilkinson, late architect to the Poor Law Commissioners, in answer to counsel, stated that the house 82 could not stand of itself; poles used were quite sufficient in quality; preferred the circular of the same area to squared pieces of timber; one pole ought to support the house; no necessity for front or lateral bracing. On cross-examination, stated that in sinking foundations parties were bound to protect adjoining premises from injurious consequences; and the same principle applied, he supposed, to the superstructure.

Mr. E. H. Carson, architect—Was experienced in the taking down and rebuilding of houses; believed the bracing and other precautions adopted by defendant were sufficient; knew the premises, 82; noticed them at one time previous to their fall to be in an insecure state, and hurried out of them; examined them after the fall, and found the material of which they were composed to be rubbish; was not aware of any custom involving a builder in responsibility for safety of premises adjoining those he was under contract in rebuilding; believed that it was the duty of the architect to put the proviso in the specification, and whether or not therein, the contractor charged for it in his extras.

The Chief Justice (Monahan), at a late hour, reviewed the evidence on both sides most comprehensively, and at great length, leaving to the jury to weigh the conflicting statements, and the main points, as to whether or not both the negligence or incompetency of the builder and his responsibility by *custom* had been satisfactorily proved,—if so, to what extent damages should be calculated; and if not in their opinion upon the evidence that they should find for defendant.

Sergeant Fitzgibbon, on behalf of defendant, took some exceptions to the learned judge's charge, after which the jury retired for an hour and a half, and returned into court announcing their disagreement, being equally divided—*six* for a verdict, and *six* against. Mr. Alexander Parker, a juror, suggested that the jury might be permitted to resolve themselves into a court of arbitration, with a view to arranging the question; and the judge, in complimentary terms, assented, provided it met the approbation of counsel. Sergeant Fitzgibbon, however, declined, stating he would advise his client to abide the law of the case; and ultimately the jury were discharged without a verdict.

The New Catholic Church of Crossmolina.—This building is stated by the *Tyrawly Herald*, to stand on a beautiful elevated site on the banks of the river Deel, commanding a view of the town and surrounding districts. The church comprises nave, transept, and chancel, with tower and broached spire. Length from east to west, 115 feet; from north to south, 90 feet; tower 18 feet square, with four bell stage windows, to be finished with a handsome broached spire and spire lights—entire height 180 feet. The apex of the roof to be 45 feet high; timbers to be stained and varnished, and prepared for the introduction of tracery at some future period. The windows at each end of the transept and chancel are triple lighted, 10 feet wide and 20 high to apex of centre light. The style of building is the simple or lancet-arch Gothic. The progress of the building is likely to be interrupted for want of funds.

OBITUARY.

THE LATE MR. JOSEPH WELLAND, ARCHITECT.

Within the last four months it became our painful duty to announce the demise of two members of the architectural profession in this city, and now with a sincere regret—in which we feel confident we are unexceptionally joined not only by the class patrons of this periodical with whom by avocation the deceased was identified, but by a very numerous circle of friends, acquired both in an official and private capacity—we have to add a third to our obituary.

Mr. Welland was born on the 8th of May, 1798, at Middleton, Co. Cork, and served his apprenticeship as an architect to the late Mr. Bowden, of Blessington-street, in this city. He enjoyed an extensive share of business, and amongst his numerous works we may name Monaghan Gaol and Court-house. The deceased was one of the architects of the Board of First Fruits for about 7 years, and on the Ecclesiastical Commissioners being constituted in 1833, he was one of the professionals appointed by that body for each of the four provinces. In 1843 the Commissioners determined to centralize the architects' department, and Mr. Welland became sole architect, a post which he maintained with much ability—resulting in a complete reformation as to architectural character of ecclesiastical structures for Established Church purposes throughout the country—and retained till his death, which took place on the 6th ult., in his 61st year. Considerably more than 100 churches have been erected or are now in progress after his designs, besides numerous enlargements, restorations, alterations, &c. Some of the principal are Magherafelt and Ballymena, Co. Derry; Ballymoden, Bandon; and St. Nicholas', Cork; St. John's, Limerick, &c., &c. In judging of the deceased architect's works while acting for the above boards, it must be borne in mind that he, like many others in the profession, had to contend against the difficulty imposed by limited funds at disposal, yet his designs are marked by a truthfulness and suitability of character, an effectiveness of detail and imposing proportions. Mr. Welland was interred in St. George's burial-ground, where also rests Francis Johnston. His successor will be appointed on the 7th instant, and we learn that there are numerous candidates for the office, which is worth about £700 per annum.

We have likewise to announce the demise of Mr. Hugh Carmichael, architect,—pupil of the late Wm. Deane Butler,—a gentleman of high professional attainments, and much respected.

KERFS AND COGITATIONS.

BY A CRAFTSMAN.

TRACING 1.

Trades in general have their historic memoiries and the history of any particular trade is a portion of the history of the civilization of man, prompted by necessity and enlivened by invention. But among the crafts now occupying a prominent position in the van of an all-practicable age, there are few or none which won more laurels or have worn them worthily so long as the kindred crafts of Carpenter and Mason. Though the almost everlasting handiwork of the latter stands intact after the lapse of centuries, still the constructive genius of the other peeps out from the bed of each moulded joint, cylindrical curve, and each winding surface.

Eighteen centuries of Christian civilization and progression have stamped their fiat on their achievements—"the burned *debris* of Herculaneum and Pompeii," and the nondescript remains of Nineveh. From the earliest times, though the nature of those crafts rendered them inseparable, yet jealousy was not unknown—fierce rivalry betimes and for long periods existed. In the early Christian churches of our own and other countries, we have proofs in their stone roofs of the one striving to dispense with the service of the other. Those jealous phases were more or less frequent, till gradually uniting and working in unison they left us some grand specimens of their united handiwork in the groined arch, mighty dome, the old baronial hall and staircase, and in the glorious old open roofs of the cathedrals of the middle ages. The saw cut with unsatiable kerf through the oaks of the primeval forest, and the adze plied, and not in vain, to furnish the necessary scaffolding required in the absence of machinery. Machined planes were requisite, and the application of the "powers," more or less rustic in their adaptation, had to be tried and borne with, and after all, oh ye world of inventive seers! what have *they* not achieved? and by achieving, what need *they* be ashamed of? The temples of their gods are yet standing, though the spirit of their creation be the myth of a mystical age, and which, like the round towers of this green old land of ours, are still pointing their cone-crowned summits towards heaven, defying time and posterity, though they have long forgotten the names of the heroes that built them.

C. C. H——y.

Mr. Foley, R.A., has in hand a statue of one of the Brothers in Comus; this is understood to be intended for his diploma work upon his election as Royal Academician.

ORGAN BUILDING IN DUBLIN.

THIS branch of art manufacture being one of the few remaining in which our countrymen are to any important extent engaged, and maintain a position of excellence at home, the following brief sketch of its history, and the details of manipulatory operations connected with the production of that noble instrument, "the organ," must prove interesting:—

During the latter part of the last, and commencement of the present century, there resided in Dublin a justly-celebrated organ builder and harpsichord maker, named Ferdinand Weber, whose instruments were distinguished for excellence in materials, finish, and tone. The organs in St. Werburgh's and St. Thomas's Churches are the only specimens of his manufacture, as we are informed, now remaining in the city. To him succeeded Woffington (the builder of the organ lately burnt in St. Andrew's Church), Lawless, Hull, Leaman, and others, who, however—it must be admitted with regret—did not follow the laudable example of their predecessor, but permitted the character of Irish organs to become much deteriorated. They have been succeeded by the Telfords of our own time, who by their talents, industry, and integrity have attained, in the manufacture of organs, a position of which they may justly be proud, and to which they have imparted a character for national celebrity. As an evidence of the appreciation in which the productions of these manufacturers—who, it must be conceded, without prejudice to others in their line, take precedence in their art—is held elsewhere, we may name that they have built the organs at the Colleges of St. Peter's, Radley, Oxford; St. Aidan's, Birkenhead; and Turvin Hall, Chester: at the parish churches of Weeton, Yorkshire; Padstow, Cornwall; Shepperd's Burton, Frome, Somerset; Douglas; Penzance, Cornwall; St. Ives, Cornwall: those for the Earl of Harewood, Countess Dowager Dunraven, Clearwell, Gloucestershire; Countess of Mayo, Lord John Thynne, &c.; and for New Zealand Wellington Church, with many others. To enumerate in detail their various works in this country, would be to step beyond the bounds of our province as regards preference to individuals, but in justice we present the information approximately in the following brief summary, viz.:—*Nine* cathedrals, including Limerick, Kildare, Christ Church (which is a magnificent instrument), Dundalk, &c.; *six* collegiate halls or churches, embracing Trinity College, Dublin, Maynooth, All Hallowes, &c.; the Chapel Royal, St. Matthew, and Dublin Castle, the Freemasons', Antient Concerts', and University Choral Halls, and Catholic University, in this city; *twenty-two* monasteries, convents, and asylums; and nearly *one hundred* parish and other churches throughout Ireland. Among those now in progress for our city we may include the instruments intended for St. Catherine's Roman Catholic Church, the Catholic University, the Royal Hibernian Military School, and St. Saviour's Dominican Church. The former we had an opportunity of inspecting on the occasion of a recent visit to the extensive manufactory of the Messrs. Telford, and it will be in two cases, occupying each side of the west window, the performer sitting between, and have three benches of keys, pedals, and pedal pipes. The latter will, we understand, be unequalled in Ireland, and will be a fine pedal instrument of 6 stops, with open diapason of 32 feet. The case will extend 37 feet in height by 26 feet in width (designed in style of Gothic, suited to the surrounding edifice, by the architect, Mr. M'Carthy), the front pipes illuminated, to contain three benches of keys, and the cost about £1,200. Mr. Telford was engaged making the working drawings for this instrument, and we cannot conceive an occupation requiring more universal information and skill than a clever organ builder. He must have practical knowledge as an architect, engineer, carpenter, joiner, worker in metals; be versed in music, acoustics, pneumatics, and mechanics.

We were much gratified with the bustle and business tone pervading the building. On the ground floor some men were engaged casting the metal in sheets to make the metal pipes. This metal is a compound of tin and lead, and is melted in a cauldron holding about a ton and a-half. When properly mixed and ready, it is poured into a box, which is moved along a bench, leaving behind it a sheet of liquid metal, of the requisite thickness, on a lining of ticken. The pipes are cut out of these sheets, turned on mandrils, and soldered up. Others were engaged on a large bellows; some at the case and training; others at the sound-boards and action; every portion of the instrument being made on the premises, with the exception of the keys. Drawings are first made of every portion of the instrument, and then each part is allotted to that particular branch. Numerous hands are busily employed on an organ for His Grace the Duke of Leinster, at Carton, and the greatest care is taken with every particle to produce the most perfect workmanship and finish, and when erected no doubt will contribute an additional specimen of scientific ingenuity and superior workmanship. Messrs. Telford are also engaged on large organs for Shane's Castle, and for St. Mary's Church, Youghal.

It gave us very much pleasure to see so much doing amongst us in this noble art; but if Irishmen would only behave with more patriotism and common sense, there would be *many* such, and *more* extensive manufactories in every branch.

Messrs. Bevington & Sons, of London, have completed the new organ for Carlow Catholic Cathedral, and it is said to be a powerful and handsome instrument. It was much wanting in that fine spacious building, which has been receiving internal decorations. The same firm also erected some years ago the small organ in the private chapel of the College, adjoining the Cathedral.

The organ of the Catholic Church of Newcastle, which was built by Mr. White of Dublin, has been finished.

The Home of the Mechanic.—What a contrast does the home of the sober, industrious mechanic present to that of the idler and the dissolute? In the one there reigns peace, comfort, and independence; in the other, misery, hunger, and dirt. The one is a little palace, in which the contentment king's court holds absolute sway; the other a hovel, where vice breeds and spawns depravity on the highways of life. One glance into the interior of the former dwelling is worth a whole day's inspection of the splendid one of a noble; for the former is associated with the happiness of thousands, the latter with that of a single family. The mansion of the noble may be decorated with the gems of art and genius; it may present a more than Oriental luxury of appearance; but the contrast between it and the cottage of the sober artizan is immeasurably in favour of the latter, as far as those higher estimates of human happiness, which are based on something superior to mere superficial grandeur, may be allowed to sway our judgment. In the one we see rugged labour, the soul and sinew of the nation, reposing like a giant gathering strength for renewed exertion; in the other we perceive effeminacy "lolling on a lewd day'coach," deploring the slowness of that time which silently and slowly brings its votary nearer to that end which, in his old age, he dreads, and endeavours by all manner of shifts and ingenuities to avoid. In the one there is a strait-laced, artificial discipline, which freezes the heart and contracts the mind; in the other an innocent freedom, which tolerates the laugh and the jest on all occasions, and yet allows the graver moments of existence to exert their salutary influence.

MEANS OF PREVENTING THE DECAY OF STONE.

Touching this subject, and the qualities of certain stones used in London for building purposes—amongst others, the Cornwall, Aberdeen, and Peterhead granites, the Craigleath, Dundee, Arbroath, Yorkshire, and Tunbridge Wells, sandstones, the Anston and Bolsover *magnesian*, and the Portland, Purbeck, Caen, Ketton, Barnack, Bath, Ranville, and Aubigny *carbonate* limestones, &c., &c.—an excellent practical paper was read recently by Mr. George Burnell, C.E., before the Society of Arts. The author notices at some length individually the products of France, England, Scotland; but it seems to be a matter of regret that a paper so ably handled did not extend to the review of those yielded by quarries in Ireland, where the prematurely perishable article—whether granite, lime, or sand stones, all of which are found in considerable quantities—though proportionately less than in the countries named, nevertheless to some extent *does* exist, and a notice of which would have rendered his paper more generally instructive to *our* readers. With exception of the Caen, Portland, and Bath, Yorkshire—for flagging purposes—and a couple of instances of Aberdeen (polished), the stones named above are comparatively unknown here; but, as the means of preventing decay applies equally to *all*, we subjoin his remarks on the best to be adopted.

"The problem of protecting the surface of a soft building stone, after every precaution has been taken, be it observed, to prevent the internal absorption of moisture, seems to me to have been the most successfully solved by Ransome's last patent process. In this process, a fine precipitate, clothing the whole of the pores of the surface of the stone, is produced by firstly cleaning the stone carefully from dust, or other extraneous matters; then the stone is made to absorb as large a quantity as possible of the silicate of soda or potassa, and when this solution has dried into the stone, a second wash is applied, consisting of the chloride of calcium or of baryta. In practice, Mr. Ransome uses the most frequently the silicate of soda and the chloride of calcium; and the effect of the respective applications is, that a double decomposition takes place in the washes, giving rise to the precipitation of a finely crystallised silicate of lime or of baryta, in the pores of the stone, and an efflorescence of extremely soluble salts of the chlorides of soda or of potassa. The former remain in the pores, the latter are speedily washed away by rain. As the rate of contraction and expansion of the silicate of lime is, as nearly as may be, the same as that of the stones it is intended to protect, there is no danger of the precipitate being detached by this cause. It may be added, that Kuhlmann's process is only applicable to the preservation of the carbonate of lime, whilst Ransome's process is equally applicable to that class of materials, or to the sandstones, or even to bricks, or plaster, or cement. It was precisely to this process also that I referred when speaking of the use of chalk as a building material, and I am convinced that, by its application, that abundant and economical substance might be very advantageously applied to our daily wants.

"Perhaps it is going a little beyond our immediate subject, but I cannot refrain from saying that the principle of the double decomposition applied by Ransome to stones, might be applied to the precipitation of a soluble glass upon woods or textile substances, and even to the protection of timber from the attacks of the boring worms.

"There are, however, many economical and constructive reasons for resorting occasionally to the use of soft, easily worked, and, as such, almost always perishable stones. In such cases, those stones must be isolated from ground, or other damps, as effectually as possible, and their exposed surfaces covered at once with an efficient protecting coat, before the process of saltpetreing can commence, and I believe that Ransome's process is the best which has been yet presented to the public for this purpose. Whatever process may be adopted for protecting the surfaces of soft stone, it is, moreover, necessary to pay attention to the constructive law of laying them upon their true bed, and also to protect the more exposed portions of the work by covering them with harder, more resisting, and impermeable materials. Even the latter materials themselves are at times exposed to decay between wind and water, and, therefore, every possible precaution should be observed to limit the range of the absorptive powers of the stones—the first and foremost precaution for basement works being to establish an effective drainage all round the building, at such a distance from it as to prevent the capillary action of the stones themselves from obtaining any supply of moisture from the ground, In the upper part of a building it is equally essential to prevent the rain from lodging upon any portions of the stone work, especially when absorptive stones are used above projections likely to arrest falling water."

Professor Ansted, F.R.S., said, as he had taken considerable interest in the subject of building materials, and the decay and preservation of them, he would offer a few remarks. Referring to Ransome's process, he stated that Mr. Ransome had re-invented Kuhlmann's manufacture of soluble glass. Mr. Ransome tried the same experiments and found them fail, and then it suggested itself to him whether, after all, he could not produce an effectual process, which should be independent of the dryness of the atmosphere; and, by combining the first wash of the soluble glass with a subsequent wash of chloride of calcium, he seemed to have succeeded—theoretically he had been, no doubt, successful. The double decomposition took place immediately, and the result would, of course, be the formation of a chloride of sodium and silicate of lime. What was the silicate of lime? They had only to look at the specimens of mortar which they found in old buildings to see the effect of this silicate of lime deposit. The cause of that peculiar power of the mortar to attach different pieces of stone together was, that the grains of sand which were made use of in mortar became coated with a silicate of lime, and the surface also to which the mortar was applied was coated in the same way; and this silicate of lime adhered so strongly to substances foreign to it, which it attached together, that practically the most perfect junction was effected; and when the mortar was very old, the substance of the stones would separate more easily than the mortar. If they could deposit this thin film of silicate of lime, they would do all that was required. In large quantities silicate of lime was not so available as in smaller quantities. There was something in this thin film attaching itself to a foreign body; and it was the particles attaching so strongly to each other which produced the remarkable effect which was found in old mortar. But still no doubt time had something to do with it. The deposit of the thin film of silicate of lime, he imagined, was hardly in a crystallized state, but no doubt this deposit was the whole secret of the success. There could be no doubt but that the silicate of lime was deposited, for all who looked at that part of the Houses of Parliament which had been washed by Ransome's process, after having been exposed for four winters, would see how the case stood. It appeared that there was too much of the silicate put in, which had given an unsightly appearance to the stone. That, however, had been corrected since. The surface there was very distinctly coated with a substance which was so hard that he could not scratch it with a knife; and though there was considerable efflorescence upon the surface acted upon in this way, yet this could be washed off. The efflorescence came off easily from the whole surface; therefore, as far as the test of these four years was concerned, the results must be regarded as satisfactory. The other instances of the application of Ransome's process with which he was acquainted were not so old as that to which he had just alluded, and consequently were not of so much value. But he believed there had been no efflorescence in the case of the chapel at Bloomsbury; and of the other cases he could not say more than that they had the appearance of being in a satisfactory state.

Mr. Robert Hunt, F.R.S., was desirous of correcting what he considered an error, into which the author of the paper, his friend Professor Ansted, and the last speaker had all fallen with respect to the decay of granite. It had been stated, as the opinion of those gentlemen, that the disintegration of the granite was due to the decomposition of felspar. He was prepared to maintain that it was not due to that course. Mr. C. H. Smith had stated that the China clay was produced by the decomposition of the felspar with the granite, and that this was going on at the present time. He (Mr. Hunt) was prepared to prove that such was not the case. He was prepared to prove that the China clay, so far as human observation could go, never was true granite; and also, that atmospheric decomposition acting upon felspar, had never gone to the depth of 300 feet, at which depth they found finer China clay than they did nearer the surface. He could take them over miles of country strewed with felspar. The quartz was gone, but the felspar remained. His attention had been called, during the last two or three years, to Ransome's process. It appeared to him more satisfactory than any other he had met with. There they had a silicate of potash applied to the stone, the surface of which had been rendered as clean as possible. The result was, absorption. They then applied to the surface ordinary muriate of lime, which penetrated within the stone by two different actions, the one being the force of capillary attraction, the other of chemical affinity. Chloride of potassium and silicate of lime were formed; the one being soluble was removed by rain, and the other remained to fill the pores. The great success of this operation, which after all could only be decided after a lapse of years, depended upon the fact that by filling up the pores with this silicate of lime, they prevented the cosmose action going on within the pores of the stone.

Mr. Robert Warrington, F.R.S., said that he had examined specimens of the efflorescent salts upon the surface of the stone in the Houses of Parliament, and, on scraping it with a knife, great quantities of the stone came away in a powdered state. He had also taken the efflorescence from the surface of stones treated by Ransome's process, and he found that where the grain of the stone had become indurated by this means, the efflorescence took place without disintegration of the stone itself. The process seemed to resolve itself into this:—The porous stone absorbed the wash of silicate of potash which was placed upon it. When this was dried upon the stone, the solution of chloride of calcium was applied. Wherever this solution of the silicate of soda had gone, it had coated every exposed particle of the limestone. Directly the chloride of calcium came upon the coated particles it converted the silicate of soda into a silicate of lime. This was at first a thick gelatinous coat, but by drying it became indurated, and the older it was the more perfect must be the induration.

The Chairman said he was sure they would consider that the advantage which Mr. Burnell had conferred upon them by reading his paper had been increased by the excellent discussion it had evoked. Mr. Ransome's process had witnesses in its favour of no common ability and position, and he most sincerely trusted that time would confirm the good opinion which had been expressed of it. He asked them now to give their best thanks to Mr. Burnell for the paper he had read.

The vote of thanks was then passed.

The paper was illustrated by a collection of building stones commercially known in this country.

AN ENGLISH MODEL FARMSTEADING.

The following are a few particulars of a model farmstead, now in progress of erection at Longleat, Wilts, for the Marquis of Bath, and designed by Mr. Wilkinson, who is (as we understand) the brother of a respected member of the profession in Ireland. The design is thus described by the *Illustrated London News*:—

"The Marquis of Bath's buildings comprise a complete building establishment (which every estate of magnitude should possess), in addition to, and in connection with, the farm buildings.

"The timber-yard and workshops are situated on the north side of the barn buildings and cart-sheds, the latter forming a range of buildings standing in a line east and west, and facing south. The workshops or building establishment comprise, on the upper floor, joiners'-shop for ten benches, provided with machinery for sawing, morticing, tenoning, &c.; a shed adjoining the shop for storing sawn timber; and a drying-room for boards and joinery, over the boiler-house, heated by steam. On the ground floor is a carpenters' shop, a blacksmiths' shop, and sawing-shed, fitted with a long rack-bench, for converting round timber; a bench for sawing deals and planks; and one for cutting up the slabs and blocks, which fall as they are cut into a store-room below, ready to be supplied to the boiler fire, the boiler being on the same level and near thereto. The engine and boiler-house adjoins the sawing-shed, and will contain a 16-horse power engine and boiler. There are also a clerk's drawing and pay office, glaziers' and painters' shop, and ironmongory stores, belonging to the building premises, and contained in the long range of buildings running east and west, the other portion of which is appropriated to the farming department, and contains granaries, store-rooms, straw-barns, thrashing-floor, mill-rooms, corn-dressing room, chaff and caving stores, men's mess-room, and cart-sheds. A covered way connects these buildings with those standing in front of them, and which are under five connected roofs running parallel to each other, containing capacious roothouse, stabling for a large number of horses, nags' stable, and stalls for cows and feeding beasts, calves'-pens, spare houses, pigs' boxes, and foodhouse, and two large covered yards. These yards are excavated four feet below the other floors, and arranged to receive by the least possible amount of labour, and without the use of barrows, the whole of the refuse from the several places without loss and without underground drainage. These covered yards are constructed with due regard to ventilation, and form comfortable places for store cattle. The manure is thoroughly mixed, and becomes in an excellent state for removal. By this arrangement the old system of forming the manure into heaps and turning it, thus exposing it to rain and wind, and allowing its fertilising properties to escape, is dispensed with. Hence there is a saving of carting and labour, as well as of the valuable properties of the manure. On the east side of these buildings are some open yards and shedding, fowl-yard, and fowl-houses, slaughter-house, and implement-shed. A residence on the west side is provided for the bailiff. The windows overlook the roadway between the buildings, where a considerable portion of the work is concentrated. A dairy is attached to the house, whence Longleat House will be supplied with cream and milk. The upper dwelling-house is intended for the clerk of works, from which he will command a view of the yards and shops. The water supply is from a natural spring on a hill opposite the site, and is conveyed by pipes to a tank placed over the covered way, and thence carried by pipes to the various yards and buildings.

It has been found that on some lines of railway having frequent sharp curves, the flanges of the leading wheels of ordinary six-wheeled engines required to be turned anew every six weeks.

COMPETITION.

NEW HOUSES OF PARLIAMENT, SYDNEY.

Two premiums are offered—viz., £600 for the *best*, and £800 for the *second best* design. The style discretionary; time limited to 1st January, 1861; and plans to be addressed to the Secretary of Public Works, Sydney, to the care of Messrs. Merry and Co., 86, Cannon-street, London, E.C. Messrs. Hodges and Smith, of Dublin, will supply general conditions and a contour plan to Irish competitors; also a photographic view of the locality—an excellent idea—may be seen at their establishment.

THE REFORMATORY AT UPTON.

The Reformatory for juvenile criminals of the Roman Catholic persuasion, now near completion, is situated on a farm of land lately taken for that purpose, near the Upton Station of the Cork and Bandon Railway. The buildings are within five minutes' walk of the station, from whence they can be seen occupying the brow of a gentle eminence, which commands a good view of the country around, and nearly in the centre of the farm. The buildings at present erected are but a part of a complete plan, intended ultimately to be carried out as the exigencies of the institution demand. The main edifice is two hundred and thirty feet in length, and is two stories in height. It comprises on the ground floor, a cloister the whole length, and nine feet in width; a chapel, intended to be used also as a school-room for the present, sixty feet long and eighteen feet wide; a refectory, forty feet by eighteen; a kitchen, three workshops, store-rooms, porter's-room, visitors' parlour, lavatory, bath-house, scullery; and on the upper floor, a dormitory one hundred and thirty feet long, an infirmary, nurses' room, with bed-rooms for the officers and managers of the establishment. The building is erected in the domestic style of Gothic prevalent in the fifteenth century. The walling is of squared rubble with limestone plinth and quoins, and all the window and door dressings and the chimney shafts are of the Cork Clay Company's brick. The cloisters, workshops, &c., are paved with the black and red tiles of the same company. The building was designed by Mr. Richard R. Brash, of this city, who also superintended the execution of the works. The builder is Mr. Richard Evans, also of this city. The cost when completed will be under £3,000. Great economy must have been observed in the carrying out of so large and substantial a building for so moderate an outlay. It is to be ready for occupation in May, and is to be under the management of the Brotherhood of the Order of Charity.—*Cork Constitution.*

AMERICAN NOTES.

A building for a new Catholic Literary Institution is in progress of erection at the corner of Longworth and Vine streets, adjoining the Mechanics' Institute, Cincinnati.

The new Baptist Church at Northville, Michigan, has been dedicated, as also the new Methodist Church at Newaygo, the new Universalist Church at Dowagiac, and the new Congregational Church at Port Huron. The churches alone of the two Episcopal bodies, the Methodists, North and South, number about 14,000. This aggregate gives an average of more than 150 churches built each year since the erection of the first (Old John-street, N.Y.) in 1768—three each week. During the last two years the increase of churches in the Methodist Episcopal Church (North) alone was 970, giving nine and one-third per week, or more than one and a half for each working day of the two years. During the same period 866 parsonages were built—about one for every two days.

The city authorities of Detroit offer premiums of 500 dollars for the best, 300 for the next, and 200 for the third best set of plans for a building to contain City and County Offices, Council Chamber, and Recorder's and Circuit Court Rooms, to be lodged before the first Monday in April. The building to be three stories above basement, to present four stone-dressed fronts, and to cost 200,000 dollars.

The roof of a large school-house at New York was recently lifted off by storm, while 440 childen were under it, and yet all providentially escaped unhurt. The building cost 30,000 dollars; it will cost 3,000 to repair the damage done.

Seven contractors and their sureties have been summoned by the county surveyor of the South Riding of Tipperary, for the next petty sessions of this town, for neglecting to repair the roads. [We hope the example will have a salutary effect on others nearer home.]

The Building News is presenting its subscribers, in parts, contained in each weekly number, with a handsome work, containing a memoir and portrait of Sir Wm. Chambers, and a treatise on "the elements of beauty in Grecian architecture," by Joseph Gwilt.

The ancient Egyptians employed stone tramways similar to that in the Commercial Road, London.

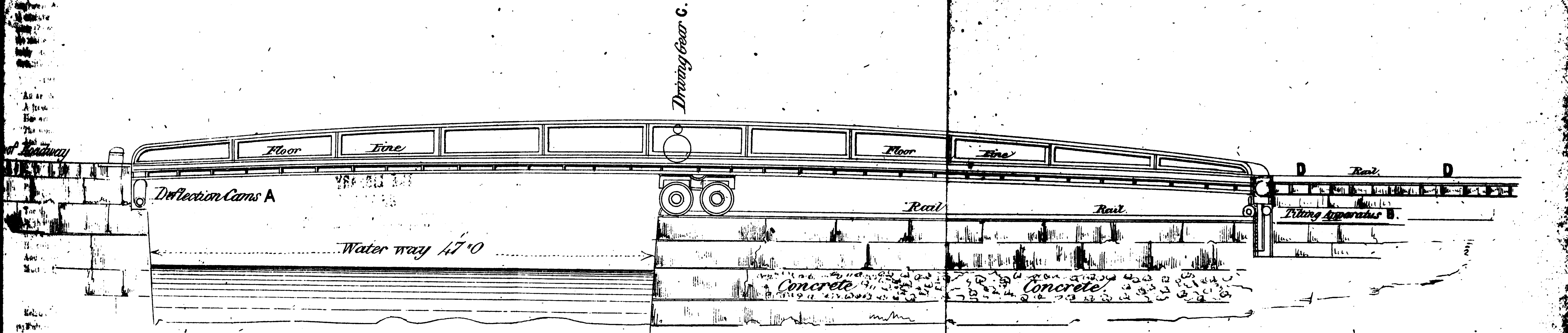
THE DUBLIN BUILDER, APRIL 1860.

NEW BRIDGE ERECTED
GEORGE'S DOCK,
NORTH WALL,
DUBLIN,

G. Christie & Co. Dublin.

KENNEY'S PATENT
NCE ROLLING BRIDGE,
Scale 70 Ft. – one inch.

TURNER & GIBSON,
HAMMERSMITH IRON-WORKS DUBLIN
PROPRIETORS & MANUFACTURERS.



Longitudinal Section

THE FOLLOWING ARE SOME OF THE ADVANTAGES OF THE INVENTION.

Simplicity in its construction & action being longitudinal beams of Iron or Wood, with flooring joists & flooring, balanced & travelling on rollers & raised, opened & shut by suitable Mechanism. Having only one & a continuous motion from the time of starting till either opened or shut.

Having no Back Tray or Shifting Piece as in other Opening Bridges, requiring no intricate or expensive Stone Work, indispensable in Swivel Bridges

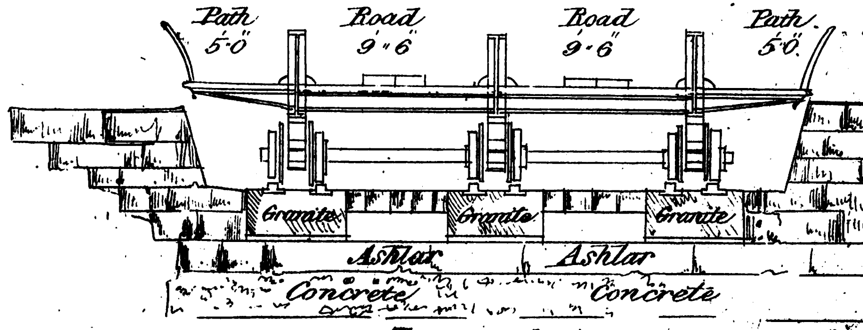
Peculiar applicability for Double Roads & Pathways & for Crossing Shipways into Docks or Canals.

MODE OF OPENING THE BRIDGE.

Deflection Cams at A
by the Apparatus at B
power to driving gear at C

Bridge at B rises becoming
drawn back over ground line D.D.

tion closes & secures the Bridge.



Transverse Section

The floor line of this Bridge can be constructed Level to suit Railways &c.

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RATHGAR PRESBYTERIAN CHURCH COMPETITION.

Sir,—A little church was recently erected at Sandymount for the Presbyterians, £800 being the originally intended amount of expenditure, and this *heavy* undertaking suggested the idea, that Ireland did not contain an architect sufficiently eminent to engage therein. A worthy gentleman in this town, a member of the British Association for the Advancement of Science, and one of the Caledonian fraternity, was appealed to for advice at this critical juncture. This Mr. D——, being a great importer of seedlings suited to the "Irish soil", remembered that in Stirling a church was built by Mr. Hay, and *hay* was thereon imported,—hence the little *hay*stack at Tritonville. This formed a precedent as regarded the proposed church at Rathgar. *Hay* is now too high for another haystack. So a Mr. Heiton (Hay-ton,—query, a *ton* of *hay*) is the nearest approach, the fancy being still entertained that "no Irish should apply," and no Irish architect is qualified to build a Scotch church in Dublin. Architecture has been called "petrified music," and some of the committee engaged in erecting Rathgar Church keep up the musical idea in trio fashion, playing with *Drum*—, *Fife*, and *Bell*; but no organ will be allowed to speak inside the church, except an *organ of the press* (a Scot also)—but with a *Bell* in the tower, and a *Drum*— and a *Fife* behind the pulpit, no other accompaniment will be necessary. Agreeably with these notions Mr. Heiton, or at least his plan, was brought over and approved of by the *Scot* and his *confreres*, and preparations are now being made to procure a builder to execute the work for the money available. An enthusiastic admirer (?) of the whole arrangement has been trying to commemorate the matter in rhyme, of which the following is a copy (though probably its poetical pretensions under other circumstances would disentitle it to a place in your excellent journal):—

THE CHURCH OF THE DRUM—, FIFE, AND BELL.

An ar-chi-tect from Perth—
A fresh subject for mirth—
Has arrived with his plan,
The wonderful man!!
And in ten weeks or so
He likely will go
And lay the first stone,
And then away *home*.
For he's going to build
A high steeple, and gild
The top of it too,
Without more ado;
And a high niche for *Bell*
He will also make well;
And a bracket for *Scot*
Must not be forgot.
For to *Bell* be the praise,
To the end of his days,
That he did go to Perth,
The place of his birth,
And thence brought the man
With the wonderful plan.
And *Scot* with his pen
Will tell us all when
"He is passing," "and seized
With wonder" "and pleased"
With the bracket so high,
And the niche near the sky,
All worked out "by hand"
By the sons of this land,
For *Scot*, *Fife*, and *Bell*,
Who have earned them well.

Spectator.

Relative to the same matter another correspondent, after various preliminary remarks which we deem unnecessary to publish, asks:—

1st.—Were the committee, or any of them, interested in the adopted plan, and familiar with it before they called a competition?

2nd.—After they first saw it, was it altered and revised to embody peculiar views of their *own*,—and to exist as their own plan, *versus* that of strangers?

3rd.—Did they extend the previously limited time for the purpose of receiving the adopted plan as amended?

4th.—Does their minute book record that they enlarged the amount of money for the *same* plan, giving it an undue advantage, and putting all others to a disadvantage?

5th.—Referring to the terms of the advertisement—that no plan will be paid for unless the one adopted—do they think that the terms of the advertisement are only binding as a whole, or that they can break their part and enforce the remainder?

6th.—And if they will not pay for rejected plans, will they refuse to pay for *wasted* time and *misspent* money?

The plan adopted is, as I am informed, not a new *design*, but a copy of a prior erection in Perth, as Sandymount Scotch Church is of one at Dumblain, "Cold kail hot again," I think, they call it. Mr. Editor, these are strange times we live in—the glory of our city is departing, our sun is set on the ocean wave, and out coat of arms is torn.—Yours, till otherwise advised,

Fitzstephen Blain.

The Cottagers' Society, established by Lord Fitzwilliam, at his seat, Coolattin, county Wicklow, has been very successful; if other proprietors would try this, what a change would come over the face of the country!

It is proposed to erect in the streets of Coventry—the ancient watch-making, ribbon weaving city—a statue of Lady Godiva, of high renown.

CHRISTIAN ART IN IRELAND.

A revival movement in Christian art has of late years been cheeringly and palpably observable in Ireland, and the veil of apathy which for generations had encircled her people has been gradually lifted, and resources developed, which, if matured in the same ratio till the end of the present century, will achieve great things, and mark it as an important era in her architectural advancement. To be sensible of the state of degradation into which ecclesiastical art especially had sunk, needs no penetration into the profundity of historical records, for even the adults of our own day must bear in their mind's eye the ill-proportioned, ill-arranged, rude, blocky, gazebo buildings—happily now few and far between—that studded the country from point to point, where suitably arranged structures have risen in lieu, with tower and spire "whose silent finger points to heaven," and whose *toute ensemble* bespeak their double purpose—of glory to the Creator and honour to the devotion of the creature. To the Mediævalists and Gothicists, before whom the Classicists are and have been paling, are we mainly indebted for this metamorphosis—a remark, we must observe, advanced without prejudice to the disciples of the latter school, under whose directions even now classic churches of chaste design are rising in our metropolis—and in our usual periodical chronicle we are afforded pleasure in adding to the category. Elsewhere in this journal may be found some noted intelligence of new works in this class, and we learn that two metropolitan churches of the old school and "questionable shape" will speedily be mingled with the dust, and noble Gothic structures, with cloud-capped pinnacles and of orthodox proportions, be erected instead.

A VISIT TO THE EXHIBITION OF THE ARCHITECTURAL PHOTOGRAPHIC ASSOCIATION, LONDON, 1860.

Upon a general inspection of this third annual exhibition, recently open, we were certainly pleased with the collection, comprising, as it undoubtedly did, some of the finest works of architectural art, represented in well developed impressions, if we may use that term. It would not be any advantage to our readers to recite the names of all the buildings pourtrayed, as the catalogue is the best exponent; but we will give a general idea,—first of the arrangement, and then of the class of subjects.

The room, about 60 feet by 80 feet, excellently lit from the ceiling, is entered in the centre of one end; all around are hung the photographs, neither too high to be lost, nor too low to be inconvenient for inspection. In the middle are six screens, filled on both sides, and a table covered with portfolios of the display of previous years, from which selections may also be made. Immediately to the left on entering, is placed France not so much out of compliment to our ally, as that in consequence of the large number exhibited—about ninety altogether—and of their great size. The field was open, or rather the walls were clear, for the space they might occupy, and the smaller collections would work into the corners. France, then, takes up half the end and nearly the whole of the left-hand side. Some eight photographs, also on this side, are supposed to represent the Netherlands, Germany, and Switzerland. The further end of the room commences with eleven of Constantinople—but this celebrated city had ample justice done to it on previous occasions; Jerusalem and the neighbourhood are shown in twenty-four. The Roman States, in thirty, commenced the right-hand side; North Italy, including Verona, Venice, Padua, Milan, Murano, and some single photographs to a few cities, take one hundred and ten, the greater part being devoted, of course, to Venice; and Spain, with twenty-six, filled up the other half of the entrance end, and completed the circuit of the room. The screens contained about two hundred and twenty subjects from England and Wales. Extraordinary as it may appear, there is *not one from Scotland or Ireland*. What can be the reason for these two countries having been either neglected by the photographers or disregarded by the Committee of the Association? We believe the former is the truth of the matter. Let our talented native photographers see to it against next year. Our native photographers seem to disregard the advantages offered by their art for architectural purposes, and though our city is plentifully supplied—rather too much so—with photographic portrait artists, we are not aware of *one* who seeks to devote himself to the former pursuits, though to our minds special application thereto would open up a profitable field. Having devoted two good hours to carefully noting the excellencies of these five hundred works of nature, the time came for making a selection. Here we were completely put out—not from the richness of the material, but from the want of really useful subjects for reference and study in every-day art. General views of the Louvre, central porches of the great French cathedrals, west fronts of ditto, doorways filled with figure sculpture, the mosques, views of dilapidated stone walls, or rocky hills at Jerusalem, bridges in ruins, ancient ruins of Rome, Venetian churches and palaces, with the usual selection of views of cathedrals and castles in England and Wales, do not afford a useful fund of matter for improvement, however much they tend to make a good show. The ancient halls were limited to some dozen or so, but amongst them were some charming interiors from Haddon; the entrance to Hengrave Hall we wished to select, but found the impression anything but clear for use. There were no available specimens of English domestic Gothic, and but little more than the well known Palais de Justice at Rouen in foreign Gothic. The purely classic examples of Grecian art were also discarded this year, at which we were surprised; they were so exceedingly admired on the previous occasions, as to have justified their being again exhibited, for of course a subscriber cannot select all he would prefer in one year. Byzantine subjects were also scarce. We would urge the Committee for next year to take steps to secure the representation of some well designed part of a structure, to be accompanied with its details to a larger size. For instance, if Mr. Bedford, who appears to have sent impressions from negatives taken expressly for the Association, had given some of the carved work surrounding the beautiful west entrance of York cathedral, in addition to the general view of it (446), the portions would have been more useful to architects than the north-east view (445), or many others upon which he spent much time—such as the well known subjects at Canterbury, the pretty pictures representing Raglan, Tintern, and elsewhere. Sets, as we have indicated, of such parts would be most valuable to the artist. Except the hospital at Milan (153), and the church at Murano (209), there was little else exhibiting the useful manufacture of terra cotta; whilst for ornamental sculpture, the head of a doorway or two (but which it would not be advisable to reproduce), the bottom of the bronze standard at Venice (257), and a door at Barcelona (267), were truly all the subjects one could find. This species of subject should be, we think, strongly urged upon Mr. Bedford and others by the Committee, or else the Association will merge into a mere show for photographers. We all know the difficulty the present Committee has had to recover lost ground; but something more will be expected from the members of it next year.

Amongst the most noticeable productions are, the (475) monumental brass from Lubeck, dated 1350, one of the largest and finest of its class, taken from a rubbing; the clock at Strasbourg cathedral (65), with a St. George and the dragon, a beautiful picture as regards tone; the almost renaissance sculptured figures in the portal of the cathedral at Berne (71); the side entrance of the west front of Lichfield cathedral, lately restored (305, &c.); with the interior of Haddon Hall (294, 296, 279, 299), before mentioned. The view of St. George's Hall, Liverpool, comprising as it does merely the portico, with the long side in very rapid perspective, is not done justice to, especially as the portico is represented over the boundary wall, the equality of the color causing the wall to appear on the same plane as the steps; thus a very bad and unarchitectural looking arrangement is produced.

It would be useless to describe all these works in detail, especially as the gallery closes before this will appear in type. The above must suffice to afford some idea of the variety of subjects, and we conclude anticipating even a greater architectural treat being provided for the subscribers next year; although in this exhibition the allotted number of fifty for the guinea subscription soon mounts up in the selection, and great is the temptation to exceed that sum.

As all the photographs exhibited belong to the Association, could not the Committee arrange to send the collection, or a *part of it*, to Dublin and other principal towns for exhibition, especially whereever they might be guaranteed against any loss by so doing? The photographers could, no doubt, still supply the works even of past years at the amounts placed upon them. As this might be done during the autumn months, it would not interfere with the spring exhibition in London, and one exhibition in the country in the year would not break in upon the interest felt for the main object. Great benefit might be anticipated from the display to the public of so much good and true art of all styles and countries.

THE AMERICAN INSTITUTE OF ARCHITECTS.

ALLUDING to this Society, established for the *assumed* advancement of the architectural profession throughout the United States of America, the *Architects' and Mechanics' Journal* thus graphically describes its present anomalous position, and one to which for obvious reasons we would direct the *special* attention of professionals here:—

"It was with no little pride that, very recently, we found ourselves permitted the honor of regularly reporting the proceedings of the American Institute of Architects. We gratefully acknowledge the high compliment; but, at the same time, the very pertinent question sometimes occurs to us, *What is there to report?* Except that really fine discussion upon iron between Mr. Van Brunt and Mr. Eidlitz, we have never been able to get anything more than that, at intervals, the same half-dozen members met, said "good evening" to each other, and then adjourned. A might probably tell how that perspective is getting on; B might relate how some shuyster managed to *cheat him out of a job;* while C descants upon the *disgraceful manner* in which his design was thrown aside in some competition. A desultory conversation might then ensue upon the awful state of things in general; upon which D—a jolly good fellow, with an eye-glass—steps in, and *proposes* egg-noggs all round, in true Congressional style. All this may be intensely entertaining, but, for the life of us, we cannot comprehend how it 'has for its object the advancement of architecture in this country.'

"Where are the lectures and discussions upon subjects likely to interest and instruct not only the profession, but the world? Where is the fiery denunciation against the whole race of pettifoggers who have ground, and are still grinding the noble profession into a depth of pollution, from which no Institute will soon be able to redeem it? Where are the rules and regulations—*stamped by the high authority of such names as we see in the Institute*—and given to the public as the code by which the whole profession should be regulated everywhere throughout the United States? Where is the discussion upon competition, not only among architects, but among builders? We are constantly meeting something good and instructive which has been said by somebody or other, either before the Royal Institute of British Architects, or the Architectural Association in London. Why have we not the same to record of *our* Institute? If *nothing* is ever said or done, of what use is the Institute? If *anything* is ever said or done, why has it not been published?

"The very name of the AMERICAN INSTITUTE OF ARCHITECTS invests such a body, in public estimation, with an amount of authority which demands a corresponding amount of action. We write this in good part, deeply interested in the success and progress of the Institute, because deeply interested in the welfare of the architectural profession. All we ask again is, to let us have *something to report.*"

PESTIFEROUS EFFLUVIA FROM THE LIFFEY.

THE indefatigable Mr. Whelan, T.C., suggests for the suppression of this nuisance, a plan comparatively cheap and ready of execution, which is to construct dwarf sluice gates eastward of Carlisle-bridge, and at such a distance therefrom as would not imperil its safety—the safety of the bridge—the dwarf sluice gates to be of timber construction, the piers to be coffer form, 15 feet by 7 ft. 6 in., on a base composed of whole baulk piles, tongued and grooved, and driven into the bed of the river the required depth, to be secured by transverse bolts of one and a half inch square iron, passing through the horizontal braces, the water cuts to be trussed from the bed of the river; those coffers to be filled with bricks laid in regular courses, bedded in fresh dry cement and clean sand; the sills to be the figure of an obtuse angle opposed to the current of the stream, and also formed of whole baulk piles in like manner as the coffer piles, but only to project three feet six inches above the bed of the river for the gates to shut against. This project would cost £2,000, and might be executed in two months. This temporary expedient should be removed when the great tidal gates were completed. The sluice gate might be left open whenever there was a freshet in the river, which always gives from six to eight hours' notice. This expenditure would not be required but in consequence of the whole strength of the Liffey, with all its tributaries, converging at King's-bridge, not being sufficient to cover the bed of the river in its passage through the city in the summer season, even within the narrow limits of the quay walls. Therefore they should for the present purpose avail themselves of the influx of the tide, which gives fresh deposits of tidal water twice in 24 hours, and to retain so much water as will not impede the drainage from the sewers, which would give a depth of 4½ feet on the side walls and 7½ feet and upwards in the centre of the river.

Correspondence.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—The suggestion made by "C.E.," in the last number, as to the mode of obtaining architectural works is certainly feasible, but it would be more complex in carrying out than appears at first sight. I believe there is a small private society established in London for a similar purpose. The members meet at each other's houses once a fortnight for selection of works and general conversation; a small annual subscription enables a first purchase to be made, and the books are sent round to each member for perusal; after that duty is performed, it is put up to the highest bidder, or the member who proposed the work for purchase, is allowed to buy it at a certain deduction from cost price. Thus, all the members have had the work in their library sufficiently long to test its merits, which is always desirable to do before buying expensive publications. Dublin might support one; perhaps Cork another; Belfast another. Of course carriage of parcels to adjacent towns would add greatly to the expenditure.—Yours, F. H.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR—A controversy having appeared some weeks since in your columns on the propriety of vending woods by Queen's calliper measure, I send you a circular, under date 24th instant, to show that by *calliper*, instead of *string*, a buyer is brought to pay 22½ per cent. beyond what he receives of the cargo of Greenheart, the actual deficiency varying from 6 to 44½ per cent., through want of squaring, saw-butting, and properly inspecting at the port of shipment.

During the past week, in Liverpool, seven cargoes of wood, shipped from the *like region* with the Greenheart in question, saw-butted and more or less properly surveyed, were sold to 140 customers, whereon a *tare* to each was yielded by the respective importers of one foot for every three feet,—that is to say, the measurement (being that customary in this port) by which these cargoes were sold was 33 per cent. lesss than Queen's calliper.

The above facts show that in one instance the buyer pays for 22½ per cent. *beyond* what he obtains, and the seven cargoes yield a *tare* in favour of the buyer of 33 per cent., respectively reckoned by the Queen's calliper measure.

EDWARD CHALONER.

Liverpool, 28th March, 1860.

Extract from enclosed circular of 24th March inst.:—

"Of Greenheart: it will be remembered that the consumers of this article in this port, in a declaration under date of 26th January last, asserted the integrity of the customary quay measure of the port—and very wisely and properly so—because they who pay long enough for what they do not obtain are very likely in the long run to cease paying for that which they do obtain. These remarks are forced on the writer, the senior measurer of the port, through the fact of the last sale which has transpired, being in respect of a cargo of Greenheart, so badly prepared that the loss of string on Queen's calliper measure ranged from 6 to 41½, averaging 22½ per cent. This information is due to those practical men who made the declaration referred to. When Her Majesty's government buy wood they demand allowances for defects, and very justly so."

Notes of New Works.

The Ballast Corporation are about erecting beacons on the Alderman Rocks, Crookhaven, Co. Cork, and on Wheaten Rock, Sligo Bay—the former to be composed of a *cast*-iron casing, filled with masonry; the latter to be a *wrought*-iron pillar.

Alterations are being made on the premises of Messrs. Lovely, after plans by Mr. Sloane; Mr. Daniel Lawton, contractor.

The Dublin Protestant Reformatory School Committee are about enlarging the house, No. 3, Rehoboth-place, under the direction of Mr. Joseph Maguire, architect.

The Board of Governors of the Masonic Female Orphan School offered a premium of £5 for the best plan for enlarging their present buildings, and to be sent in against 17th ult.

The county court-house at Longford has for some months past been undergoing repairs and alterations.

A new National Bank and offices is to be built at Lismore, Co. Waterford. Tenders are being received according to plans by Mr. Caldbeck, architect.

A house is in progress in Victoria-avenue, Sandymount, for Francis Salmon, Esq.; J. S. Sloane, C.E., architect; Mr. Joseph Pennefather, contractor.

The plaintiff in a memorable action against a respected member of the profession in Dublin is again embarking on "*the troubled sea*" of building operations, in the erection of five houses at Belgrave-sq.

A villa is to be erected at Harristown, near Castlerea, for Mr. James Young, J.P.; Mr. Caldbeck is the architect.

The large farm-offices and hydraulic works at Friarstown are in progress, under Mr. Sloane's directions; Mr. Pennefather, contractor.

In the town of Dalkey many building improvements are being affected, amongst the rest a terrace opposite the railway station, together with a handsome dwelling-house and shop adjacent thereto; Messrs. Barker, builders.

The foundation stone of the Cork Protestant Hall has been laid by the Earl of Bandon; Mr. R. R. Brash, architect.

Tenders are required by the War Department for altering the redoubts on Carrig and Scattery Islands, in the Limerick district; time limited to the 5th instant.

Tenders are required for a new dwelling-house at Fohena, Ahascragh, according to plans by Mr. William Maxwell, agricultural engineer, Ballinasloe.

Mr. A. Egan, builder, of Tuam, has been declared contractor for the roofing and completing of Ballinasloe new church.

Messrs. Crowe, Brothers, have obtained the contract for the erection of new works at the Midland Great Western Railway terminus, Broadstone, comprising the demolition of the present offices, and the construction of new at the opposite side, where the departure carriage-drive or piazza exists, it being found more suitable to reverse the arrangements of arrival and departure; Mr. George Wilkinson, architect.

The monumental oratory, for some months in course of erection at Glasnevin Cemetery, is now complete, and presents—by its rotund form and stone domical roof, terminated by a beautiful glass cross, with polished metal bar therein, and rising from a flush dome light of same material—a feature of considerable novelty. This is the first application—that we are aware of—of glass for such a purpose. The structure is of granite, chiselled and rusticated; designed by Mr. J. J. Lyons, architect; Mr. William Crowe, contractor. Mr. William Turner supplied the handsome metal doors and other iron work; Messrs. Sibthorp and Son, the glass dome and cross, which were specially manufactured in England. A quantity of Rogers's peat charcoal has been introduced into the vault beneath, and ventilating tubes pass through the arch into the oratory wall, and thence to circular apertures in the external frieze, preserving the atmosphere of the vault perfectly free from gaseous exhalations. Total, £150.

ECCLESIASTICAL WORKS—ROMAN CATHOLIC.

THE internal decorations and furnishing of St. Saviour's new Church in Dominick-street are being proceeded with,—the former comprising the colouring, gilding, &c., of the ceiling, the carvings of the nave, aisles, and apse, and the stained glass windows of apse; the latter including the high and side altars, reredos, screens, benches, gas standards, internal porches, organ gallery, and organ itself. The carvings of the nave and apse are quite finished—those of the aisles are in progress—and consist of two series of figures forming corbels—and representing the chief saints of the order of St. Dominick—with foliage capitals of the shafts supporting principals of roof, and foliage string courses between. The high altar will be composed of various marbles, alabaster, and Caen stone, and have an arcaded frontal, with seven figures of angels bearing scrolls. The reredos consist of six groups of subjects symbolical of the Blessed Sacrament and the holy Sacrifice, taken from St. Thomas Aquinas' hymn, the "Lauda Sion," and are surrounded by marble shafts, sculptured and lofty canopies, terminating in figures of adoring angels. The tabernacle is also surrounded by groups of angels, the canopy being of very open work, and the total height 35 feet. The screens separating the chancel from the side chapels are composed of polished marble shafts and elaborate tracery of Caen stone. The floors of the chancel and side chapels will be of encaustic tiles, and the floors of the nave and aisles of black and red tiles, from Minton's manufactory, the spaces under the benches being boarded. The organ gallery, at west end of nave, will be supported on shafts of Irish marbles, with carved foliage capitals and moulded bases. The front of the gallery will be arcaded with alabaster shafts, foliage capitals, and carved string courses and cornices. The stained glass windows in the apse will contain (in the centre) the Transfiguration of our Lord, the Presentation in the Temple, and the Coronation in Heaven of the Blessed Virgin, with other subjects. The last work of the illustrious Hogan, the gift of a generous benefactor, is to be reverentially preserved in St. Saviour's. At one time there was a project of making it part of the high altar; but, after mature consideration, it was resolved that the subject (the *Pieta*, or Dead Christ), and the artistic merits of the work, as well as the memory of the great artist who has been taken from us, deserved a distinct chapel. The *Pieta* will form the principal feature in the altar of the Chapel of the Passion of our Lord; and it is hoped that for ages to come many a devout worshipper will remember both the artist and his generous and unassuming benefactor. Would to heaven that poor Hogan had found many such! The carving is all by Mr. Henry Lane; the painted decorations by Mr. Thomas Earley; the stained-glass by Messrs. O'Connor & Son; the metal works by Messrs. Hardman & Co. The organ is the manufacture of Messrs. Telford, and will be a powerful and beautiful instrument.[*] The contractor for the floor, benches, organ, gallery, and internal porches is Mr. Richard Pierce. The architect is Mr. M'Carthy, R.H.A.

A new church, 120 feet in length, by 55 feet in width, is to be built at Clonea, Co. Waterford, after Mr. M'Carthy's designs. Style, decorated.

A convent is to be built at Kilrush, on a site extending two acres, and presented gratuitously by Colonel Vandeleur; same architect.

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[*] See page 233.

The new Church of St. Mary, Granard, is about being commenced, the site is on the Moat of Granard. Style, transitional between early pointed and decorated; plan cruciform, with nave and aisles, transepts, chancel, side chapels, sacristy, porch, baptistery, and tower, surmounted by a broached spire—with twelve spire lights—170 feet to top of cross. The length of the building will be 120 feet, 86 feet across transepts, and 54 feet across nave and aisles. Mr. John Bourke is the architect.

The exterior of the Church of St. Mary, Athlone, has been completed. The spire is 190 feet to top of cross. Same architect.

A large convent, schools, laundry, &c., is about being built for the Sisters of Mercy, Newry, also after designs by Mr. Bourke.

The interior of St. Mel's Cathedral, Longford, has been for some time completed. The roof, floor, and ceiling, &c., have cost £8,000. The great portico and campanile are about being commenced. The portico will be Ionic, hexasytle, 90 feet in length, the columns 4 feet in diameter; a campanile will also be added. Mr. Bourke is the architect.

A small church, 80 feet by 22, is about being built at Lenamore, and will have chancel, nave, Virgin chapel, sacristy, porch, and belfry. Style, early pointed; estimated cost of exterior, £650. There are other buildings in contemplation. Mr. Bourke, architect.

Very large additions have been built to the Dominican Convents at Cabra and Kingstown, particulars of which shall appear.

The House of the Immaculate Conception at Inchicore will soon be ready for roofing; it is a portion of the contemplated quadrangle, to be built from designs by Mr. Bourke.

CULTIVATION OF MEDIÆVAL ART.

THE progressive improvement of "our time" and "our country" is daily developing itself in the many new and important undertakings which it becomes simultaneously our pleasure and our duty to chronicle in course; and in no branch is it more apparent than in "mediæval" art, whose adaptation to ecclesiastical edifices imparts thereto a surpassing beauty, delicacy, and richness. An additional gratifying proof is afforded in the fact that some of the most eminent art manufacturers in the sister country have extended their sphere to this metropolis, doubtless descrying with characteristic acumen a favourable position for operations in the centre of a widening circle. Many of our patrons may not be aware that there is in a certain branch establishment of a Birmingham house in this city a staff of artists constantly employed on matters of mediæval art, and who for many years worked under that great master, the late Welby Pugin; also that the same eminent firm have in training, specially for Christian art, a number of "Irish boys," presided over by an "Irishman," and with the best models to work from. On a recent visit to the stone and wood carving works department of Messrs. Hardman and Co. (48, Grafton-street) at 1, Upper Camden-street, we became acquainted with these facts, and as the produce of these artists' hands we were pleased in noticing two very beautiful altars, one in Caen stone, for Ennis Parish Church, exquisitely designed and finished, and the other in wood, for Lisdowney Church, equally creditable though less elaborate and expensive. Such of our readers as desire to view these will doubtless meet a courteous reception from the manager, Mr. Thomas Earley.

USEFUL HINTS FOR HOUSE AND LAND PROPRIETORS.

PARTY WALLS.—The property of the party wall, built at joint expense, vests in the property of the land upon which it stands. A party wall built at the joint expense of two persons, one half of the thickness of which stands on the land of each of the owners, they are not considered as tenants in common of the wall, or land on which it stands. Under the statute the owner of an improved rent is liable to pay the expenses of a party wall, and not the owners of the ground rent. Unless there be an express stipulation to the contrary in the lease, a lessee is bound to do the repairs of party walls. When a lessee for 21 years covenanted "to repair and pay all taxes and impositions," and assigned his term for a small consideration, it was adjudged that he was *not* liable to pay the expense of a party wall, either by his covenant or by virtue of the 14 Geo. II., c. 48, but that it must be borne by the original landlord.

REPAIRS.—In the absence of an agreement, there is no law to enforce a landlord to repair. A tenant is not liable for dilapidations arising by his reasonable and customary use of the premises, and by the efflux of time. A lessee covenanting to leave the premises in tenantable repair, cannot in bar thereof plead that the premises were not in such a state of tenantable repair when his tenancy commenced, hence the necessity of a previous survey. Where the lessor covenants to repair, and does not, the lessee may do it to a reasonable extent, and reimburse himself out of the rent. The covenant to repair and deliver up demised premises at the end of a term extends to erections subsequent to the execution of the lease. Where a house is blown down by tempest, the law excuses the lessee unless there is a covenant in the lease to repair and uphold. A lessee's agreement should be qualified with the words "accident by fire, tempest, or the Queen's enemies only excepted." Repairs, alterations, &c., made by tenant become part of the freehold, and cannot be disturbed.

FIXTURES.—The movables are, steam or fire engines, barrels, vats, coppers, salt pans, pipes, limekilns, baker's ovens, trees and shrubs planted (for a *sale* by a nurseryman), but by a gentleman tenant are *not*, without special permission; a pump set up by tenant, fixtures temporarily attached to the freehold by screws, and which may be removed without injury to the freehold—for example, counters, desks, partitions, gas pipes, grates, ranges, stoves, and the like.

The *non-removables* are, stills, greenhouses, forcing pits, windows (? sashes), doors; solidly fixed to the building, arbours, summer houses, verandahs with supports in the soil. The act of 14 and 15 Vict., c. 25, s. 3, protects the tenant and provides for the removal of farm building, engines, machinery, &c., &c., erected by him, so as the removal do not injure the landlord's ground or buildings.

Monthly Railway Memoranda.

Omagh, Portadown, and Dungannon Line.—By this bill it was sought to make a line from the former to the latter place, with leasing powers over the Derry and Enniskillen. Several witnesses were examined for the promoters, including Messrs. Broughden, Charley, Allen, and G. W. Hemans, C.E.; and amongst those for the opponents were Sir H. Bruce, M.P., Mr. Minnet, Hon. Colonel Cole, M.P.; Hon. Augustus Jocelyn, M. Murland, the Earl of Erne, and Mr. Hawkshaw, C.E., who deposed "that he was building the bridge across the Foyle for the Londonderry Commissioners; it was at present a very good expansion, and would ultimately be a very commodious one; it was intended to form a communication between the two lines of railway; its cost would about be £60,000, and with the approaches £70,000. The bridge was so designed that hereafter the railways at either side could run their railways on to it. The proposed line from Omagh to Londonderry would certainly affect the interests of the bridge injuriously; a T line in general was an expensive and inconvenient one to work." The preamble was declared to be proved.

The House of Lords have granted to the Dublin and Drogheda Company, a line from Kells to Oldcastle, without allowing the Dublin and Meath Company the running powers which were sought by that Company, who are promoting a line direct to Dublin.

A contract has been entered into for the construction of a line of rail from Newtonards to Donaghadee, against January, 1861.

The House of Lords have thrown out the bill for authorising the sale of the Waterford and Kilkenny line to Messrs. Nixon and Co., which was promoted by the English portion of the board of directors, and opposed by the Waterford and Limerick Company.

Reviews.

Memorials of Workers. By George Godwin, F.R.S. London: Robert Hardwicke, 192, Piccadilly.

WITHIN a limited compass the author of this work (the substance of a lecture delivered recently at the Architectural Museum, London) has presented numerous cheering incentives to perseverance by those who daily toil with heavy heart and under a cloudy sky, little apparent prospect of brightness "looming in the distance." He cites as examples of what "perseverance under the most adverse circumstances *may* accomplish"—Bernard Pallissy, the potter, who burned the trellis-work of his garden, and the tables and boards of his house, to melt the composition, in endeavouring to produce enamels, yet, after 15 years, achieved his purpose, which brought him fame and fortune; Quintin Matsys, the locksmith, who wrought the beautiful iron work over the wall near Antwerp Cathedral, also painted the celebrated "Two Misers" at Windsor Castle; Sir Richard Arkwright, "the subterranean barber," the inventor of the cotton machine; Sam Crompton, who played the violin at Bolton theatre for 1s. 6d. per night, to enable him to procure tools to make his spinning-mule, and to whom government subsequently assigned £5,000 as a national reward; Jacquard (the loom inventor); the brothers Gobelins (tapestry of universal fame); Brindley; James Watt; George Stephenson—with whose history the world is familiar; James Tassie, the Glasgow modeller and medallist; Josiah Wedgworth, the potter; Flaxman, the greatest English sculptor; Hogarth; Clint and Turner, artists; Sir John Soane, architect—Dance's errand boy—who rose to fame, left a large fortune and a remarkable collection of books, prints, pictures and antiquities for the benefit of the public; John Britton, Architect, author of the "Cathedral" and "Architectural Antiquities", who as a lad bottled wine eleven hours a day for six years in a dark, cobwebby cellar in London, and then, stealing out at night to visit the book stalls, read a bit on the sly; the late Thomas Cubitt, in 1808 a carpenter without 6d., in 1855 died, leaving some *two millions* of money behind him; George Mickle Kemp, the working mason, the designer of the Scott monument at Edinburgh; Chantrey, the great portrait sculptor, who carried out milk in Sheffield; Mr. John Thomas, Sir Joseph Paxton, M.P.; and a dozen other men, who have taken their place in society and are worthily aiding its progress. The working classes and the public generally owe much to Mr. Godwin for this instructive little work.

An Essay on the Oriental Bath. By Edward Haughton, M.D. Dublin: William M'Gee.

This pamphlet, from the pen of a gentleman whose name is already known to our readers as the contributor of valuable papers on kinkred subjects, details the *modus operandi* in vogue in Oriental countries, and the sanitary effects of the bath on the human frame. The author does not like others advance opinions hap hazard, but speaks from experience founded on personal observation in "the City of the Sultan" and elsewhere. Though the magnificent establishments at Lincoln-place and Bray may by their architectural show surprise the optical faculty of the "Western" and by the completeness of their appointments minister more perfectly to the luxury of the baths; yet in principle they are identical with the old Irish sweating houses, and present nothing of novelty whatever. Their re-introduction, however, has been followed by an enthusiasm almost amounting to a *furore*. We quote the following from the pamphlet:—

> "In the bath we have a pleasure which is not a vice,—a luxury which does not tend to shorten life; which may become universally obtainable; and which, as soon as there is sufficient demand for the article, to give encouragement to capital, must inevitably become cheap. It is the best purifyer of the blood; for even poisons can be thus eliminated in large quanties. . . . It is the best of all cosmetics, for the Mussulman scarcely knows of the existence of these loathsome skin diseases which never reaches the chronic incurable stage which it does with us; and gout itself is known only as a disease of the Franks."

Miscellaneous.

Opening of New Buildings.—The extensive block, some two years in course of erection, adjoining the Four Courts, and intended, as previously noticed, for the Landed Estates Court purposes, has been completed, and will be opened for the transaction of business on the 12th instant. Externally they present little interest architecturally, but bear a suitable and substantial aspect, and harmonize well with the other portions of the quadrangle. Internally the arrangements of the courts and offices, halls, corridors, &c., are suitable and commodious, and the whole erected on a fire-proof principle, and with due regard to ventilation and heating, about which the judges of the courts have recently given officials so many rubs. A consummation devoutly to be wished for has been effected by these structures in the consequent removal of the "nodding" piles about Pill-lane, and which now have been auctioned off as old materials. The plans were furnished by and the buildings erected under the superintendence of the Board of Public Works' architect and clerks; Mr. Meade, builder. The new commercial mart (also already described in the Dublin Builder) is completed, and, though its exterior is perhaps less pretentious than others in the city, it is bold, effective, and suitable to its purpose; the internal arrangements are likewise good, and we congratulate the architect, Mr. Rawson Carroll, on the successful realization of his design, the first of any importance as yet erected by him in the city. Mr. Meade was the builder of this likewise, and, as usual, executed his contract creditably.

Portpatrick Harbour.—Mr. Abernethy, C.E., states that the works proposed for the rendering of this harbour suitable for improved transmission to Scotland, *via.*, Dumfries, can be completed in a period of twelve months after commencement, any excess on the total cost of £20,000. It is proposed that Mr. Abernethy should be engineer in chief at £600 per annuam.

Dangerous Edifice.—The Lord Mayor received a letter from Messrs. Cane and Sons, calling attention to the dangerous state of the house No. 66 Dawson-street. He sent the letter to the engineer, who looked into the matter; and he has since received another letter from Messrs. Cane, to the effect that the house was in a most dangerous position. The house is to be taken down, and there are many others that demand a similar course to be adopted, out of regard for individual and public safety.

Dwellings for Labouring Classes.—Sir William Somerville has introduced a bill to extend the act to facilitate the improvement of landed property in Ireland, and the acts amending the same, to the erection of dwellings for the labouring classes in Ireland.

Machinery.—We are requested to mention that the shafting and *first* motion wheels of the engine at Messrs. Martin & Son's Saw Mills were—as well as the engine noticed in our February number—constructed by Mr. Victor Coates, of Lagan Foundry, Belfast. Two steam-engines of 50 and 25 horse power respectively, besides boilers, &c., have been erected lately by the same manufacturer at the Greenmount Spinning Company.

The Leeds Town Hall.—Recently the scaffolding has been entirely removed from the completed tower of the Leeds Town Hall, and that edifice now presents itself to the eye in all its noble proportions and exquisite details. The hall itself forms a very elegant parallelogram, with a noble vestibule of Corinthian columns, and a correspondingly rich colonnade on the eastern side, which is generally seen together with the front. This construction of the hall was necessary to the perfect arrangement of the interior. The columned tower is original in its design; its height is 225 feet, and it soars above all the other towers and spires in the town, so as to be visible in almost every part of our large borough (which extends 7 miles by 5, with much of hill and valley), and to catch the eye of the traveller approaching Leeds, as the one great feature of the town. If the exterior of the Town Hall deserves so much praise, the interior (that is, the Victoria Hall) is equally elegant, rich, and noble. We are not aware that there is anywhere a hall of finer proportions, or more tastefully and richly adorned. Altogether this is certainly the queen of town halls, and it deserved the historical honour of being inaugurated by the Queen of England.—*Leeds Mercury.*

Progress of St. Louis.—The statistics of buildings erected in St. Louis, for ten months previous to November 1, show an aggregate expenditure of 7,173,000 dols. This amount does not include the appropriation for the Court-house, of 125,000 dols., nor the amount expended this year on the Lindell House, of 150,000 dols. The number of buildings erected is 2,450, of which 2,346 cost less than 20,000 dols. each; twenty-nine cost 30,000 dols.; five 40,000 dols.; five 50,000 dols.; three 60,000 dols.; one, 90,000 dols.; and one 100,000 dols. The assessed value of real estate is over 10,000,000 dols. higher than last year. There have been built this year 24 miles of street railroad, at an estimated cost of 192,000 dols. They employ 95 cars, 300 men, and 784 horses.

New Theatre at Milwaukee.—The new theatre in Young's Building, will be done in about two weeks. It is a gem of a place, will seat comfortably 800 or 900 persons, and will compare favorably with any theatre in the West, for convenience or beauty.

TENDERS

For building Male and Female Schools in connection with Ballymacarrett Presbyterian Church, Belfast, W. T. Matier, C.E., Architect, quantities not given:—

Thos. Magee	£568	0	0	
Samuel Crawford	485	0	0	
John M'Creery	441	0	0	
James M'Cracken	440	0	0	Accepted.
Joseph Croft	435	0	0	
Samuel M'Morran	345	0	0	

H. J., Newry (A greater depth *would* be desirable, to guard against a possible contingency; but we do not anticipate fracture if executed as provided. In *any* case a relieving arch would be very desirable.)

NOTICE.

Post-office Orders and Remittances should be made payable to Mr. Peter Roe, 42, Mabbot-street, Dublin.

☞ *NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the* Dublin Builder." *All other Communications should be addressed to the "Proprietor and Editor,"* 17, Lower Gardiner-street.

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Genuine White Lead, best manufactured Zinc Paint. Pure Raw, Boiled, and Refined Linseed Oils. Fine American Turps, Rosin, Pitch, and Stockholm Tar. Ground Paints of all colors, Patent Dryers, Red Lead and Putty. Gold Size, Torch Oil, Coal Tar. Black, Red, Pine, Oak, and Copal Varnishes. Unadulterated Colza, Petroleum, Phenola, Photogen, and all Lamp Oils. Superior Olive, Lard, and Sperm Oils, for engine use. White and colored Cotton Waste. Best Glue, Russian Tallow, Cart Grease. Paints to any color, mixed ready for use, in small and large quantities, to order, well adapted for the country and exportation. Export orders promptly executed, with goods of *best quality.*

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BUILDING SITES FOR DETACHED HOUSES—BRAY RAILWAY.

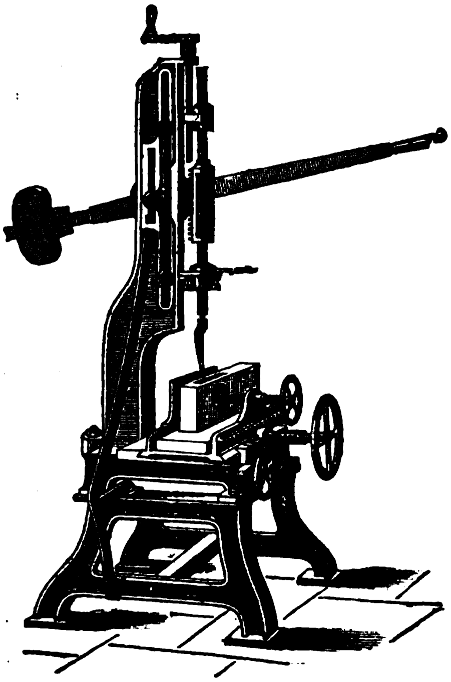
THE Lands of GALLOPING GREEN, FOXROCK, and KERRYMOUNT, are being laid out for Detached Houses, and will be Let in Lots, from One Acre to Ten Acres each, on moderate terms. They are very elevated, and command magnificent sea and mountain scenery; are within Two Miles of Kingstown, and within Three Minutes' walk of the Stillorgan Station at one end, and of Carrickmines at the other, besides which, in order fully to develop these beautiful sites, the Railway Company have arranged to establish a Station on their Line at the centre of Foxrock, from the 1st of September next. Omnibusses will ply between same and Kingstown, for bathing, shopping, &c., as soon as the first 12 houses shall be fit for occupation.

Several Lots are already Let, and some of the Houses nearly finished. Lease 900 years.

N.B.—Superior Bricks, Stone, Sand, and Lime on the Lands, and will be given to the Tenants on very moderate terms.

Lithographed Maps, showing the New Roads, &c., and all further information, may be had from the Steward, at Foxrock; Mr. W. W. Bentley, Foxrock Lodge; or at Messrs. Bentley's Offices,

110, GRAFTON-STREET, DUBLIN.



JOHN CLARK'S
MORTISING MACHINE
(GREEN AND JACKSON'S PATENT).

MAY be seen at work with Messrs. Cockburn, Crowe, Meade, Moyers, Kelly, Geraty, Kennedy, T. H. Carroll, J. H. Carroll, Roberts, Bolton, G. Farrell, R. Farrell, Douglas, Hughes, Alford, Rooney, M. Lynch and John Hogan, Builders, DUBLIN; Messrs. Rogerson, Dawson, and Russell, Railway Carriage Manufactory, Atlas Works, Dublin; Great Southern and Western Railway Co.'s Works, Inchicore; at BELFAST, with Messrs. Fulton, Carlisle, Lowry, M'Creary, Kent, M'Cracken, the Belfast Ship Building Co., and John Ross; at CORK, with Messrs. Hill, Evans, Joyce; at LONDONDERRY, with Messrs. Boyd, Brothers. Testimonials from all parts of the United Kingdom.

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LEEDS.

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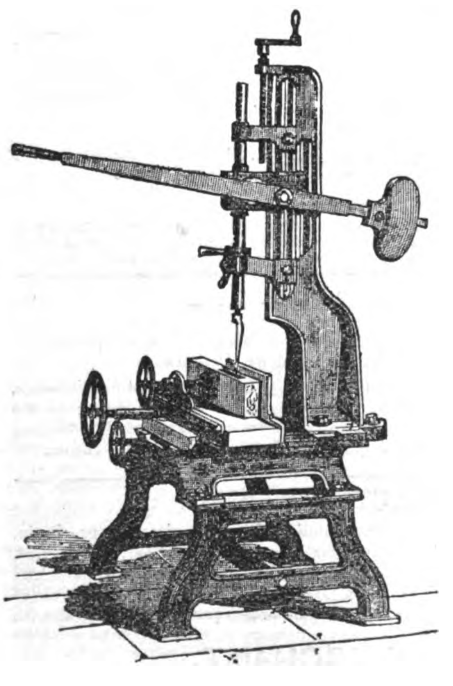

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This Machine has now been adopted in preference to *all others* by some of the principal Builders in London, Glasgow, Edinburgh, Dublin, and Belfast, who will bear testimony to its being the most powerful and efficient yet made

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Extract from the Report of the Royal Dublin Society's Spring Show, 1859:—

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Dunlo-st., Ballinasloe, May, 1859.

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The Apparatus will produce more Gas from a ton of Coal than any other, and can be so arranged in the erection that the Cooking of an establishment, of whatever size, can be effected without expense, no fuel being required beyond that used in making the Gas.

Particulars as to price, size, scientific merit, etc., and the most satisfactory reference to parties for whom it has been erected in this country, will be given by

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Prime Red Pine, of largest average and superior description.
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N.B.—This Cargo is one of the best ever brought into this market, and the Timber will be sold according to the established rule of the port—viz., STRING MEASURE.

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Roof Tile,	all sizes,	Fire Bricks and Blocks,
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WILLIAM GRAY, Secretary.

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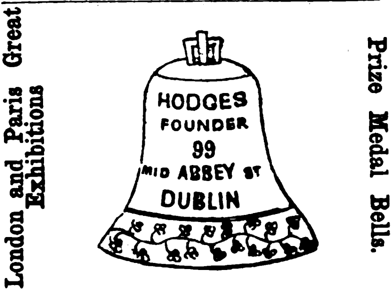

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ASPHALTIC ROOFING FELT, a light, clean, economical, and durable roofing, price 1d. per square foot. Samples and instructions may be had gratis in answer to letters from any part addressed to MAURICE BROOKS, IRONMONGERY, GLASS, & ROOM PAPER WAREHOUSE, SACKVILLE-PLACE.

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A railway station in the centre of the estate is in contemplation, bringing it within ten minutes' drive per rail of Harcourt-street.

A map of the lands, showing them laid out in building lots, can be seen, and every information obtained, at the offices of Edward Henry Carson, C.E., Architect, &c., 25, Harcourt-street.

TO BUILDERS.—TO BE LET, in RATHGAR, on the Roundtown-road, about 500 Feet of BUILDING GROUND, 260 feet from front to rere, at 4s. per foot. Also, in Rathgar-avenue and Beauchamp-avenue, 2,000 feet, at 3s. per foot. Lease 999 years. The situation is unquestionably the best in the suburbs of Dublin. Apply to Dr. BEAUCHAMP, 115, BAGGOT-STREET; or to F. ARMSTRONG, Builder, BAGGOT-STREET.

NEWBRIDGE—BUILDING GROUND. Several Lots of BUILDING GROUND to be LET in the rising and rapidly improving town of NEWBRIDGE, in the County of Kildare, including a most eligible site reserved for an Hotel, which is very much required in the neighbourhood, and which would be sure to have immense business, there being nothing of the kind capable of meeting the requirements of the large Cavalry Garrison at Newbridge, the Camp on the Curragh, and the crowds who come in summer for the reviews and races on that grand plain.

Newbridge is a most central position for the meets of the Kildare Hounds (being itself one of them), and is close to the Station on the Great Southern and Western Railway, and one mile from the Curragh.

For further Particulars apply to Ponsonby Moore, Esq., Moorefield House, Newbridge.

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TO be Let, on very reasonable terms, all that and those the Houses and Offices known as AIR LODGE, RATHMINES, containing every accommodation for a respectable family. Also the House No. 6, MARINO-CRESCENT, CLONTARF STRAND, having Parlours, Drawing-rooms, four best Bedrooms, Servants' Room, Water Closet, Kitchen, Pantry, &c.; Garden front and rere. These Houses are beautifully situated, commanding good views, with the advantage of the omnibus passing every half hour to and from Dublin. For terms apply to the Receiver, Edward Henry Carson, Esq., 25 Harcourt-street; or his Solicitor, Peter Lambert, Esq., 35, Lower Ormond-quay.

IBBOTSON'S IMPROVED OAK STAIN, for imparting to New Deal the appearance of Oak, and to New Oak the appearance of Antiquity.

It is about half the expense of paint, and is easily applied with a brush. Being an Oil Stain, it has the important advantage over all other stains of being impervious to wet. It produces a bright gloss, but if a high polish is required, the proper varnish can be applied. It requires no size or previous preparation of the wood.

The Stain (with the proper varnish, if required), of three shades—Light, Middle, and Dark—is sold in Bottles at 6d., 1s., and 2s. each, or by the Gallon, at 10s.

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92, BRIDE-STREET, DUBLIN.

NEW GAS REGULATOR AND PURIFIER.

MESSRS. DEFRIES & SONS, of London, having taken out a Patent for the above new Gas Burner, we beg to announce that we have just made arrangements with them for the special sale of it.

This artistic and complete Burner is the most economical ever introduced, and is the admiration of all scientific men, on account of the various qualities it possesses.

First—It purifies the Gas by filtration, and allows no more Gas to pass through the Burner than is absolutely required to give a full, clear, and brilliant light.

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Fourth—This Burner answers with any common nib, and is unerring in its operation.

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Sixth—Though last, not least—it effects a saving of 25 per cent.

Price 1s. 3d. each.

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LAMP MAKERS AND GAS FITTERS,
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PYRO-PNEUMATIC FRESH-AIR WARMING AND VENTILATING STOVE-GRATE;

ALSO HIS CELEBRATED FRESH-AIR WARMING AND VENTILATING FIRE-LUMP GRATES.

Being the only Fresh-air Grates that are formed entirely of Fire-lump, without any heating surface of iron, having the open cheerful fire, producing Healthful Warmth, with self-acting and unceasing Ventilation, requiring no attention whatever when in use.

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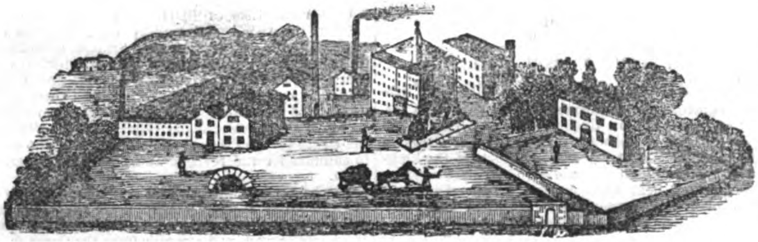

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Room Paper,
Roman Cement,
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Various specimens may be seen at their Warerooms,
11 AND 12, CORK-HILL, DUBLIN.

FOR SALE, at the WATERFORD SHIP YARD, Ferrybank, a very superior highly finished

NEW STEAM ENGINE,

Estimated at about 40 Horse Combined Power, which highly improved construction is admitted to be the most economical in the consumption of Fuel. Condensing Cylinder, 21 inches diameter, with 5 feet stroke. High Pressure Cylinder, 13½ inches diameter, with 2½ feet stroke.

This Engine has been built with the best materials and workmanship, regardless of expense, and is particularly well adapted for a Flour (or other) Mill. The very great falling off of late years in the supply of water-power renders it almost indispensable that auxiliary steam power should be attached to Flour Mills to ensure constant working of the establishment during the period of scarcity of water.

Further particulars can be had by application at the Ship Yard.

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GENERAL IRON FOUNDERS, GAS ENGINEERS, and WROUGHT-IRON TUBE MAKERS.

MAHOGANY BY AUCTION.

The Representatives of the late JOSEPH BOOTH, Esq., having disposed of the interest in their old established Mahogany and Timber Stores, 35, Golden-lane, to Mr. GRAVES HOLBROOK, by whom in future the concerns will be carried on, I am instructed to offer FOR SALE,

on TUESDAY, the 3rd of APRIL,
at Twelve o'clock,

20,000	feet of	Honduras Mahogany, in Log and Plank.
5,000	„	St. Domingo Table Wood.
5,000	„	Havanna and Pencil Cedar.
5,000	„	St. Domingo Veneers.
30,000	„	Oak, Ash, and Birch.

Pine in Log and Plank. Several Lots of Deals. The above contain a large proportion of Seasoned Wood, well worth the attention of the Trade. Terms Cash £25 and under; exceeding, approved Bills at four months. For further particulars apply to

J. BARCROFT, Broker and Measurer,
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AUCTION OF WOOD GOODS.

JOHN MARTIN AND SON
WILL OFFER BY AUCTION,
ON THURSDAY, 19th APRIL, 1860,
AT THEIR STORES, NORTH WALL,

A large assortment of Timber, &c., from their present large Stock, consisting of

Spruce Deals,
Pine do.
Red do.
Crown Memel,
2nd quality do.
Red Pine,
White Pine, and
Sundswall Timber;
Also

A Cargo of SPRUCE DEALS, &c., per "Empire Queen," now on the way from St. John's, N.B.

JAFFRAY BARCROFT, Broker and Measurer.
North-wall, Dublin, 24th March, 1860.

ON Wednesday next, the 4th April, at Eleven o'Clock precisely, on the Quay, east side of the Huskisson Dock, Liverpool,

284 Logs Honduras MAHOGANY,
now landing ex Isaac Webb.

4 Logs Honduras MAHOGANY,
ex Constitution. Apply to A. Glassford, Esq., merchant.

In the Wood Sales Sheds, Brunswick and Toxteth Docks,

50 Curls Honduras MAHOGANY,
now landing ex Mary Worrall, from Belize. Apply to A. Glassford, Esq., merchant.

247 Logs Mexican BAYWOOD,
being the cargo now landing ex Mary Miller, from Minatitlan.

On account of the importers.

153 Logs Cuba MAHOGANY,
77 Logs Havanah CEDAR,
1500 LANCEWOOD SPARS,
6 Tons COCUSWOOD,
now landing ex Helena, from Manzanilla. Apply to Messrs. B. Hall and Co., and to Henry Williams, Esq., merchants.

96 Planks Italian WALNUTWOOD,
ex Sicilian, from Ancona. Apply to Messrs. Kohn, Speyer, and Co., merchants.

146 Planks Italian WALNUTWOOD,
ex Venetian, from Ancona.

On account of the importers.

To which will be added various Parcels of Bird-eyed MAPLE, Pencil CEDAR, &c.

EDWARD CHALONER, Wood Broker & Measurer,
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MAHOGANY AND OTHER WOODS.

J. BARCROFT, Broker and Measurer, 42A, GREAT BRUNSWICK-STREET, begs leave to inform the Trade that the well assorted and seasoned stock of the late Joseph Booth, of 35, Golden-lane, will be SOLD by AUCTION, on TUESDAY, the 3rd of April, at 12 o'clock.

J. BARCROFT, Broker and Measurer, 42A, GREAT BRUNSWICK-STREET, begs leave to inform the Trade that he will have a very extensive SALE of TIMBER and DEALS, for Messrs. John Martin and Son, North-wall, on THURSDAY, the 19th of April, at 12 o'clock.

J. BARCROFT, Broker and Measurer, 42A, GREAT BRUNSWICK-STREET, begs leave to inform the Trade that he is now measuring a prime Cargo of MEMEL TIMBER, ex Oello, for account of Mr. JOSEPH KELLY, SIR JOHN ROGERSON'S QUAY.

J. BARCROFT, Broker and Measurer, 42A, GREAT BRUNSWICK-STREET, begs leave to inform the Trade, and others wanting to purchase at any of the above sales, and who cannot attend, that he will do so at a small commission.

J. BARCROFT, Broker and Measurer, 42A, GREAT BRUNSWICK-STREET, begs leave to inform the Trade that any Timber that has been measured by him he will inspect for the purchaser, and certify as to its correctness, free of any expense; and in case it has not been measured, at a charge of 8d. per ton. This, in many instances, would be a saving of 10s. per ton.

J. BARCROFT, Broker and Measurer, 42A, GREAT BRUNSWICK-STREET, begs leave to inform the Owners of Woods that he Measures and Values every description of Native Timber, and has at present a very extensive Wood for Sale.

The Dublin Builder.

Vol. II.—No. 17.

APPOINTMENTS AND *DIS*-APPOINTMENTS.

"BLESSED are they that expect nothing, for they shall not be disappointed," is so proverbially applicable to our individual self, as regards the two engrossing and still doubtful questions before the professional world—viz., the vacancies in the architectship of the Ecclesiastical Commission, and of the intended new Church of St. Andrew, respectively—that we are enabled the more dispassionately to review both in all their bearings. Scarcely were the cold remains of the late amiable and respected architect to the Board—Mr. Joseph Welland—laid in their last home, when gossip, with its many tongues, clattered about his successor. Rumours, as rife with improbabilities, and inconsistencies of supposition as the reverse, were circulated industriously; and letters, some of which, *at request*, we now publish—though without identifying ourselves with the authors' statements—were addressed to the morning journals on the subject. Architecturally viewing the nature of the appointment, it certainly ranks as number two in position of influence upon our national artistic advancement, and, in one regard, may possibly with some justice contest the palm with the official of a more extensive establishment associated with governmental constructions. If there be one class of edifices which more than another denotes a people's backwardness or progress, as the case may be, in civilization, it is the "Ecclesiastical;" *par example*, the temples of Egypt, Greece, and other countries, the glorious Christian piles of the European continent, and England's venerable cathedrals, with vaulted aisles and silent pointing spires, speak, "more than words could tell," *a history*, and more than ponderous tomes of antique records could divulge. Hence, in a national spirit, if not in a numerical, the capabilities of the successor to this post must be regarded, by the Commissioners especially, and will be by the discriminating section of the public. Whatever the result may be, clamour infallibly will arise, not amongst the professional competitors, whose abilities might entitle them to the office—for gentlemen would contemn the course—but with those garrulous, useless, busy-bodies, who meddle, and talk, and write for the sake of notoriety, without one particle of sincere feeling of interest in the issue. The Commissioners, however, confident of their own good faith, in selecting "according to the best of their judgment," will "lay the flattering unction to their soul" that they have fulfilled their task judiciously, and shrink not from expression of opinion. Difficulties beset their path—claims from old associates, prior to the extinction of the Board of First Fruits, and backed by influential archiepiscopal interest, and weighty voices of distinguished Privy Councillors are—as we learn—being earnestly pressed; again, important active services, rendered to the Commissioners in the department during a lengthened period, are suggested for consideration; testimonials, numerous and voluminous, accompany a host of other claims, from each province and across the Channel; and lastly, the able and faithful services of "the father" are sought to be recompensed in the person of "the son," his toiling partner and representative, intimately acquainted with the routine and duties of the office, and competent, as we are informed, to fulfil them with hereditary ability. How the Commissioners *will* decide, it is not for us to judge; but we confess to a presentiment that an old and respected member of the profession of the former class may establish his rights to a preference, while the latter—"the hereditary claim"—will, by arrangement, not be overlooked. Surely some of the candidates for this office could not possibly have been guided by sincerity in expectation of the result, either to submit their names or their qualifications to the Board? if so, we rather sympathise with their imbecility than otherwise. Had space permitted we should have enlarged on this subject, but are compelled to complete this portion of our article by publishing the correspondence in question.

The following has appeared in the morning and other local journals on this topic:—

An "Architect" writing to the *Irish Times* says—

> "Several architects of high standing and character are already in the field, and from the numbers and respectability of those looking for the office, it is evident that the great difficulty will be to select the *best* man out of so many. The profession in general (not only in Dublin, but also in Belfast and Cork) seems to be on the *qui vive*, being naturally anxious that a post of such honour, and one which exercises so great an influence on the architectural taste of the country at large, should be occupied by some member of the profession who will help to improve the style of ecclesiastical architecture throughout Ireland, and be an able and worthy successor of him who so long and so creditably filled the post. The clergy, also, from one end of Ireland to the other, must feel a deep interest in the matter. Nor should the public be indifferent in the selection, for there is no architectural position in Ireland whose occupier can more largely extend and cultivate pure architectural taste. As far as my connection with the profession enables me to judge, there seems to be but one feeling among them—that of deep regret for the loss of Mr. Welland, and a hope that in whatever arrangement the Commissioners may make, they will not overlook the decided claim of his son, who has assisted his father in this office for some years, and that the person who may be selected, in answer to the advertisement of the Commissioners (whether in conjunction with Mr. Welland or not), should be one fitted by education, talent, and prestige, to advance the interests and uphold the respectability of the profession."

Another to the Editor of the *Dublin Evening Mail* writes—

> "Sir—As many of my professional brethren are no doubt looking with anxiety to the issue of their applications to the Ecclesiastical Commissioners for the appointment of architect to their board, I consider it right to state that I am credibly informed that, even before the Commissioners' advertisements appeared, the appointment was virtually arranged, and that the person likely to be nominated is not a professional architect, and only served a few years to a country builder and measurer, and is at present a junior inspector in the office. If such an appointment should be seriously contemplated, nothing can show more clearly the necessity there exists for architects to unite to protest against this and other like infringements, and to uphold the character of the profession."

A "Churchman" to the Editor of the *Irish Times*, remarking that "the clergy must feel a deep interest in the matter," and that "the public cannot be indifferent in the selection," says—

> "I, as one of this great body, ask your permission to offer the following observations on the question:—Who should succeed the late Mr. Welland?—that is, who, to again quote your correspondent's words, is to be the "able and worthy successor of him who so long and so creditably filled the post?" It would, indeed, be desirable that his successor should be really an architect of "high standing and character," and also, let me say, a Churchman, and, if possible, in advance of Mr. Welland in the knowledge and development of ecclesiastical architecture. But this is precluded by the absurd condition prescribed by the Commissioners—that of requiring a total devotedness of time to their service—absurd, because of the miserable equivalent offered in the way of salary; to wit, £600. To obtain what they require the salary should be, at least, £1,000. For less than this no architect of eminence or character would forego his private practice. Hence it is that many who, at the first blush, did appear as candidates, have withdrawn, and others to whom public opinion pointed do not appear. The Commissioners have wisely delayed making a selection. They are in a difficulty. Under the circumstances above alluded to, they can hardly have before them the name of one single person who, from standing in the profession, as regards Ireland, or from known ability in any branch of art, should be appointed to the vacant chair. Their wisdom is, that in this their difficulty they delay. Delay will tire us—the public. We will cease to think, consequently to speak or write on the subject; and, after a sufficiently decent interval has elapsed, to have led us to imagine that the Chancellor and the Episcopal Commissioners had considered and agreed to the fact, we will open our eyes in wonder some fine morning as we read—what it is whispered has already been decided on—that Woodscrew Gimlet, carpenter, has been appointed architect to the Ecclesiastical Commissioners, vice Joseph Welland, architect, deceased. I may be wrong in my idea, but the conviction presses strongly on my mind, that in this appointment, I, as an individual, have a personal interest, position, and right. As a churchman, I claim to have a right in the possession of the house in which I worship—a right more superior than that I have in the house in which I reside, because of its more sacred character—and therefore I cannot be indifferent to the appointment which may throw the care of that house into hands unworthy to receive it. I would rather—and having spoken to many on the subject, am convinced, mine is the opinion of no small section of the church-going public—I would rather than that this evil should occur that no appointment at all was made, save what may be necessary to carry on the current business of the establishment, and that church-building parishes, of which, through God's goodness, we may hope for many, would only be required to look to the Commissioners for pecuniary assistance, and be, in matters of taste, left, as in the case of St. Andrew's, to the exercise of their own judgment."

The personal references embodied in these two last letters is, to say the least, unwise, and probably erroneously anticipatory.

The Committee entrusted with the carrying out of St. Andrew's new Church have opened their proceedings by at least a *semblance* of good faith, in permitting the competition drawings to be exhibited. If the course be suggested by sincerity, they simultaneously attain the double object, of additional assistance to their own counsels in courting public opinion, and, by allowing the authors the fullest publicity of their relative merits, they contribute a certain amount of gratification to their pardonable pride and ambition, though otherwise doomed to be *dis*appointed. Let us hope, therefore, for the sake of those immediately interested, and for the public at large, that it is so! Each author is represented by a motto, and, although to the gossippers in the gallery and to ourselves the paternity of each design is familiar, we nevertheless are reminded by a feeling of good taste and justice to preserve the *incognito*. In our judgment, the question of the *noblest* design and the *handsomest* drawing displayed has been indisputably solved by the authors of monogram "Shamrock in a circle." We have never seen at any exhibition, or in reality, a more beautiful conception for a parochial church. In this opinion we venture to add that Committee, competitors, and the public unite. But the authors frankly confess that it cannot, as shown, be executed for the money; what, then, is the alternative? Is it true that the Committee, as we are informed, called for modified drawings of the design—denuded of its beauties, curtailed in its proportions, the mere shadow of its former self—thereby giving a preference over those competitors who scrupulously adhered to the instructions, and give excellent, though not so costly or magnificent, designs, guaranteed not to exceed the stipulated amount? If so, we anticipate, to use our adopted term, no moderate display of *dis*appointment by the remaining authors of the favoured *six*, who, as nearly as we learn, stand in the following order: monogram, "Shamrock in a circle;" "Templa quam delecta;" "In fide et in bello fortis;" "Dum spiro spero;" "Excelsior;" and "Donec templa refeceris."

In the present stage of the matter we abstain from prejudicing the result, which we anxiously await. At page 247 may be found a more detailed notice of the designs.

NOTES ON THE ROUND TOWER CONTROVERSY.*

(Continued from page 231.)

Having thus given instances of the use of the terms locally applied to these remarkable structures, I would next direct attention to the mis-application of the word *Cloichteach*. I have before remarked the great importance attached by Dr. Petrie to the assumption, that this term, used in a certain number of places in the Irish Annals, signifies "a Round Tower belfry"—we shall see with what probability. The term is compounded of two words, *cloich*, a stone, and *teach*, a house. The term, then, *cloichteach*, would read "stone house," to distinguish a building erected of stone from those in general use, formed of wattles, logs, or built of sods,—such as were not only the private houses and cabins of the ancient Irish, but also a great many churches and oratories in the early ages of Christianity, not merely in Ireland, but in England. And, that buildings constructed of stone, whether churches or otherwise, should be distinguished from those composed of other materials, is extremely probable and natural: indeed, in our native annals they are so distinguished. Thus, the term *damliag* applied to a church, is exactly of the same meaning as *cloichteach*, from *daimh*, a house, a church, and *liag*, a stone. The compound name is given in O'Reilly's Irish dictionary, *daimhliag*, a church of stone.

The native annalists use a similar expression to designate wooden churches and oratories; the compound term, *dairtheach*, *duirthech*, &c., from *dair*, an oak, and *teach*, a house, "the oak house, or house of wood" [see Dr. Petrie's work, page 342]. So that we have here terms profusely used by our native historians, to designate religious structures by the materials of which they were composed; and we must, therefore, in analogy with these other terms, take *cloichteach* to mean stone house, and not a round tower belfry, as it expresses neither form, height, nor use.

That there were belfries at a comparatively early period in Ireland I will not by any means dispute; and that they were sometimes called *clogteach* is probable enough; and that the ancient Round Towers were turned into belfries on the introduction of church bells into Ireland, is more than likely; but I do dispute that there were belfries—that is, buildings specially erected for hanging church bells in—before the tenth century.

Indeed, the first notice that Dr. Petrie has been able to produce, of what he designates a round-tower belfry, is in the middle of the tenth century, and is, as follows, from Dr. O'Donovan's translation of the "Annals of the Four Masters":—

"A.D. 948. The Cloichteach of Slane was burned by the foreigners, with its full of relics and distinguished persons," &c.

Dr. Petrie maintains that this was a round tower. What is there in the term to designate its circular form, or its tower-like elevation? But the circumstance itself is very unlikely to have happened to, or in, a round tower. In the first place, there is not, and never was, in memory or tradition, a round tower at Slane; and secondly, how could a round tower be burned? It is a circular edifice of stone, with massive wall, stone roof, a small doorway at a considerable elevation from the ground, and a few small apertures for windows at a much greater height. What was there to burn? "The wooden floors and doors," suggests Dr. Petrie. But what evidence have we that the floors, *if any*, were of wood? None. We have not a scintilla of evidence that they were of any material but stone, if we can take as evidence the fact, that the only original remaining floors are of stone. Four of these floors remain in existence. Portions of two arched floors are at present to be seen in the Castledermot example; the first, of which nearly two-thirds exist, is about fifteen feet above the sill of doorway; of the second—which is about fifteen feet higher up—about one-third remains. They are constructed of rubble, cemented together by a most powerful mortar of extreme hardness; they have a rise of about thirteen inches in the centre, and the arch was about a foot thick; but its strength evidently depended more upon the solidifying property of the mortar than upon the disposition of the stones in the arch. These arches spring from projecting string-courses, and here we may see what the internal string-courses of the towers were intended for. These floors were destroyed for the *purpose of getting up the bells*, when this tower was converted into a belfry. The tower of Kinneigh, County Cork, has a floor formed of slabs of stone which "tail" into the wall. At Meeleck, County Galway, is an interesting example of one of these arched floors, given in Mr. Wilkinson's *Practical Geology and Ancient Architecture of Ireland*. The ancient Irish, who erected great stone forts, with stone lintelled gates and passages; who constructed underground chambers domed with stone, and intricate passages lintelled with the same material; who on the southern and western coasts constructed numerous buildings entirely of stone to the apex of the roof, on plans embracing the rectangle, square, circle, ellipsis, quadrant, and the form of the human eye; and who subsequently built their churches with stone roofs: such a people, I say, were not likely to put wooden floors in their stone-walled and stone-roofed towers. Indeed it is certain that many of the towers had no floors, as we have instances of towers without floors, string-courses, off-sets, joist-holes, or any provision for floors.

Under such circumstances, we must reduce the conflagration to that of the door itself, which would not make enough of a blaze to justify the annalist in the strength of his language. But if we consider the historian to mean here the stone house, or church of Slane, all difficulty vanishes. The sacred edifice has been in all ages, and among all people—Pagans as well as Christians—the refuge in time of public calamity and danger: thither they fled to be under the special protection of the Deity. The Church of Slane alone could contain the numbers of persons stated to have taken refuge. The roof, altars, doors, fittings, &c., offered alone sufficient food for the flames of a conflagration, attended with such results.

The next notice is, A.D. 995, as follows:—"A.D. 995—Ardmacha [Armagh] was burnt by lightning, both houses, churches, and *cloichtheaca* and its *Fidh-neimhed* [sacred wood], with all destruction." That the word does not refer to a round tower is evident to the simplest understanding; for how could a hollow stone pillar, stone to the pinnacle, be burned by lightning? Yet, upon such absurdities has Dr. Petrie erected his Christian theory. The appellation must refer to some other class of religious structure, connected with the large ecclesiastical establishment at Armagh. But, supposing that the word does mean a bell-house, or belfry, it does not imply that it was a round tower; it is very probable that wooden belfries were used here, as on the Continent and in England, at that and much later periods. It is absurd to suppose that where we had churches of wood we should erect belfries of stone 120 feet high, and almost as durable as pyramids. There is no round tower at present in Armagh, nor has there been in any living memory. At A.D. 1020 of the same "Annals," we have the burning of the *Cloichteach* of Armagh with its bells. It is utterly absurd to suppose that these repetitions of conflagrations refer to any but structures of a fragile and inflammable construction. The above passage records, I believe, the first mention of church bells in Ireland. Bells were in use previously, but they were hand-bells, used in church services as among the Egyptians, Romans, and Hindoos. There has been a great deal of archæological nonsense written about these bells, and a great many idle and superstitious legends recorded of them, and gravely retailed by a certain class of modern antiquaries. I believe that about this period bells to call persons to public worship came into use, though still confined to churches of eminence. As I have before stated, it is only reasonable to infer that the ancient towers were used as belfries (as indeed some are to this day) in those places where they existed, and that in other places appropriate bell-turrets, or bell-cots, were erected.

It is probable many of our earliest belfries were of wood; ancient ones of stone are also in existence, some of considerable antiquity. A triangular-headed bell-cot is found over the west gable of the ancient church of Roscrea, an example of early Romanesque. A similar one exists over the west gable of the very ancient church of Monainchs. A large triple bell-cot is found at Donoughmore, in close proximity to the Round Tower. The example at Roscrea is also within a few yards of the Round Tower. In a great many instances, belfries are found on churches of the thirteenth, fourteenth, and fifteenth centuries, in close proximity to Round Towers; an evident proof that the towers were not used as belfries, or considered suitable for that purpose. Square belfries of a remote antiquity are also found in Ireland.

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* By Richard Rolt Brash. From the "Ulster Journal of Archæology."

On Innis-clothran Island, in Lough Ree, is one as old as the tenth or eleventh century. A very ancient one is erected over the west gable of the little church of Cloghereen, near Killarney. Cormac's chapel, at Cashel, was commenced about the year 1100; it was consecrated in A.D. 1134. It is a small building, consisting of a nave and chancel, showing evidently that the magnificent Round Tower standing within twenty yards, and looking down majestically upon these things of yesterday, was not considered suitable for a belfry, or held in any particular veneration.

The remaining notices referring to "cloichteach," in the "Annals," are eleven, being altogether fourteen, commencing at the year 948, and extending to 1238. Of the above number of places thus noticed, Round Towers exist but at five. It is also remarkable that six notices record the burning of a "cloichteach," which I have shown to be impossible to a Round Tower. Two of these notices occur, one in the middle, and the other at the close of the tenth century; the rest occur in the eleventh and twelfth centuries, at a period when it is well known extensive monasteries and large abbey churches were erected such as Boyle, Jerpoint, Dunbrody, Ballintubber, Cong, Corcumroe, and others. These edifices are planned on the same principles as the Continental churches of the same period, and of dimensions not far short; consisting of nave, aisles, transepts, chancel, and numerous chapels, with massive square belfries over the intersection of the nave, transepts, and chancel.

The Irish language gives us unmistakeable terms both for bells and belfries; thus we have *Clocc*, *Clog*, a bell; *Clogachd*, *Clogas*, a belfry. If the Irish annalists, in the passages quoted by Dr. Petrie, intended to have expressed "belfry," they would surely have used some of the above terms, and not the word *Cloichteach*, which I have already shown means "stone house." And what do I find? Why, that the only notice of an authenticated belfry, and which is still in existence, and can be identified, occurs in the "Annals of the Four Masters," at A.D. 1584, where the *square* belfry of the abbey church of Quin, in the county of Clare, is called a *Cloccas*. The learned translator, in a note to the passage, says:—

"*The clocus of Cuinnche*, *i.e.*, the belfry of Quin. The word 'clogas' is *usually* applied to a round tower belfry detached from the church; but it is here evidently applied to the square tower of the great abbey of Quin, still remaining." How can the translator say "*usually* applied," when in the entire "Annals," there is not a single instance of the use of the term, except in this one instance, where it is used to designate a belfry, which happens to be a square one of the fourteenth century?

According to Dr. Petrie, the first notice we have of the erection of a belfry is in the year 965. The passage he quotes from the "Chronicon Scotorum," has reference to the erection of a "cloigteach," at Tomgraney: the word has an affinity to, and is derived from "*clog*," a bell; but whether the belfry, or bell-house was a round or square tower, or whether it was a tower at all, is very problematical. The only tower at present in existence at Tomgraney is a massive square one adjoining the church; but there formerly existed an ancient bell-cot on the west gable of this truly primitive building. Dr. Petrie asserts that a tower was in existence at Tomgraney forty years ago.

Now, I visited Tomgraney in the year 1852, accompanied by that eminent and laborious antiquary, Mr. John Windele, of Cork. We made the strictest inquiry respecting this fabled tower; indeed, to satisfy ourselves on this point was one of the principal objects of our visit; we procured the following evidence:—Peter Byrne, woodranger, aged over sixty years, "remembers the old church from his infancy, certainly over fifty years. Never saw a steeple or any portion of a steeple here; never saw any building like the round tower on Holy Island."[*]

Simon Hickey, an intelligent old man, and a Protestant, frequenting Tomgraney church all his life-time, stated "He was eighty-six years old, and never saw a belfry, round or square; never saw a building like the tower on Holy Island at Tuam (Tomgraney); it could not have been there unknown to him. Never heard the old people (his parents) say there was. He remembers a belfry on the west gable of the church, but it has been down for many years; and there has been no bell in it since his time."

That the word "cloichteach," does not *always* mean a *round* tower, is, indeed, admitted by Dr. Petrie himself, for, in quoting the erection of one at Annadown, A.D. 1238, he says,—"As there is no belfry now remaining at Annadown, it may be uncertain whether this 'cloichteach' was of the usual ancient round form, or of the quadrangular shape, and connected with the church, as generally adopted in Ireland at the period of the Anglo-Norman invasion." If, then, there is any uncertainty as to the meaning of the term in this case, every other is open to the same objection; and I certainly, for one, am not prepared to accept a theory based upon so flimsy a foundation.

The characteristics of the belfries belonging to parochial and monastic churches in Ireland, in the thirteenth century, are too well known to every student of Irish mediæval architecture, to admit the probability of a *round tower belfry* being erected at an era when church architecture received such an impetus, as it did at that period from the influx of the Anglo-Saxon invaders, and from the more immediate connection of the Irish church with that of Rome. From the year 1200 to 1260, were erected the following monastic houses:—Drogheda, Newtown, Lorha, Kilkenny, Youghal, Trim, Ballybeg, Buttevant, Athenry, Kildare. These buildings were erected in the first Pointed style; their towers were lofty, square, battlemented structures, poised upon arches between the nave and the chancel. The churches were from 140 to 200 feet in length, consisting of a nave with, and often without, aisles, a chancel, generally but one transept, with side chapels. The conventual buildings consisted of the usual domestic offices, surrounding a cloister court, and were very extensive, as the ample ruins still existing testify.

Before I conclude, I would wish to notice one singular fact. It may appear strange to the English reader that the Irish had no word to express a lofty and tower-like object; but such is not the case: the word *Tuir* s.m., signifies a tower, or castle. *Tor* s.m., a tower, a castle, spire, steeple. Welsh *twr*. [O'Reilly's Dictionary; see also O'Brien's.] It is, therefore, very singular, if the passages before quoted alluded to the Round Towers, that so appropriate a designation in every respect was not adopted. The word is frequently used in the "Annals of the Four Masters": thus, at A.M. 3066, mention is made of the demolition of the *Tuir* [tower] of Conain; and again, at A.D. 991, mention is made of "Taidhg of the *Tuir*." Dr. O'Donovan, in every case, translates it "Tower."

THE DESIGNS FOR ST. ANDREW'S CHURCH.

FOURTEEN competitors entered the lists, and, by arrangement of the committee, their designs, comprising 115 drawings, have been exhibited in an apartment admirably adapted for the purpose in the Royal Irish Institution, College-street. Commencing at the entrance doorway, and pursuing our course to the right, we view them *seriatim*, but must premise that all are Gothic—some very questionable indeed, and exciting sympathy for the authors' assumption of claim to consideration from an intelligent committee—also that there is a striking similarity in the arrangements of the plans *generally*, that all the authors are represented by mottoes, and, as a whole, that the exhibition is most creditable.

First impressions are said to be lasting, but we question if they are always favourable; indeed they are not so as regards the designs of "Finem respice," from whom we would have expected something better. "Fides," by a hand comparatively unknown, has its merits and demerits likewise. The perspectives are effectively etched, but the roofing timbers and the tower—too naked in the stages—with a squat spire, act detrimentally. The plan of this set is an oblong. It seems to be a pity that the author of "My Design," who is evidently of an aspiring disposition, did not cause his photograph to be affixed to each of his eight elaborate drawings, that his immortality might be the more perfect. His motto, "Except the Lord build the house, their labour is but lost that build it," suggests an amendment in his case which we prefer leaving to the *admiring* beholders to supply. "Resurgam"—either one or two shall we call him? for there are three, by a strange coincidence, but the third is a mere schoolboy (we hope) attempt at a something—has some excellent drawings, and his touches throughout proclaim a skilful hand. The same objection, however, applies to his spire as to that of "Fides," being abruptly terminated, and an unsuccessful imitation of a well-known example. His plan is cruciform, with nave, 98 feet by 24 feet; aisles, 52 feet by 13 feet 6 inches; transepts, apsidal, chancel, &c.; and variety of colour is sought to be introduced into the elevation by different materials. The author of monogram T in a circle displays ability, and his line engraving imitation perspective is very creditable, but the depressed transept roof and treatment of upper part of tower, are strikingly defective. We must not, however, put a young aspirant with ability out of conceit, and we freely admit that he has reason to congratulate himself. "Resurgam" occupies next compartment, but as already stated, "his room would be preferable to his company." "Delta" is not as happy in his design for this as in some of his previously-executed works, many of his features being too much cut up. His style, however, has some merit, but requires an amount of care in the treatment certainly not apparent here. The designs under motto "In fide et in bello fortis" are both good, but that estimated at £9,600 decidedly preferably to that at £10,760, though a less commanding spire—the treatment of which is nevertheless admirable—is provided for to save expense. The plan for both is substantially the same, comprising nave, 96ft by 26ft. 8in.; aisles, (breadth in clear of outer wall, 60ft.); transepts, 92ft. by 43ft 6in.; apsidal chancel, 88ft. by 26ft. 6in., &c. &c. About 1,003 sittings are provided, and the general arrangements are excellent. The author may congratulate himself on producing an admirable design throughout, and which is effectually developed by an able artistic hand, which though not practising at home is nothing less meritorious. "Templa quam delecta." This plan is cruciform, with apsidal chancel, south chancel, aisles, nave, and transepts. The dimensions are 137ft. 6in., by breadth across transept 77ft., and from aisle to aisle walls 55ft.; breadth of nave, chancel, and transepts, 27ft. 6in. The tower and spire—220 feet to vane—are placed at north side of the chancel, exactly opposite to Church-lane. The transepts have elaborate 6-light windows, of great height, on the three sides. The peculiar feature would seem to be the absence of any constructional chancel,—the total length being divided into ten bays of equal width, of which four are occupied by the chancel, and distinguished only by great richness of decoration, two by the transepts, and four by the nave and the unbroken roof of high pitch (a tie-beam with semicircular trusses). The shafts of the chancel are Galway marble, and the caps, strings, and roof principals are more elaborate than the nave. The entrances are by a tower porch and north porch, with cloister, occupying three bays of the nave in length, and by a west door. Eight drawings, cleverly wrought, but requiring close investigation to become acquainted with the style and features, are displayed under the motto, "Donec templa refeceris." The plan is a simple oblong, with semi-octagonal chancel, and aisles serving as passage-ways internally to the structure. The perspective accompanying this set is certainly the most striking pictorial effort in the exhibition, revealing the style of a well-known hand, an architectural artist, distinguished for his richness and warmth of colouring, with which, though fully admitting the artist's excellence in his style, we are not quite enamoured. A certain Byzantine shop front in Suffolk-street is introduced in perspective in the foreground, and contributes an effect to the picture not to be found in the original. We are slow to believe that this is amongst the most successful designs of the authors, and expecting great things, are confessedly much disappointed. The authors of monogram "Shamrock in a circle," display twelve drawings, including three external perspectives, which for beauty of design and execution are pre-eminent, and excite universal admiration. In the plan there are some peculiarities of proportion, the nave being only 82 feet in length by 29 in width, or about one third; aisles 25 feet in width; transepts, 100 feet by 25 feet; the chancel is apsidal. A cloister porch, with passage to the parish burial ground, a lych gate, some imaginary buildings (we presume schools) constitute, together with the exquisite features of the design, an uncommonly handsome picture. Divested even of its elaborate tracery, its flying buttresses, crooked pinnacles, &c., the outline and general features would still be most meritorious, and to realise their justly cherished hopes of success, and keep within or even near the prescribed mark, the authors would find this indispensable. Passing to the next – another "Resurgam"—the feasted eye labours under a difficulty to discriminate impartially, but must see merit here, and acknowledge it. On six sheets are plans and elevations, including a perspective. The plan is cruciform, with transepts and apsidal chancel: the tower and spire afford an excellent study, and the whole is a clever composition, such, indeed, as we *should* expect. In "Excelsior's" ten drawings are visible the hands of the architect and the artist; his perspective, though less pretentious than others, commands admiration for its intrinsic excellence; and his plan, which is oblong, with nave, aisles, apsidal choir, octagonal vestry, robing room, &c., has an additional aisle at part of flank adjoining the vestry. Next, and "though last not least," certainly is "Dum spiro spero" ("Dum spiro aspiro" would have seemed equally appropriate), next the entrance doorway, and eight drawings including some external and internal perspectives, admirably, though somewhat too warmly, tinted, comprise the set. The plan is cruciform, with nave 92ft. by 27ft.; aisles, 13ft. 6in. in width; transepts, 89ft. across; chancel, sacrarium, north and south chapels, vestry, tower (baptistry) &c. Coloured marble columns are introduced into the interior view, and the various features in the elevation, including a tower and spire some 200 feet high, present a most creditable and well-studied composition. Elsewhere in this number will be found further remarks upon this competition.

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[*] Inniscaltra, in Lough Derg, on which there is a fine Round Tower.

THE SPRING SHOW, ROYAL DUBLIN SOCIETY.

IN noticing this exhibition we must necessarily—to keep within our province—abstain from referring to many objects of interest to ourselves personally, as well as to the general public, and pass at once to the stands of the manufacturers. Messrs. Hodges and Son, of Westmoreland-street, Edmundson and Co., of Capel-street, John Maguire, of Dawson-street, and Saunders, of Dame-street, ironmongers, displayed a quantity of goods in their line which, for excellence of workmanship and variety of design, could not be surpassed. Hodges' prize cattle steaming apparatus. Edmundson's model of their patent apparatus now so extensively adopted for the supply of gas in gentlemen's mansions, &c., their washing machines and fire-proof safes (Milner's patent), Maguire's field gates and stoves (Gurney's patent), attracted much interest. Musgrave, Brothers, Belfast, occupied a very extensive area, and their stable fittings were peculiarly noteworthy, showing many recent and important improvements in construction; as also were their combustion stoves, their entrance gates and piers, their cast-iron portable summer-houses, smoking bowers, &c. The manufactures and designs of this enterprising firm will stand the test of comparison with those of any in the kingdom.

Booth, Brothers, of 8, Upper Stephen-street, sustained most creditably the old-established reputation of their name in the manufacture of mechanical appliances and requisites. We should specially notice their improved apparatus for erecting wire fence, their American patent wrench and felling axe, their grindstones on wrought iron axles, and various other ingenious contrivances. Messrs. Kennan and Son, somewhat in the same line, also had a very excellent and varied collection, comprising double action log and tooth billet saws, felling and splitting axes, tools for knotting fence wire, straighteners, strainers, jointed ladders, foresters' tools, Green's patent lawn mowers, &c., &c. Messrs. J. B. Brown and Co., of Cannon-street, London, occupied a most important position at the show, and their display of goods was very excellent, comprising chiefly cast-iron gate pillars, carriage gates, ornamental portable fences, wickets, garden stools and chairs, Medici vases, and Shanks' (Arbroath) patent hand, and pony or donkey power mowing, rolling, collecting and delivering machines,—a useful and ingenious invention, which we hope to see extensively adopted. In the matter of ornamental and plain entrance gates, strained wire fencing, cast-iron pig troughs, &c., &c., the eminent firm of Thomas Perry and Son, Bilston and Glasgow, occupied, as on many previous occasions, a prominent position.

Messrs. Francis Morton and Co., of Liverpool, displayed a variety of fencing of considerable merit, such as we should be greatly pleased to see introduced extensively in Ireland, in preference to the rude appliances, or in fact to any that we know of hitherto in vogue. Their stand was specially visited and carefully inspected, as well by professionals as the general public. Messrs. E. Hernulewicz and Co. also exhibited manufactures of this character, together with other goods of some excellence. Among the engineers we noticed—Smith, Brothers, Glasgow; Clayton, Shuttleworth, and Co., Lincoln; R. and J. Rankin, Liverpool; Barrett, Exall, and Andrewes, of Reading; Fry, Bristol; Hornsby and Long, Grantham; Picksley, Sims, and Co., Leigh, &c., &c. We should specially admire an ingenious India rubber valve pump, by Perreaux and Company, exhibited at the stand of Messrs. Ferguson and Co., waterproof garment manufacturer, Grafton-street.

ANOTHER EXHIBITION MANIA.

THE year 1862 is destined to inaugurate another great era in the industrial advancement of the age. England, ever foremost in the van of progress, will lead as before, and doubtless her previous imitators—France, America, Scotland, and our own little island—will speedily follow in her wake. Dublin, we are disposed to think, will not be behind, nor will her effort suffer by comparison with other capitals of equivent commercial status. Another "William Dargan" *may* not come forward, but we trust that as the great work of that noble-hearted philanthropist, though leaving wholesome results, has partially become only a matter of memory and pleasing reflection, in this next instance, the combined exertions of our well-wishers to national progress will effect a substantial and permanent realization of the Sydenham or *(in embryo)* Muswell Hill people's palace type.

Time and distance are daily yielding to the conquering hand of science, and facilities of intercourse in 1862 being increased ten-fold before those of '51, we predict that as commercial speculations the coming "great exhibitions" will be crowned with success, and as a display of the resources of civilized nations, will shine resplendent.

We learn with gratification that at the exhibition of the Royal Hibernian Academy, which will be opened in a few days, a varied and rich treat will be presented to the lovers of the fine arts. Her Majesty has been pleased to lend a large historical painting; Belgian and Flemish artists have contributed several works of merit, and there are nearly *one hundred* pictures by English and Scotch painters, while our native artists supply more and better works than on *any* former occasion. Such reviving symptoms, though to a large extent attributable to the inducements offered by the two Art Unions whose prizes will be selected from the collection, are also greatly owing to the energy and earnestness of the present officers of this Institution, with whom, in an especial manner, the names of George F. Mulvany and B. Mulrenin, the worthy treasurer and secretary respectively, are associated.

IMPROVEMENT OF THE CITY.

EACH month we are gratified to chronicle some new particulars which testify to the rapid progress of our metropolis and its suburbs; and the building season has now set in with every apparent prospect of its being the busiest yet, despite the patent facts, that money is comparatively scarce, discount high, materials of all kinds and provisions—both for man and beast—unprecedentedly dear, workmen scarce, and wages proportionately greater in consequence; and the old hackneyed phrase of "bad times," is as present now in grumblers' mouths as ever—yet, strange inconsistency, we prosper! Our suburbs are extending, green fields are metamorphosed into populous districts, antiquated shop-fronts vanish beneath the hands of "ye modern architects," commercial palaces are raised instead, ecclesiastical and other edifices of uncommon beauty adorn our thoroughfares, "bustle" is the word in every quarter, and the welcome sounds of the hammer and trowel are met at each step. The most significant statistical evidence of the progress being made is to be found in the recently-issued report of the Collector-General of Rates, which, considering the facilities at command of that official, may be regarded as an unquestionable authority. We must, however, remind the worthy Collector that he is indebted to the DUBLIN BUILDER as the original source of information for many items in his report, which through some inadvertence seem not to be acknowledged; but we pass it over without further comment. We subjoin a few extracts:—

"*Arran-quay Ward.*—In many portions property is much improved; but in the old business streets—Church, Barrack, and Tighe-streets, &c. — property seems rather worse, but on the *whole* a slight improvement has taken place.

"*Inns-quay Ward*—The private portion is very much improved; but in consequence of the extension of the Four Courts, many of the old business houses have been taken possession of, and the adjoining property has been much injured, with a prospect, however, of *ultimate* improvement.

"*Mountjoy Ward.*—This district has, in many instances, much improved; many tenements hitherto untenanted are now occupied. Although, in the poorer localities, there is no apparent change, yet all parties appeared to have full employment.

"*North City Ward.*—There is a manifest improvement here —business increasing, and tenants for vacant premises much easier found, at higher rents.

"*North Dock Ward.*—The improvement in the condition of this ward still progresses. The number of unoccupied houses has decreased from 132 in 1858, to 94 at the close of the past year.

"*Rotundo Ward.*—Presents a less favourable appearance than in 1858.

"*Fitzwilliam Ward.*—Still continues to improve. Many new houses have been built during the year.

"*Mansion House Ward.*—The same observations apply to the private streets in this ward.

"*Merchants'-quay Ward.*—There is little improvement.

"*Royal Exchange Ward.*—Improvements in this ward are going on steadily. Several houses are being taken down and rebuilt, exhibiting shops of a greatly improved appearence.

"*South City Ward.*—The same remarks apply to this ward.

"*South Dock Ward.*—This ward is much improved. Several premises on Sir John's-quay and that neighbourhood, which were idle some years, are now occupied by timber-merchants, builders, &c., and the building trade is more prosperous at present than it has been for many years in Dublin.

"*Trinity Ward.*—This ward is also improved. The attractions of new buildings, such as the Kildare-street Club-house, also the Turkish Baths, in Lincoln-place, are remarkable.

"*Usher's-quay Ward.*—There is no material difference here.

"*Wood-quay Ward*—This ward is improving."

The General Inspector reports as follows:—"The wards continue to present an improving appearance; in some it may not be so perceptible as in others. In Inns-quay Ward a number of houses in Old Church-street, Anderson's-court, Morgan-place, and Pill-lane, are now in possession of the Board of Works, for the purpose of extending the law courts.[*] A considerable addition will be made to the appearance of the city. Talbot-street, near the Drogheda Railway, has been much improved by the fronting of the hotel, and some new buildings. It is in contemplation to widen a portion of this street.[†] In the North Dock Ward some very desirable improvements are observable. In Beaver-street (a very poor locality) houses which have been in ruins for many years are now replaced by new ones, and a large dairy-yard; and the old vinegar works (ruins), in Sheriff-street, east, have been taken down, and four houses built on the site. More dwellings have been raised of late years in Church-road[‡] and the vicinity of Amiens-street than could have been anticipated from the nature of the site, it being, not long since, considered an irreclaimable swamp. An English proprietor is about building several cottages in this locality.[§] There is at present a row of houses building in a part of New-street. In Grafton-street, many of the old houses are giving way to modern structures, including another monster house, now near completion. Great Brunswick-street continues to improve. Another large plot of ground, similar to that alluded to in my last report, has been taken as a timber-yard, and at present workshops and other buildings are in course of erection on it. I have not observed this year that cleanliness so remarkable last year, and so essential to the public health. In the narrow lanes, courts, and alleys there is a visible indication of neglect. The soil is swept in heaps, and so left for future removal; whereas last year there were handcarts to carry it off at once. Three of the principal monster houses are, and have been, making additions and improvements to their premises. A gentleman connected with a heavy branch of the building trade (the marble business) has, within the last year, extended his workshops considerably, and erected a steam apparatus, the first employed in his line in this city."[‖]

It is calculated, amongst those best able to form a judgment, that the increase in value, in five years, has been 20 to 30 per cent. A tenant in Mountjoy-square, who paid £600 to be relieved from the responsibility of his lease, felt it an advantage to be allowed to remain in possession from year to year at his old rent of £110. A house in Rutland-square, the interest of which was purchased in the Encumbered Estates Court for £400, has been sold for £1,100. Fines are beginning again to be freely paid. Houses are disposed of, at the south side, for £100 and £110 a-year, with fines of £300 and £400, for which less than the present rent would have been gladly accepted a little time back, without any fine at all. Furnished houses have had a large increase in value: one of them, in Merrion-square, was lately set for six months, at a rent of 350 guineas!

Our current number comprises—as also shall our subsequent—many items valuable for introduction into the Collector's *next* report, and we only ask, as a matter of justice, that when information is obtained through us, it may be so acknowledged.

NEW FINE ART GALLERY IN NEW YORK.

H. W. Derby, Esq., of the Dusseldorf Gallery, has purchased a lot on Broadway, between Houston and Bleecker-streets, opposite Laura Keene's Theatre, on which he intends erecting a fine art gallery. It will be 34 feet front by 200 feet deep, running through to Mercer-street. It will be built in the Italian style, five storeys high, with marble front. The second storey arches will rest upon three Caryatides, or female figures, larger than life, and representing Architecture, Painting, and Sculpture. The gallery will be divided into separate apartments of sculpture, paintings by native artists, and specimens of foreign art. The interior will be heated upon approved principles, and furnished with waiting-rooms elegantly fitted up for the convenience of ladies. The first floor will contain one of the most capacious stores on Broadway, with basement and sub-cellar running through the entire length of the building. The gallery will be on the second floor—150 feet of it being lit by sky-lights—with 50 feet of the front portion of the building occupied as offices. The introduction of sculpture to the front of the building will be one of its chief characteristics, and, if we mistake not, will form a pleasing feature, and stand out in bold relief, among the architectural monstrosities and beauties which adorn the long line of our great thoroughfare. The architect is Mr. J. R. Hamilton.—*New York Architects' and Mechanics' Journal.*

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[*] See pages of DUBLIN BUILDER 164 and 241.

[†] See page 176.

[‡] See page 128.

[§] See page 161.

[‖] Mr. Alexander Ballantine, of Upper Dorset-street, is the person alluded to.

PROGRESS OF DERRY.[*]

City Improvements.—The streets and roadways have been considerably improved. The first local Improvement Act was passed in August, 1848, and a sum of £40,000 expended in flagging, paving, and widening the streets, erecting new water-works, and carrying out a general system of street and house sewage. In addition to those works, a new cemetery has been opened by the corporation, commanding a magnificent prospect of the Headlands of Inishowen, and the bluff basalt and limestone peaks of Magilligan and Benevenue. On an opposite eminence stands the city, visible on the west and south, crowned on the apex of the hill by the old Cathedral Church. There are 28 acres in the cemetery, 14 being already employed for sepulture. Under the second local Improvement Act, of June, 1855, an additional sum of £10,000 was expended in city improvements. Londonderry is well provided with extensive and commodious markets for every kind of produce, and has a powder magazine in a detached building about a statute mile from the city.

The Magee College stands on a commanding eminence on the west side of the Foyle, and a short distance from the city. The style is mixed Gothic and Tudor. It is 190 feet long by 58; and the front elevation to the top of the vane on the centre octagonal tower is 101 feet; height of front elevation of north and south wings to the finale of the turrets, 58. A central tower springs from the face of the hall above the main doorway, and is supported by groined arches of the most tasteful design and workmanship. The base of tower consists of an elaborately traced two-tier bay window, finished at top with ornamental finials. The octagonal tower consists of three steps or bays, each square of which has sunk and chamfered panels, with cusped heads and trefoils. The water-tables at the top are terminated with finials. From the embattlement of the main tower the remaining portion of the turret consists of a spire, resting on eight small turrets, with gurgoyles, finished with a vane, 7 ft. 8 in. high. A corbelled window is carried up from the face of the wall in the north wing, which is 38 ft. 9 in. high, by 12 ft. 11 in broad. The windows have label mouldings, and nondescript heads and gurgoyles. The cornice tracing, with nondescript ornaments, is carried round the entire front façade to the tower. In the front of the south wing is a two-tier bay window, 20 ft. 8 in., by 11 ft. 2 in. wide, which light the library. In the front elevation of the north, as in the south wing, are two tiers of windows, divided by mullions into three lights, six of which, with a corresponding number in the rear of the south wing, light the examination hall. In the south gable is a window, 12 ft. 8 in. in width, by 20 ft. 4 in. high, topped by a wheel window of neat design. On entering by the main door, there is first a spacious arched hall running across the building, and 16 ft. wide. Off the hall, in the south wing, there are the porter's room, vestibule, and robing room. From the vestibule, entrance is had to the examination hall, 72 feet, by 38 ft. 8 in. wide at the transept; height to ridge, 49 ft. 6 in.; and 33 ft. 5 in. to eaves. The roof is open, with principals supported on stone corbels, wrought, stained, varnished, and sheeted between rafters. Off the transept, and to the front, is the library, which is in two stories, reached by a neat circular staircase. From the grand hall, the apartments on the ground floor of the north wing are, the council and visitor's room, 21 ft. 3 in. by 12 ft. 2 in., whence there is an entrance to a corridor; and from the corridor there are entrances to a class-room for 100, 32 ft. 6 in. by 30 ft.; and to a student's room, 12 ft. 11 in. wide, by 38 ft. 0 in. long; and a class-room for 75 students, 18 ft. 10 in. by 29 ft. Off the corridor to the rear are the water-closets and back entrance. There is also a front entrance for students in the north wing. The grand staircase springs from the entrance hall, and leads up to the museum, which is divided into three apartments, lighted principally by the bay window in the centre tower. The space occupied by the museum will be 25 ft. 10 in. by 40 ft. Beyond museum, and in the north wing, is a corridor leading to a class-room for 50, 21 ft. 3 in. by 18 ft 6 in.; a class-room for 150, 48 ft. 9 in. by 29 ft. 3 in., lighted by corbelled window already noticed. To the rere are the laboratory, closets, &c. The front and ends, together with the wall of the tower, are built of Scotch sandstone, and in coursed ashlar; the rere is built in random ashlar of stone from a neighbouring quarry. The ridge is composed of ornamental ridge tile. The roof over the tower and north wing is truncated and finished round the ridge with spires and esplanading. The design is by Mr. E. P. Gribbon, Architect, Dublin; resident architect, Mr Stewart Gordon, County Surveyor; Clerk of Works, Mr. Arthur Kent; Contractor, Mr. Matthew M'Clelland. The cost of the building alone is about £8.000.

District National Model School.—Is built on an eminence, parallel with the County Infirmary, and overlooks the Foyle and northern portions of the city. It is in the Tudor style, and presents a front façade of three pointed antique gables, and two bays, perforated by several large windows of faultless proportion and elegance of design, finished with Gothic arched tops. A semi-Gothic window surmounts the bay window in the centre of the block. Entrance is had in the front of the building by a spacious hall into a corridor, which runs from the south wing to the entrance of the north wing. In the basement storey of the south wing there are the kitchen, larder, servants' room, scullery, and fuel store. On ground floor of south wing (which is the only part of the building having a basement storey and attic) are the pupil teachers' room, the book room, and the masters' sitting room. In the attic are dormitories for the master and pupil teachers, divided into eight apartments. Off the corridor already mentioned are, on the south side, two offices. There is a lavatory, &c., above these rooms. In the front of the main building is the maritime school, 18 feet square; the drawing school, 25 ft. by 18 ft.; museum and library, 21 ft. by 18 ft.; and the infant school, 48 ft. by 25 ft. At the rere of the main building, off the corridor, is the boys' school, 40 ft. by 50 ft., which will have an open roof, supported on a row of columns, 15 ft. high. To the right of this spacious apartment are the porch, and cap and cloak room for boys; the boys' class room, infants' class room, and girls' class room, with porch and cloak room for girls and infants, to the right. In the north wing is the girls' school-room, 48 ft. by 25 ft., with open roof, principals supported on antique corbels, as is the case in the other schools. From the boys' school there is an entrance by a handsome Gothic porch to the play-ground in the rere, which is divided by a wall from the play-ground of the girls and infants. The walls will have projecting coping to protect the children in wet weather. The ground plan shows a total length of 208 feet; width irregular. The schools will have open roofs, and are well ventilated. It was erected by the Board of Public Works, Mr. James Owen, Architect; clerk of works, Mr. Arthur Kent; contractors, Messrs. Boyd, of Derry There will be a circular double entrance of chaste Gothic design, fronting the Asylum Road, which will form a beautiful terminus to the new street to be erected on that thoroughfare. The estimated cost of all the works, when completed, will be near £6,000. This includes lawn, garden, &c., which cover about three acres.

The New Iron Bridge, Derry.—The contract for the iron-chambered bridge, now in course of erection across the Foyle, was entered into by Messrs Joseph Butler, & Co., Stanningley, near Leeds, in the summer of 1859, for the sum of £59,000, contingent on the piers being sunk to a depth of 60 feet, and £64,500 if sunk 80 feet below the bed of the river. Mr. Charles Pagett, practical machinist and engineer, directs the work. Four metal cylinders have been partially sunk. The first two, forming one pier, are near their permanent destination of 32 feet below the bed of the river; and the second two cylinders have been sunk 27 feet, but these have still to be driven a considerable depth. The cylinders are of cast metal, 11 feet in diameter, and at extreme width stand 35 feet apart. The span from pier to pier is 119 feet in the clear; and there will be eight piers, or sixteen cylindrical columns, independent of the massive pier of 30 feet in diameter, on which is to be placed the swivel bridge or turn-table, which will give an opening in the platform of 45 feet for the upward navigation of the river. The works are in a forward state for commencing the sinking of the third row of cylinders. When these piers shall have been permanently fixed on the solid foundation, which in many cases will be 100 feet to the rock, their cavities will be filled with concrete. Stretching from pier to pier, longitudinal girders of great thickness will span the intervening space, and these, with cross girders, will support a floor of solid timber, 6 inches thick, on which the permanent way for the railway will be laid. Springing from this platform, at intervals of 3 feet, are wrought iron crossbars, 8 inches double by 2 inches, with perpendicular girders fastened at the centre by 2½ in. steel pins, and at the lower and upper platforms with 5 in. steel pins. This forms a trellis-work on either side of the bridge, within which the railway trafic will pass. The piers are to be continued to the top of the trellis-work of the lower chamber; and the castings will show a semi-octagon pier, with trellis ornaments. From the flooring of the upper chamber, or ordinary traffic bridge, the piers will be continued, forming pillars, terminated by gas lamps. The floor of the upper chamber or bridge will be laid, as in the case of the lower chamber, on longitudinal and transverse girders. It will consist of iron plate flooring, covered with asphalte, and paved with oak timber. The handrail and trellis-work will protect pedestrians at each side, and taken in conjunction with the cornices and pillar lamps, terminating the massive metal cylinders on which the whole structure rests, will be ornamental in a high degree. The foregoing work is embraced in the contract of Messrs. Butler & Co., but the stone approaches at either side are not yet contracted for.

The new line of Quays, Graving Docks, &c.—In the memory of many still living the only thing presenting the appearance of a quay was a mud-bank called the Ship-quay, and the venerable "Wooden Wharf." Subsequently a number of docks and piers, with sea-fronts were constructed, and these joined to private wharves, were the sole accommodation for the shipping. The new line of quays were commenced in August, 1856, by Mr. M'Cormick, the contractor, under the direction of Messrs. D. and J. Stephenson, Edinburgh; resident engineer, Mr. D. Macdonald. At the present time there is completed a line of quayage of 2,817 feet, on the west side of the river; and there is contracted for, and in course of construction, double that length of quayage, in continuation, to the new Graving Dock. New approaches have been made to the quays, and there is not in Ireland at present a more commodious harbour. At the Waterside, a sea wall 1,300 feet is all but completed. The Harbour Commissioners have spent £25,000 on the improvements.

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[*] We are indebted for the heads of these particulars to the excellent Almanac published by our contemporary, the *Derry Standard*.

The Graving Dock, contracted for by Mr. Hugh Kinghorn, Leith, is a gigantic work for the Harbour Commissioners to undertake concurrently with the quay extension, but they are successfully carrying it out. The original contract was £17,701 7s. 3d.; but the dock has since been lengthened fifty feet, and the gross cost will not be under £20,000. It must be completed in 1860. The dock is 365 feet long, 50 feet in width at base, and 86 at feet top. There will be 18 feet water over the sluice at the gate at flood tide. To the dock there is an approach from the breast of the quay wall of 70 feet, and at the quay breast there will be 18 feet water at low tide. The work is of solid masonry, huge stone blocks being used in its construction. A part of Mr. Kinghorn's contract is the formation of 300 feet of sea wall and wharfage to the north of the Graving Dock, and 100 feet to the south, which will join the other contract. When completed, the quays on the city side will extend from the Enniskillen Railway Terminus to Pennyburn, near the Buncrana-road.

River Improvements.—Arrangements are being made for dredging the Flats, and cutting through Cutmore Point. A powerful dredging machine is being constructed for these purposes. The dredge will be kept at the Flats during the summer months till the work is completed, and in the winter months it will be used deepening the river opposite the quays, so as to increase the draught of water. The Commissioners are also empowered by their act to straighten the channel in Ross's Bay, and to clear away the sand banks which cause the navigation of the river to be a little tortuous at that point. This, we believe, will be the last extensive work executed by the Port and Harbour Board. The cost of deepening the Flats, &c., will be about £30,000. Mr. Macdonald, resident engineer.

A LETTER FROM LONDON.

The Conduit-street new rooms—Professor Donaldson on "the arrangement of a Roman consular house," &c., "and the scrubbing and currycombing of the Turkish bath"—the Duke's and Nelson's monuments—light and delight—a model.

London, April, 1860.

At home, and having dined "unscathed," it might have been pardonable to let well alone and remain there; but Shakspeare, I think, has rightly said, "the love of labour physics pain,"[*] and the service of my beloved architecture is ever a pleasure, so I was soon on my way to the new rooms in Conduit-street, soliloquising Cato:—

> "'Tis not in mortals to command success;
> But we'll do more, Sempronius, we'll deserve it."[†]

Now what is called the *movement* in architecture seemed at first to be of a retrogade tendency, at the rate of two steps backward for one forward, and, as the *Examiner* said of the volunteers the other day, "how to get into the right groove after a start in the wrong one is the difficulty;" but the difficulty will, no doubt, be fairly overcome and the interests of art subserved.

There are among *architects* in every city those who like to speak upon *every* subject and to talk upon *every* occasion, even in your own dear Dublin, where I am reminded of *one* especially, and must exclaim of him, that

> "He *will* talk—ye gods, how he *will* talk."

while the grave endurance of the hearers affords a *rich* exemplification of the line—

> "How *poor* are they that have not patience."

Professor Donaldson is a frequent speaker, but his remarks are usually pertinent to the subject, and so rendered as to leave one indebted to him. They could rarely be better given by another. The treat which drew me out was a lecture by him on a most interesting subject, "The arrangement of a Roman consular house, and the every-day life of a Roman patrician," at the Architectural Exhibition—one of the forward steps of the movement just mentioned, and which appears to be an institution in its own right. It is a good feature of the London lectures that they commence punctually at the time prescribed, and, being a few minutes after it, the business was "on" at the time of my arrival last night. The scene was most elegant.

The access to the room is a descent of a few broad steps, and I noticed one or two of the designs from the late competition for the Duke of Wellington's monument in St. Paul's, which makes me pause just to say that none of them are to be executed. Perhaps you may recollect that when Nelson's monument was to be competed for, architects as well as sculptors, in fact anyone, might submit designs, and an architect succeeded. But in the Duke's case patronage was laid open to sculptors only; but now, when all this has been done, and premiums awarded, the services of an architect are quietly called in! The Duke would not have thus read the motto, *Palmam qui meruit ferat*.

But to return to my subject. At the foot of the steps is the entrance to an ante-room, through which you pass into the principal gallery. This apartment is of an oblong form, lighted from the top, according to the mode suggested by the Glyptotheck at Munich, and since followed in many instances with great success, of which one example at the Brompton Museum has impressed me very strongly. The roof or ceiling in Conduit-street is semicircular, and the central portion is of glass, so that no shadow is cast upon the walls and pictures. At night, rings of gas jets under the skylights produce the same effect, and pictures, like other beauties, are seldom injured by the change. The floor was subdued by some greenish carpet, where passing room to the chairs occupied by the closely packed audience revealed its existence, and so took nothing from the walls, but allowed the eye to range uninterruptedly over the specimens of art arranged upon them. Besides the works proper to the Exhibition, there were the illustrations pertaining to the lecture. A plan of a Roman house, with its courts, enclosed gardens, and surrounding shops—for the ancient nobles were not indifferent to the revenues thus obtainable—and, besides those which were let to tenants, some were filled with the produce of the owner's farms, the wine, oil, and other produce of which might be had, as we should say, direct from the grower. A section of the house, showing the colonnades, courts, and upper arrangements, with the apartments for ladies, who, although maintaining a certain familiar intercourse with each other, lived in comparative seclusion—no parallel to the *soirée* and ball of modern times being then known. Hospitality expended itself in banquets, followed by performances, in which the family and guests were only spectators, and consisting of music, dancing, wrestling, gladiatorial combats. I can, however, only further mention the plan of some baths, in which the professor recounted with admirable pleasantness the sudorific stages of a Turkish bath, in which he was so rubbed and scrubbed, shampooed and currycombed, that the wonder was he should have survived to delight his hearers with so instructive and entertaining a discourse, and to afford so gratifying an example of the modern patrician.

OBITUARY.

We have to announce the demise, at a very advanced age, of the head of the respectable firm of Messrs. Beardwood and Sons, builders, in this city. The deceased executed several important works—amongst others, the extensive alterations and additions at Maynooth College, and was highly respected for his integrity. The remains were attended to the grave by a number of both architects, builders, and tradesmen, besides friends and relatives, and the funeral was one of the largest ever seen in this city.

LAW NOTE.

Bolton v. *Tyrrell, and Tyrrell* v. *Bolton.*—These two actions were referred to the arbitration and award of Mr. W. Murray and Mr. E. P. Gribbon, architects, with power to choose an umpire. The matters in dispute consisted respectively of amounts claimed for work and labour by Mr. S. H. Bolton, a builder, and a cross action for delay and consequent damages—referred to arbitration from the Court of Queen's Bench. The award on both issues was in favour of the builder.

WAR DEPARTMENT.

Mr. Michael Walsh, of Foynes, is declared the contractor for the works at the Shannon Forts, on the Carrig and Scattery Islands.

Tenders are about being taken in for a chapel school in Newbridge Barrack.

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[*] Query for Shaksperian commentators: "The labour we delight in physics pain."

[†] "The less I deserve the more merit in your bounty."—Shakspeare.

SCULPTURAL ART.

"ARCHITECTURE" and her twin sister "Sculpture" advance by steady paces in our ecclesiastical edifices, and in addition to the particulars of various works in the latter department already chronicled in this journal, we feel pleasure in drawing special attention to the carving works at present in progress at Messrs. Hardman and Co.'s Dublin establishment. The grand high altar for Tipperary Roman Catholic Church is a noble work of art, and designed by the artists themselves. The width of the reredos is 27 feet, and the height nearly 30 feet; the groupings are beautiful, and represent respectively the sacrifices of Abel, Melchisedec, Noah, Abraham, Elias, and Solomon, each panel being 6 feet high by 3 feet 4 inches wide, surmounted by very rich canopies, supported on polished marble shafts of reddish colour. A figure of our blessed Lord, 6 feet high, in the act of benediction, and placed under a tall canopy, very richly crocketed and pinnacled, and supported by Purbeck green marble shafts, occupies the centre, with on the left a life-size figure of St. Michael the archangel, under a similar canopy, and on the right, St. Patrick, life-size—the squares between the canopies being filled in with the groupings above enumerated. This altar, we are informed, will, when completed, be the largest and most elaborate erected in the United Kingdom since the Reformation. The same firm are also executing a quantity of carvings for various churches in England and Scotland. The *employees* are mostly natives of Ireland, the juniors undergoing a systematic course of training in their respective departments, which, if adopted in kindred establishments, would materially enhance the artistic excellence of the rising generation.

ART UNION OF IRELAND.

THE day for closing the subscription lists to this national institution being near at hand, we would suggest to those who are not members already, to become such without delay. The first drawing of prizes was conducted in the most *bona fide* manner, to the perfect satisfaction of the members and the public, and, we with much pleasure also add, to the pecuniary benefit of the undertaking; but strengthened now by an immensely increased number of supporters, the inducements offered by the *second* drawing, which will take place on the 6th inst., are twofold The country lists virtually closed on the 30th ult., but members will be enrolled in the metropolis until the 3rd inst.

NORMAL AND MODEL SCHOOL BUILDING AT TORONTO, CANADA WEST.

THE schools are situated in the centre of an open square seven acres and a-half in extent, considerably elevated above the business parts of the city, and overlooking the bay from which they are distant about three-fourths of a mile. The legislative grant for the purchase of the site and the erection of the building was £15,000. The principal school has a frontage of 184 feet 4 inches, and depth on flanks of 85 feet 4 inches. The front is of the Roman Doric order of Palladian character, with central projection displaying four pilasters carried up two storys, and having a metoped and triglyphed entablature above, surmounted by a pediment, and with an open Doric cupola—to whose summit the height is 95 feet—forming a crowning feature. As a guide to the dimensions of the several apartments shown on the accompanying plan, we may state that the scale is 32 feet to an inch. The following are explanations of reference letters :—

A—Male and female student's staircases respectively.

B—Position of gallery above central hall.

C D—Entrances for male and female students.

In the theatre, which is designed to accommodate 470 persons, exclusive of the galleries, and including them 620, A B C denote the aisles and seats, the lecturer's platform being placed between B and C ; D D are the respective entrances to this apartment.

The semicircular corridor communicates with the model school and education offices (not shown in the cut) which have a frontage of 175 feet 6 inches by 59 feet 6 inches in depth, and comprise two large school rooms, one for each sex, 56 feet 6 inches by 33 feet, and capable of accommodating 300 children, together with 4 class rooms adjoining them about 17 feet by 15 feet 6 inches each, together with minor apartments.

On the first floor of the normal buildings are the museum—placed in central projection and communicating with the gallery over hall—two class rooms 56 feet by 36 feet at right and left of the latter, two others in each wing, a library, laboratory, master's rooms, &c. There are also in the basement story the residence of the janitor together with furnace rooms, &c., &c.

SANITARY SCIENCE IN GALWAY.

REFERRING to the sanitary condition of "the citie of the tribes," the local *Express* has the following able remarks, which in our devotion to the cause generally, and in good feeling for the well-being of that improving town—destined to fulfill a great mission of universal import—especially, we feel much pleasure in partly reprinting :—

We are all familiar with the formula that "Cleanliness is next to Godliness," and yet it is surprising how little we do to insist upon its general obligation. We are most of us satisfied if our Town Commissioners or Boards of Health take measures for the cleansing of our more public streets, but are generally indifferent as to the condition of the slums and passages of our large towns. Yet it is often in these reeking and overcrowded alleys that contagious disease originates, and thence spreads among the community. We have provided medical advice and assistance for those who are themselves unable to pay for it, and resting satisfied with curative expedients, we fail to take the precautions, which, if adopted in time, will render disease to a large degree impossible. No doubt people are jealous of any interference with their domestic arrangements, and we admit there are insuperable difficulties in the way of a public inspection of private houses. At the same time, every man should know that he has no right to keep his house in a condition that is dangerous to the health of his neighbourhood. If he be not careful in this respect, his house will become a public nuisance, and the law will interpose for the protection of the public. However, even in cases which the law cannot reach, it behoves every one of us to be active in the public behalf. To landlords and clergymen we would especially appeal. The former class can effectually enforce such sanitary regulations as are necessary, and we believe that watchfulness and remonstrance from the clergy of all denominations will prove most beneficial. They can advise not only as to the necessity of cleanliness, but also of those other principles of regimen, temperance and habit, which promote what may be called physical morality. Pure air, pure water, and temperance in eating and drinking, are the great hygienic rules, and their value cannot be too frequently enforced.

We have no wish, indeed we have no reason, to complain of the efficiency of our Town Commissioners, in respect to the cleansing of our streets. Under the guidance of their Reverend Chairman, we have of late observed a most laudable zeal in this direction, and it gives us much pleasure to say that their exertions have not been in vain. We have noticed a great improvement in the streets of Galway, and we believe that, at present, they are in as creditable a condition as in any considerable town in the country. As soon, however, as we leave the public thoroughfares, we find a condition of things far from satisfactory. There can be no doubt that various forms of disease are caused by the generation of poisons from decaying vegetable and animal matter. We regret to say that more than one of these diseases is now prevalent in Galway. Small-pox and measles are raging with more than usual virulence, and though they are to be found effecting all classes of society, it is to be feared that they chiefly prevail in those quarters where the producing causes abundantly exist. Happily, however, those putrid poisons which are so active in the production of disease, are, to a greater or less degree, subject to human control, and that control may be exercised more or less by every one of us. We cannot wonder that disease should be constant in the neighbourhood of a stagnant cesspool, and in the absence of everything like drainage. Introduce, however, a proper system of drainage, and the cause of complaint will no longer exist.

We are most anxious that some steps should be taken to improve the drainage and water supply of this town. Though there is abundance of water about the town, it is most inaccessible for domestic purposes—and what is even worse, it is, from the want of proper filtration, most unwholesome and disagreeable. We urgently press upon the inhabitants of this town the necessity of being active in this matter, and in the no less important matter of drainage. Even in an economic point of view they are important.

We are requested to state that Mr. Raffles Brown, Architect, was not one of the memorable quartette—*Brown, Jones, Smith*, and *Robinson*—alluded to at page 211, in the Rathgar Presbyterian Church affair.

The bricklayers of New York are on a strike. They gave notice that from and after the 2nd day of April they would demand two dollars per day, instead of one dollar and seventy-five cents, which are the present wages.

SYDNEY HOUSES OF PARLIAMENT COMPETITION.—The contour plan and general conditions may be inspected at the office of this journal.

THE LIBRARY
OF THE
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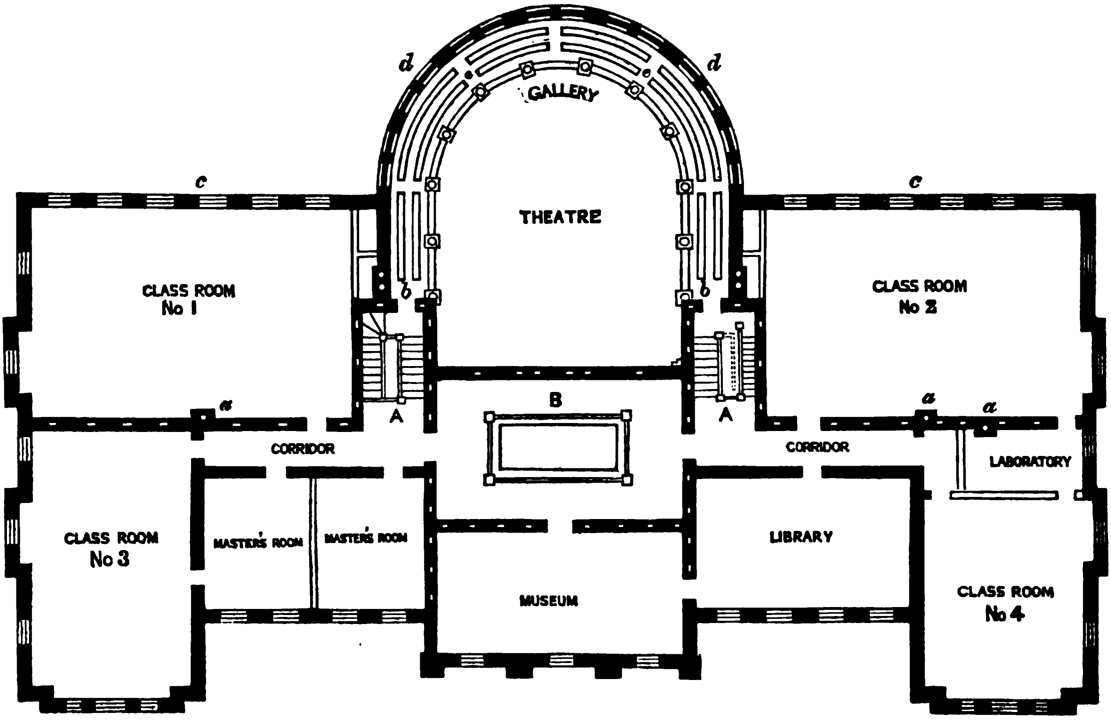
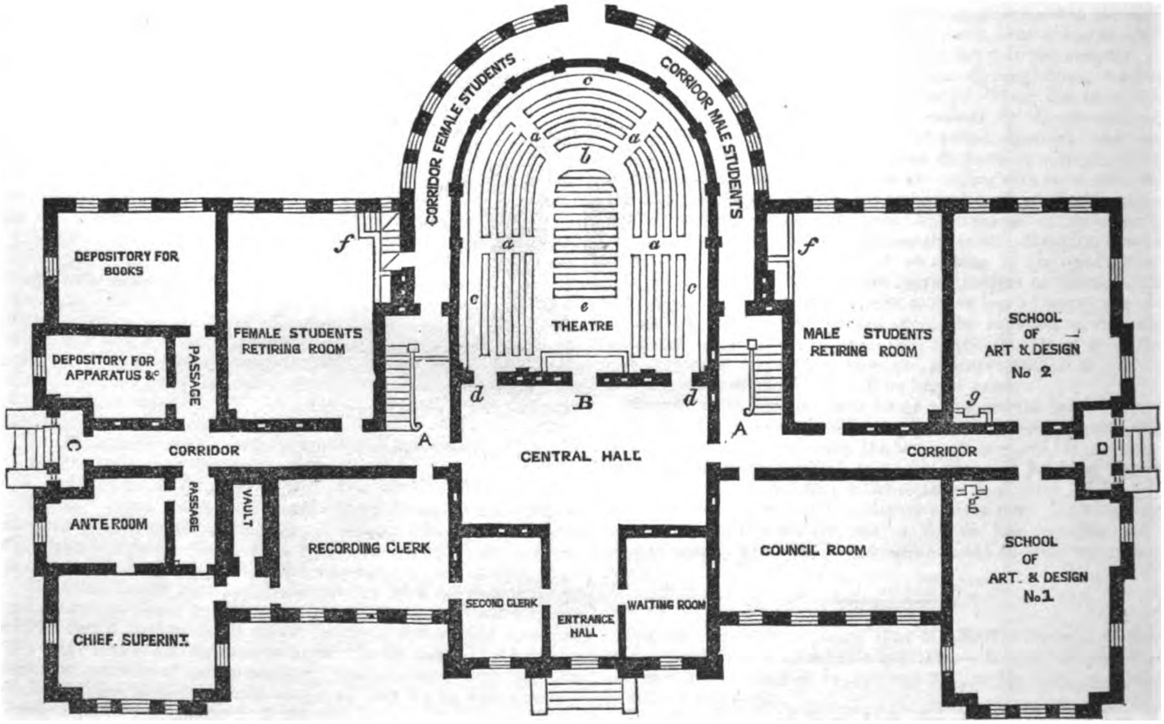
NORMAL AND MODEL SCHOOL BUILDING AT TORONTO, CANADA WEST.

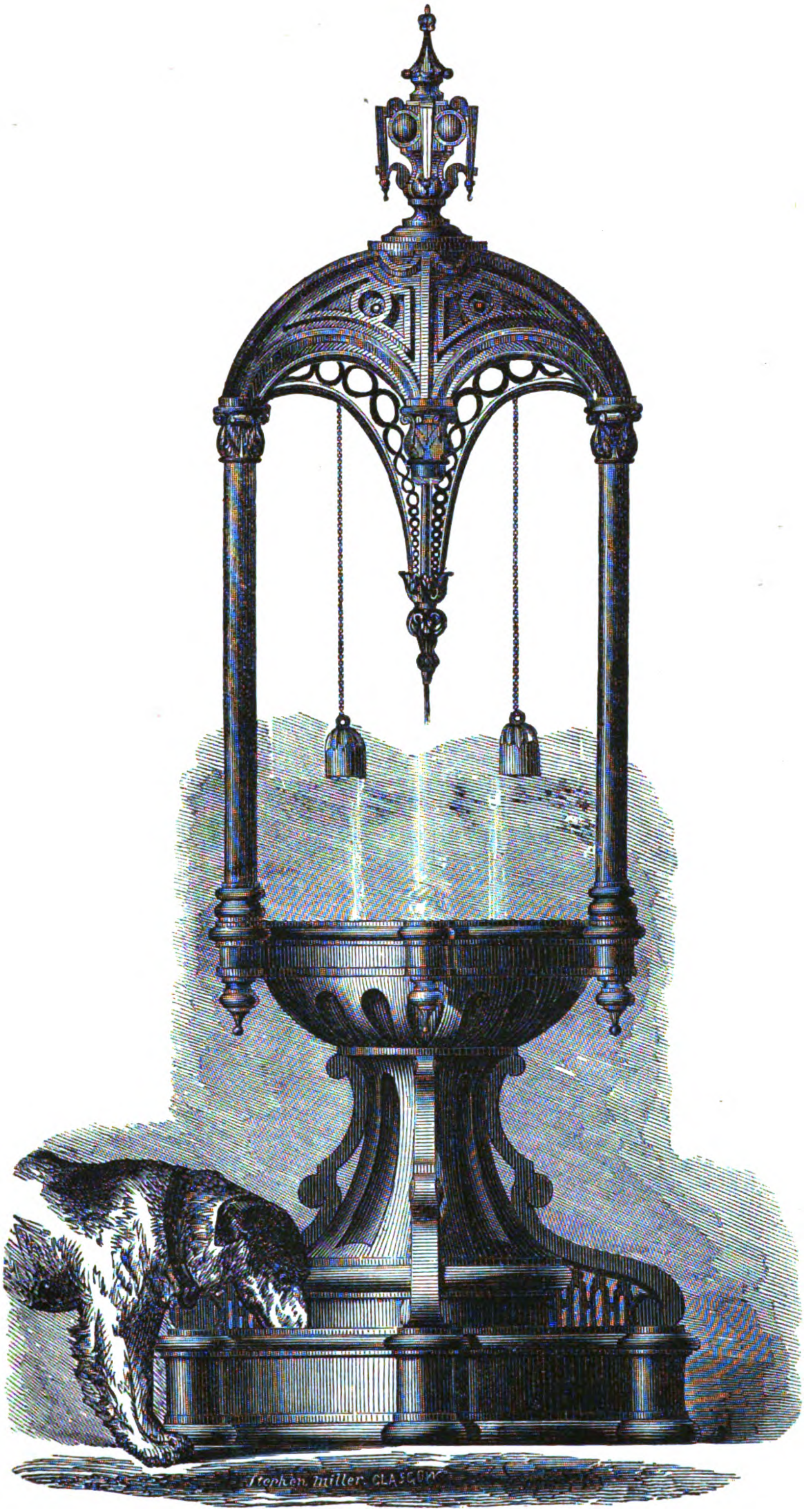


PLAN OF FIRST FLOOR.



PLAN OF PRINCIPAL STOREY.

For Description see page 252.



DESIGN FOR A CANOPIED DRINKING FOUNTAIN.

DESIGN FOR A CANOPIED FOUNTAIN.

THIS fountain affords facility of access from all sides, and its architectural merits are greatly enhanced by the introduction of a light canopy, with panelled spandrils and soffet. A constant stream of water is obtainable through a single jet, communicating with a tube placed centrally under the canopy, whence the liquid descends vertically into the basin below, and thence through the supporting pedestal to the dog-trough at base: or a self-closing tap may be introduced, by which a modified supply may be regulated. The drinking cups are suspended from chains of sufficient length at either side of the jet, and being inverted, their thorough draining is secured. The total height, as represented in this drawing, is 6 feet, and the diameter 2 feet 6 inches. This design provides for cast iron construction, and is registered by Messrs. George Smith and Co., of Sun Foundry, Glasgow.

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Engineering Journal.

ARDGLASS HARBOUR.

That we have not yet attained to a knowledge of the best mode of constructing breakwaters of stone and sea walls, is fully proved, by their failure in many places, and by the diversity of opinion which exists amongst engineers on the subject of their construction. The most important matter to be considered in their formation is the batter, or degree of slope, which should be given to the face of the structure presented to the action of the waves. On this point there is no uniformity of opinion. Every angle of slope has had its advocates, from the smallest to the perpendicular. The majority, however, consider that the nearer the slope of the breakwater approaches to the horizontal, the better will it be able to resist the action and shock of the waves. The Eddystone lighthouse proves this opinion untenable. One of the most complete failures that has taken place has been that of the pier and breakwater constructed at Ardglass, on the east coast of the County Down, about thirty years since. The breakwater and pier had been finished, and the contractor for the lighthouse on the circular pier-head had the work taken off his hands, when a storm arose and made a very small breach in the neck of the pier. Information of this was forwarded to the Board of Public Works, under whose care the harbour then was, as a considerable grant had very properly been made by Government, through, we suppose, the Board of Works, for the erection of the harbour. The Board, either conceiving that the matter was not pressing, or delayed in their action by what is usually termed routine, or red-tapeism, took no action in the matter for some time after the fact of the breach in the pier having been communicated to their secretary. In the meantime another storm arose from the south-east—the most dangerous of all for the safety of the harbour—and before it ceased the waves swept the whole structure with the besom of destruction. Down to low water mark not a stone of the strueture remained in its proper place; the whole, lighthouse and all, were swept into the harbour.

The works at this place had been designed by the late Sir John Rennie, and executed under his assistants. The late William Ogilvie, Esq , the owner of the town, had contributed liberally towards the payment, and, as we have already said, the government of the day gave a grant of, we believe, £15,000.

The work under water was constructed with great care, by means of a diving-bell, with stones brought from the Isle of Man, squared and dressed, and strengthened with bar iron and upright bolts. We have seen a model of the pier on which the progression of the work was marked, and we consider its fault to have been want of sufficient magnitude to resist the impetus of the waves.

The greatest defect, however, lay in the construction of the breakwater, situated inland of the new pier, and intended to protect the older part of the works. This part of the works was formed with a coarse, slaty rock (clay slate) quarried in the immediate neighbourhood of the harbour, totally unfit for the purpose, as however large the block of stone might be at first, exposure to the action of the elements soon disintegrated them into multitudes of pieces; with these the slope of the breakwater was paved.

On referring to a copy of the specification for executing the works, we find that 260 feet was added to the length of the old pier, forming an angle of 150 degs. with it, being inclined at its extremity 25 feet further seaward than a straight line.

"The external face to batter from top of parapet (10 feet high) 2 horizontal to 1 perpendicular until it reaches the level of high water spring tides, from thence downwards to the level of low water of spring tides to batter 3 feet horizontal to 1 perpendicular; and then to have a bending or foreshore of 15 feet inside, and from the outer edge of this to the bottom of the sea to have a slope of 2 feet horizontal to 1 perpendicular, or more if requisite where the different inclinations of the respective slopes unite, this part to be greatly curved, in order to prevent any abrupt transition from one slope to another. The exterior slope down to low water to be faced with the best selected rubble laid upon its edge, in regular courses as near as may be inclining at the slope of 4 to 1 in the horizontal direction, and at right angles to the face in the vertical direction, and breaking bond well over each other. The heaviest stone should be placed at the commencement of the foreshore and middle of the slope, and the foreshore itself is to be rough set on edge, the stone extending from 2 to 3 feet below low water, or more, as they may turn out from the quarries."

So ran the specification, and we have no doubt but that the works were constructed in strict accordance therewith. The questions then arise, to whom shall we attach the blame that ne profitable result had been derived from the expenditure? and what were the defects in the construction of the harbour? The answer to the first question is self evident: eminent as Sir John Rennie was unquestionably as a harbour engineer, we find it impossible in this case to deny that for the failure of the structure *he* alone is responsible. In answer to the second question, two principal defects are evident in the design of the work—want of sufficient magnitude in the pier, and the mode of forming the exterior slope. Its inclination was four hose to one vertical. This seems to us a very great error in construction. When tho inclination is less than the angle of repose, the stones in the lower part are not pressed down by those above them, and consequently are easily detached from the mass by the incessant action of the waves; and as all those stones (clay slate) were broad and thin, foliated in their texture, and set on edge like a flat arch, with no retaining power save their own weight and the horizontal pressure of close setting, it is evident that one stone removed and the key, as it were, is taken from the arch, and the ruin of the whole quickly follows. The stone found in the neighbourhood owing to its slaty texture and liability to disentegration from the action of the elements, renders it totally unfit for sea works. It is a mistake also to suppose that a smooth surface will most effectually resist the shock of a wave. The pier at Kingstown Harbour, of which Sir John Rennie was also engineer, would have been long since washed down, as well as that of Ardglass, if its exterior slope had not been protected by throwing along the toe a breakwater of large blocks of granite, dropped in at random (*pierre perdue*) against which the waves spend their force and tear themselves to pieces in vain. Another error in the design of the harbour was in placing the extension of the pier exactly at right angles to the direction of the wind most dangerous to its safety. Placed in this direction the magnitude of the mass or the breadth of pier was required to be greater than in any other. If the direction of the new pier had been more to seaward, the most dangerous waves would then have struck the pier at an acute angle with diminished force, and changing their direction run inland and spent themselves on the rocks seaward of the old harbour. Without entering further on the subject at present, we are of opinion that the government should grant a few thousands, out of the seventy millions or so which they are yearly spending, to place the harbour of Ardglass in such a state that it would afford shelter to coasters, and accommodation to fishing boats which have assembled there to the number of 500 from England and various places on the Irish coast in former days, and might again, if shelter were provided for them.

The Cork and Youghal Railway.—The works have so far progressed between Killeagh and Youghal that the portion of the line from Dunkathal to Youghal will be opened for traffic immediately, if not before now.

Proposed Line of Railway from Castlewellan to Banbridge.—We understand that the survey of this projected line is completed. Four surveyors have been busily engaged on it for some time past, and the greater part of the money for its construction has been already subscribed.

Letterkenny Railway.—The estimate for this line of 15 miles is 100,000, or £6,500 a mile. There are no special engineering difficulties to contend with. A portion of the country through which the line was to pass was mountainous and rugged, but Mr. Bower, the engineer who has laid out the line, has successfully overcome these difficulties, by deviating from the direct course, and making easy gradients and curves.

We believe the first rails of the Metropolitan Railway will be publicly laid in June, and that all the shareholders will be invited to witness the ceremony.

Mr. John Cunningham, of Dalkey, is the contractor for the construction of the viaduct and other works on the Mallow and Fermoy Railway.

THE ARCHITECTURAL EXHIBITION, LONDON.

We were somewhat disappointed at the display this year, especially in the architectural department, which did not by any means stand the test of comparison with previous collections that we had the pleasure of inspecting, and as a whole was not highly creditable to a metropolis wherein a large proportion of the talent of the age—designers and draughtsmen—is centred. Yet there were a few admirable and beautifully-finished designs and subjects for study, especially those sent in competition for "the gold medal," for the Manchester assize courts, and those by our countryman (Mr. J. P. Jones) for the new Guildhall, Cambridge. Mr. Goldie, amongst other drawings, exhibited a design, in a geometric decorated style, for Ballymont Church, Co. Mayo, and Mr. Pugin for that of SS. Peter and Paul, at Cork. Would that the professionals practising in this country would take pattern by some of their English brethren, and infuse more originality and boldness of outline and details into their designs, as was the case with even the indifferent works at this exhibition!

In the building materials, inventions, &c., department the contributions were excellent and varied. Amongst those with whose names our readers are familiar, we may particularize the manufactures of Messrs. Johnston, Brothers, mediæval iron and brass workers, 190, High Holborn, who are truly eminent in their art; Messrs. Hart & Son, in same line, who had a magnificent display of church ornaments and furniture, monumental brasses, &c.; Ransomes' ornamental works in patent siliceous stone (already alluded to at some length in this journal);[*] Arrowsmith's (of 80, New Bond-street) specimens of solid parquetrie floors, as executed extensively throughout the kingdom, and in Ireland at Old Connaught, Bray, for Phineas Riall, Esq.;[†] at Col. Taylor's, Ardgillan, Balbriggan, &c.; Maw & Co.'s, Minton's, and Hollins' tiles; Cumberland Part's patent cement, &c. Mr. Pierce, of Jermyn-street, Regent-street, exhibited his pyro-pneumatic and fire lump stove-grates, also his fresh-air cottagers' grate, for warming two rooms simultaneously and with only *one* fire. This manufacturer stands pre-eminent in his branch, and has devoted himself to it with an ability and energy truly commendable. As already stated, there is one of these handsome and useful articles to be seen at the National Bank. The establishments represented may justly be proud of their displays.

MORE ABOUT THE ULSTER HALL.

The following correspondence, between a competitor and the company, on the subject of the recent competition for the Ulster Hall, has been forwarded to us for publication by Mr. Robert Young, a Belfast architect, who states that "he read with much pleasure our leader in April number" relative to this affair.

13, Donegall-place, 3rd April, 1860.

Gentlemen,—In justice to myself and others I have to request your reply to the following queries:—1st, did any Belfast builder of respectability estimate the cost of erecting the new Hall and other buildings connected with it, according to the designs to the authors of which you have adjudged the prizes of £50 and £25? 2nd, if so, the name of the builder, and the amount for which he would have undertaken to execute each design? I should be much obliged by an early reply, and remain, respectfully yours, R. Young.

To the Directors of the Ulster Hall Company.

Ulster Hall Company (Limited), Belfast, 5th April, 1860.

Sir,—In reply to yours of the 3rd instant, I am instructed by the Directors to say that, in accordance with their "Instructions to Architects," they did satisfy themselves that they could effect a contract for the execution of the work at the price estimated by the architect of the design selected.—I am, Sir, your obedient servant, John Dunn, Jun., Secretary.

Robert Young, Esq., Donegal-place.

13, Donegal-place, 9th April, 1860.

The Directors of the Ulster Hall Company,

Gentlemen,—I beg to acknowledge having received through your Secretary a note dated 5th instant, purporting to be a reply to my letter of 3rd instant. You cannot surely imagine that I can accept it as in any sense a reply to my questions. The *extraordinary* discrepancy between the lowest tender for the buildings and the sum to which we (competing architects) were strictly limited by your stipulations has naturally given a very strong impression, both to the architects concerned, and to a large number of the shareholders, that the design you have chosen was not at the *right time* tested by the estimate of a competent builder. I have respectfully to ask your consideration of my letter of 3rd instant, and the favour of a *categorical* reply to the queries contained in it, or a *distinct refusal* to give the information sought. I ask this mainly on the ground of justice to myself and other architects, who spent time, thought, and money, to no inconsiderable extent, for your benefit, on the strength of perfect equity being observed in making the choice of plans. But I believe that, as a shareholder of the Company, I have also a right to the information.—I remain, gentleman, very respectfully yours, R. Young.

Ulster Hall Company (Limited), Belfast, 12th April, 1860.

Sir,—I am instructed by the Directors to acknowledge the receipt of your note of the 9th instant, and in reply refer you to their note of the 5th instant, which, in their opinion, conveys all the information required, and that they must therefore decline entering into further correspondence on a subject which is finally, settled.—I am, Sir, your obedient servant,

John Dunn, Jun., Secretary.

Robert Young, Esq., Donegal-place.

[Communicated.]

The delay in commencing this work is consequent on the company's issue of new shares, to increase their capital—the original capital of £10,000 being found inadequate. Tenders were taken in from builders for the new hall, of which the lowest was about £13,000; but this included accommodation and works not contemplated in the competition, the omission or postponement of some of which supplemental works it was ascertained would bring the tenders under £10,000 (including £2,000 worth of piling of foundations).

When the committee met to receive the reduced estimate, the majority were in favour of an increased capital and the execution of all the works tendered for, and they decided on bringing the matter before a general meeting of the shareholders, and at the latter meeting an amateur architect intruded fresh designs on their attention. But the committee are merely waiting to get up the additional capital, believing that the design they selected in competition could have been carried out as originally intended, but they feel now that as the competition is over, the premium paid, and Mr. Barre appointed architect to the company, they are at liberty to do the best they can, and to act as they please in the matter.

There is one thing the committee might have done—namely, had the builder at work on their present capital, and saved the building season, which is now passing by, either by ordering the piling and foundations, or the shell of the building, all of which would have been within their present capital.

KERFS AND COGITATIONS.

BY A CRAFTSMAN.

NO. II.—THE ANTIQUE WORKERS.

In the Ogham inscriptions of Ireland and the hieroglyphics of Egypt may be interpreted many a wondrous phase of the constructive intellect of the past. The Sphinx still keeps its eternal silence while truant or traveller pauses or passes on, from out its mouth no oracles comes forth now—no weird-like chaunt rings out on the midnight welkin from Druids altar or monumental cairn. The two enigmas of the world are still unsolved—pyramids and pillar towers; but in papyrus or parchment live not the spirit we apostrophise, the genius by which we are consecrated. Antique craftsmen, heroic souls, rivals they might have and had, ambition might be theirs and was, but it begot no ephemeral production, no uncouth form, no crude conception hastily worked out for selfish adulation or mercenary recompense. They loved their art—nay, they adored it; painter and poet, sculptor and mosaic worker, architect and craftsman, all alike. The accumulating study of a lifetime was often concentrated for the realization of one triumph, which was to become the *chef d'œuvre* of their fame. See, in their efforts in this first of all the arts does there not swell forth an embodiment of all that is bright, grand, and glowing in nature, or strong, perfect, and proportional in man—in each classic order an entity, in each entity a unity. In the unhewn stone the worker saw the *mirage* of his brain slowly developing and quickening with the spirit of an inspiration; spiritual and godlike he seized the instrument of his craft, and rested not till he achieved an immortality. Was there not something spiritual, something above the gross materialistic grovelling of to-day, enlivening the genius of Angelo, when at upwards of sixty he could wield the chisel with the energy of youth—sending the splintered marble like a hail-shower scintillating through the sunshine of his studio—intuitively outlining into form the virgin block at each blow? It was ever thus with the antique mind. Prophet-like their works bear the *impresse* of their inspiration. Through many a year they toiled, and toiled, and toiled; old age might creep, but, if it found them hoary-headed, it found them still faithful; years of pent up study accelerated their day-dream, the consummation wished for, but, alas, it also brought its penalties and pains. All hail, ye shades of immortality; the chaplet that should encircle the living brow became the laurel wreath of the tomb—the extatic "Eureka" of Pythagoras breathed their first living joy and their last dying utterance.

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[*] See p. 234.

[†] For description of this magnificent mansion, see p. 100.

C. C. H——y.

[The Editor should feel gratified by an interview with his unknown but *valued* contributor.]

Notes of New Works.

A testimonial is to be erected at Armagh to the memory of the late Rev. Cosby Stopford Mangan.

A new Roman Catholic church is to be erected at Breedogue, near Frenchpark, Co. Roscommon.

It has been resolved to erect a suitable memorial to the late Sir Robert Ferguson, Bart.

St. Vincent's Male Orphanage, at Glasnevin, is progressing towards completion, the main building being now roofed in. The *Freeman* thus describes particulars:—"Finding that the establishment at Monnt Brown was quite inadequate to accommodate the numerous applicants, the committee commenced the new house at Glasnevin, where they have leased from Captain Lindsay six Irish acres of land in a most advantageous situation. Plans were advertised for; a large number were sent in, and the committee decided upon adopting that by Mr. John Stirling Butler, architect, of Hume-street. In December last the foundation stone of a section of the building was laid by his Grace the Archbishop, who placed £500 at the disposal of the committee as a beginning for the £4,000 which the portion of the orphanage then commenced would cost. The Duke of Norfolk sent the munificent contribution of £300. More than £3,000 was received, and, as we have stated, the first portion of the pile is rapidly advancing to completion. It already forms a striking ornament to the suburb, in which it keeps suitable companionship with the Hospital of the Mater Misericordiæ, the Deaf and Dumb Asylum at Cabra, and the St. Peter's Church and Schools, Phibsboro, all in sight. The several features of the building are evidently Italian in character. At one extremity is a handsome arcade, with stone stairs leading up to the schools, and about the centre is the principal entrance porch leading to all other departments, which, together with the gables, open niches, bell-cot, and the capping of chimneys, form characteristic features of that style of architecture. The materials employed in the construction of the works are hammered black stone and chiselled granite. The present wing, whan completed, will be capable of accommodating 120 boys. The dormitories are well ventilated and spacious, and, from the omission of plastered ceilings, a good deal of extra height is obtained. Both the architect and the contractor (Mr. P. Meares) have given the utmost satisfaction to the committee in the performance of their respective works. It will be one of the cheapest of its class ever erected in Dublin."

Tenders have been sought for recently from builders for farm buildings and other works, to be erected on the property of his Grace the Duke of Leinster.

Messrs. Graham Lemon, & Co., have taken the house No. 61, Grafton-street, corner of Tangier-lane, and are re-fronting and otherwise improving it.

We understand that Mr. Lennon, of Abbey-street, is about building on Church-road, adjoining Mr. Bolland's property, and opposite that of Mr. Philip Brady, where, as already stated, works are in progress, Mr. Lyons, architect.

The Farmers' Club are about having alterations made at their house in Sackville-street, plans and estimates for which have been submitted.

Messrs. Todd, Burns, and Co. have made very extensive additions and improvements to their establishment, under the direction of Mr. E. P. Gribbon, the company's architect, during the past few months; they are now about being completed, and are worthy of inspection. Mr. S. H. Bolton is the builder.

Messrs. Cannock, White, & Co. have taken the house No. 8, Henry-street, belonging to Mr. Lowe, paper stainer and painter, and are about adding it to their concerns, which will now occupy either side of Nos. 9 and 10, the warehouse premises of Messrs. Talty, Murphy, & Co. Where will this ever-growing monster house stop?

It is in contemplation to extend the College of the Immaculate Conception at Knoctopher.

A Catholic Church is to be erected in Magherow, and the Earl of Dunraven has subscribed £20.

Reviews.

Brief Sketches of Booterstown and Donnybrook (Co. Dublin). By the Rev. B. H. Blacker. Dublin: George Herbert.

WOULD that the incumbents of all the suburban parishes were actuated by the same truly laudable zeal in research after the beautiful in art and the venerable in antiquity as is the author of the little work before us. Were it so, much that is now veiled to the public eye would be brought to light,—our ancient relics would have a hand, however feeble, raised to save them from destruction, the historic memories of our suburbs—and which of them has not some of peculiar interest?—would become popularly familiarized, not as they are at present, clouded in obscurity alone penetrable by the *savans*, and localities now disregarded, because forsooth they are not embraced in the circle of the fashionable *lounge*, would have their claims for appreciation fully and fairly set forth. The chronological tables of the events known in connection with the parishes treated of materially enhance the value of this book, and afford an excellent example for parochial historians. The *animus* of the author demands repect, and he has fulfilled his mission ably.

A House for the Suburbs, Socially and Architecturally Sketched. By Thomas Morris, Architect, M.R.I.B.A. London: all Booksellers.

FEW authors are equally happy in their powers of delineation with both pen and pencil. Such, however, is the distinguishing feature of the work before us; the social sketching of the domestic circle in suburban districts,—"the book club," "family dinners," "coteries and soirees"—being graphic, replete with poetical expression, and presenting relief in the foreground to the more matter-of-fact and rigid outline of the architectural subject; the illustrative department, including the frontispiece—a general view of "a house for the suburbs"—beautifully executed, and designed in a manner displaying much skill and taste, plans of same, and of a Pompeian house, a mansionette, a compact house, and semi-detached houses, accompanied with practical remarks, all forming a pleasing and instructive little volume.

Referring to improved facilities of intercourse, the author says: "Thanks to the modern genius of speed and the science of the rail, there is a wholesome future in store for us;" and to the inducements for a suburban life, that "there is a continuous influx of provincial recruits, who never lose their pastoral associations, and, though engrossed for a while with novelty and excitement, return with the pure affection of an early love to homes" exempt from public haunts, "and they must hail the daily change from worldly care to nature's quietude, the healthful alternation of activity and ease, now rendered practicable as a movement of promise for body and mind for to-day and hereafter."

A Practical Treatise on the Construction of the Turbine, especially designed for the use of Operative Mechanics. By William Cullen, Millwright and Engineer. London: E. & F. N. Spon, Bucklesbury.

FEW countries are so peculiarly blessed in abundant and regular water supply as Ireland. True we have our share of mountain torrents, but even these are not at all beyond the reach of science. Still, like our fisheries and other means at our disposal for increasing the wealth of the population, our water supply is let to run waste, and few countries of the old world appear so indifferent to the enormous powers thus left to lie dormant, or waste their strength on the pebbly beds of their course. Since the people of this country have turned their attention to the science of agriculture, they have become aware of the importance of the use of "power machines"—but where have they sought the power? How many instances, in the entire length and breadth of the land, can we show where the farmer has used the power lying under his feet? Do they not all send elsewhere for expensive, most unwieldy, and in some instances remarkably ill-shaped machines, at great cost and inconvenience, to do what their familiar trout stream could effect for them without any of these drawbacks. In round numbers, a turbine, costing, fixed in place, £70, will perform 250 revolutions in a minute, at a nominal power of four horses, and a head of water of 16 feet. But now comes the question—What is a turbine?

We confess that from seeing these machines on the continent, we are ourselves aware of the shape and working of the machine, but we were long at a loss to convey our ideas to many who had written to us on the subject, or to recommend any work which would not be of too high an order to convey a mere popular notion. We, therefore, gladly welcomed Mr. Cullen's book on turbine wheels; it is what our readers and ourselves had long desired—namely, a thoroughly practical work, in which the writer lucidly and fully conveys—with a modesty ever the accompaniment of true genius—the results of years of labour in the cause.

To arrive immediately at the fountain-head of the principle of turbines, Mr. Cullen visited the Continent, but had considerable difficulty in gaining admission to the works or mills where these machines were at work. Having, however, mastered many obstacles, he returned home, and laying the results of his labours before Mr. MacAdam, the proprietor of one of the Belfast foundries, that gentleman requested Mr. Cullen to supply him with working drawings of a turbine, from which a wheel was constructed for a fall of 21 feet, and erected at the bleach-mill of Messrs. Barklie & Co., of Mullamore, near Coleraine, which, on several occasions, worked with 9 feet of back-water with the greatest regularity. After forwarding the erection of several others, Mr. Cullen again visited France, and being fortunate in his researches than formerly, and the result of all has been the work that we here have the pleasure of noticing. It contains seven comprehensive plates, specially designed for the use of operative mechanics, as also several tables and formulæ of great importance; and we would say to any of our agricultural friends who may not have as yet obtained the work, that they ought not to be longer without it.

Official Railway Handbook to Bray, Kingstown, and the Coast, &c. By G. R. Powell. Dublin: M'Glashan & Gill; London: Simpkin, Marshall, & Co.

This is an excellently compiled little work, and embraces a variety of useful and interesting information, such indeed as might be read with pleasure off the rail as well as on it. It opens with prefatory remarks, directed to the tourist, relative to the facilities afforded by the Dublin and Wicklow Railway (which, we may remark, is one of the best conducted and certainly the most picturesque line in Ireland), the beauties of Wicklow, the mountains, quotations from English and French journals upon Irish scenery and natural resources, &c. A handy reference map, showing the connection between the Counties of Dublin and Wicklow with rail, and other routes thereon, is also added. A sketch of "Sunny Bray," with a day at Quin's (of "universal renown"), the Head, Dargan Terrace and Esplanade; the Turkish Baths, Presbyterian Church, the Station, Breslin's, Shankhill house, Kilruddery, Hollybrooke, and other buildings—with particulars of which our readers are, through the Dublin Builder, more or less familiar—is pleasingly given. The author has not forgotten to award his meed of approbation to that excellent local (especially) and national benefactor, William Dargan – an evidence of good taste which commands appreciation. The Dublin and Kingstown branch, and the various objects of interest along its route—Kingstown, with its piers, jetty, club houses, &c.—are sketched with graphic accuracy; and the rambles to the Dargle, Enniskerry, Powerscourt Demesne and Waterfall, Scalp, Glendalough and the Seven Churches, the Sugarloaves, Vale of Avoca and Meeting of the Waters, Poul-a-Phuca, Devil's Glen, Delgany, Glen of the Downs, &c., complete the survey, which is artistically delineated. The value of the illustrations would have been enhanced materially by the adoption of a somewhat larger scale; nevertheless they are an acquisition. and the work is very creditable to all concerned.

Miscellaneous.

Sale of Building Materials.—One of the most extensive sales of building materials that has taken place in Dublin for many years was the auctioning of the old business concerns in Pill-lane, which are being thrown down for improvements in that locality. Some of the goods (bricks especially) fetched fabulous prices, while carpentry-work went proportionately low.

"Raising the wind" by Lottery.—This practice—and in the matter of church-building too, which is worthier of a more laudable stratagem to procure the wherewith—has prevailed of late to such an extent that the authorities have conceived it their duty to interfere, and very properly. The Crown-Solicitor put the *quietus* on the proposed lottery on behalf of St. Saviour's Church in this city, and we trust that his *confreres* in Belfast, Limerick, &c., where Grand Prize Drawings are announced, may adopt a similar course. Such an alternative may be comparatively legitimate in public amusements, "to draw a house;" but, where associated with religion—be the denomination what it may—it institutes a mockery, and converts the temple of God into a speculative Bourse. If the voluntary contributions of the faithful be not adequate to the expenditure for magnificent edifices, better build them of less pretentious character than commence on a scale demanding such a *dernier resort* to extricate the promoters from a difficulty.

Insurances on Houses of Worship.—The inhabitants of St. Mary's parish have applied to the Ecclesiastical Commissioners of Ireland to ascertain their co-operation, and to what extent, in effecting an insurance on the church. The letter was referred to the Board of Inland Revenue, who, it is said, have in many such instances remitted the duty. The rector suggests a valuation, and an undertaking from the Commissioners of responsibility to a certain amount in case of fire, the churchwardens insuring for the remainder. Mr. Hancock, at George's vestry, referring to same subject, remarked that "the Ecclesiastical Commissioners, with no funds of their own, are in the position of a small insurance company, and if they set aside that sum they cannot pay the full amount. There are two thousand churches in Ireland, and that number at 1s. 6d. per cent. would only give £1,300 for each church. It is shown that if the Commissioners set aside a fund they could never out of it meet such a large demand as £29,000 or £30,000 for one church; therefore it should be insured over. This church (George's) is stated in *Thom's Directory* to have cost £90,000; Gardiner-street chapel cost £18,000, Westland-row £13,000, and King's Inn, £3,500. The insurance of the Commissioners would be only about £1,400 on each church."

New Landed Estates Courts.—The new buildings containing the Landed Estates Courts and the offices connected with them were opened yesterday for public use. The site, as is well known to all whose business leads them to the Four Courts, is at the rere of that building, the new structure being on the western side of the Attorneys' and Solicitors' rooms and the Coffee-room, so as to correspond to the range containing the Bankruptcy and Insolvency Courts and the Masters' Offices, which lie on the opposite side. The buildings have been erected in accordance with designs by Mr. Owen, architect to the Board of Works; and the entire contract was held by Mr. Meade. The original estimate was £16,800, to which £2,500 was afterwards added for extras. The lower and the third storeys of the building are occupied with offices. The middle storey contains two courts, besides private apartments for the judges and offices for the examiners. There is a third temporary court below stairs. The design of the buildings, and the style in which the interiors are finished, are such as to combine with utility a sufficient amount of ornament to relieve the eye and to impart a dignified aspect to the place where an important branch of the public business is transacted. Judges Longfield and Hargreave have sat in the new courts, and disposed of business.

Milwaukee Academy of Music.—The new hall is stated to be one of the most tasteful and elegant in the country, but seats only about 1,000 persons.

Improvement of Ballinasloe.—The works projected by the Town Commissioners will only cost £550, but it is a beginning. Mr. Sanders is engaged to plan and superintend them.

Stencil Printing.—The adoption of this system saves much time and labour to the daughtsman, and money to the employer. Any number of sheets of drawings may be fully printed on—in a decorative manner if required—by stencil plates, and in one-tenth the time usually occupied by hand. We can testify to these facts by experience, and have found the plates supplied to our order by Messrs. Braham and Co., of London, distinguished for excellence of workmanship, and variety and suitability of design for architectural and engineering purposes.

Architecture in Ballarat.—Mr. C. D. Cuthbert, architect (late of Ballast Office, Dublin) has been declared the successful competitor for the new town hall; his design comprising externally a principal elevation extending 50 feet, with a tetrastyle Ionic portico, and an elevation towards Armstrong-street displaying 22 windows. Internally there is a great hall for public meetings, balls, &c., situated at the rere; as also a police court, library, museum, and various other apartments. Estimated cost, £15,000, in granite. Mr. Cuthbert's card model submitted to the committee is very highly spoken of. The second and third prizes have been respectively awarded to Messrs. Backhouse and Reynolds, of Geelong, and Mr. C. Porter. The new Chinese joss house on the Golden Point is said to testify favourably to the skill of Chinese artizans. The façade is decorated with animals from a cock to a lion with two tails, and over the door are the words "Chinese chapel" in characters. The interior is richly adorned with carvings, and the walls hung round with mottoes which cost sums varying from £8 to £12 each. At the extremity of the building is a dais on which Quang Kong, the Chinese god, is seated cross-legged, with a perpetually burning lamp before him, and three grim-visaged figures above his head. A devotee has to pay £1 5s. for privilege of admission. Total cost of building, £600. The Botanical and Zoological Gardens are being handsomely laid out with new walks, pavillions, conservatories, houses for the animals, artificial islands, bowers, benches, grottoes, &c. They are open on Sundays, and the average number of visitors is 7,000. A new hotel is being erected in the main road; Mr. F. Korn, architect.

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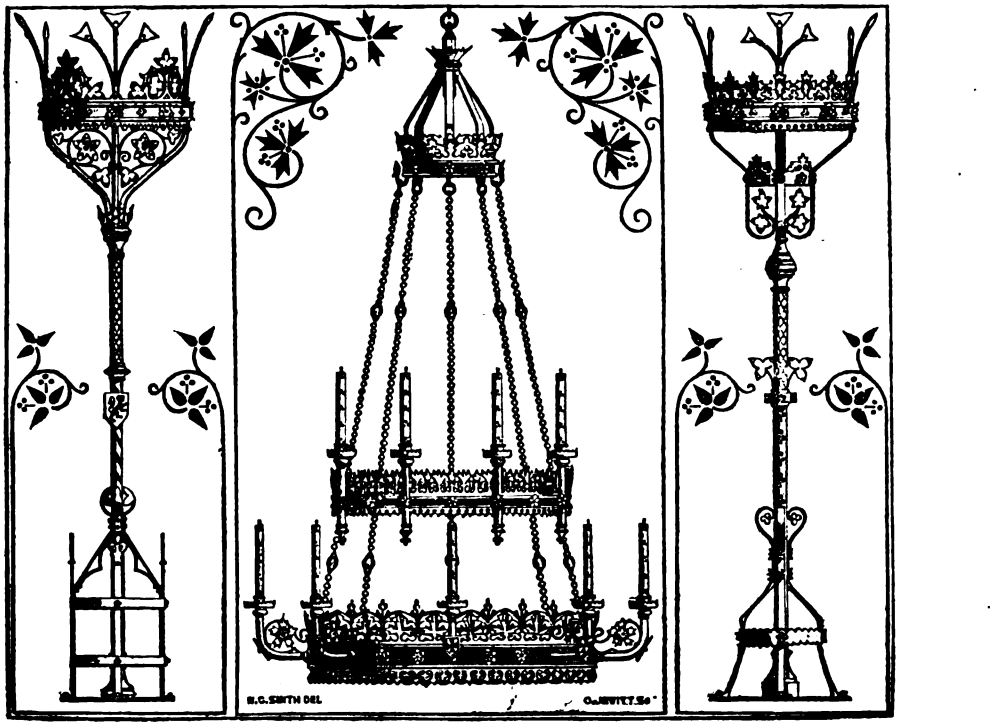

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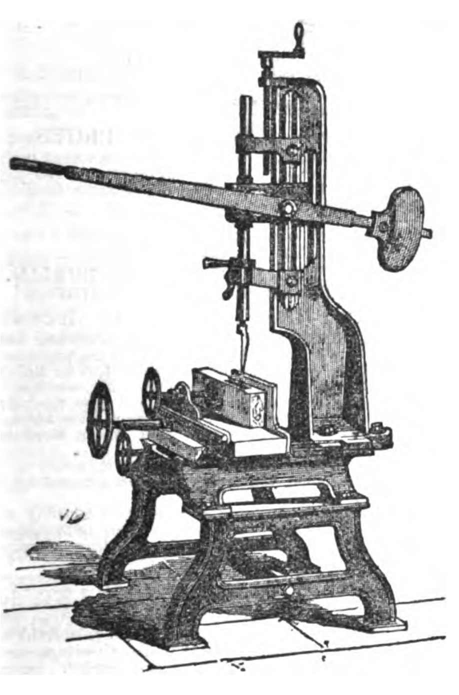

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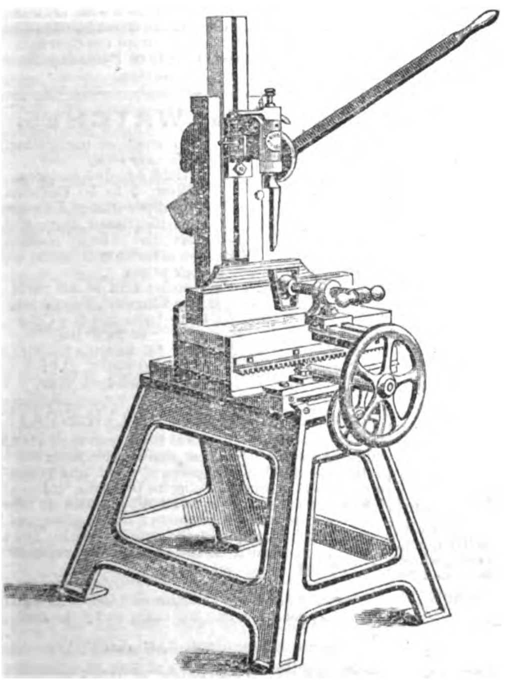

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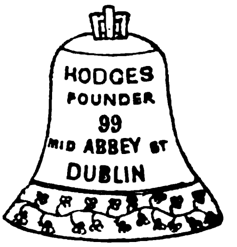

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The Dublin Builder.

VOL. II.—No. 18.

ART EXHIBITION—ROYAL HIBERNIAN ACADEMY.

THOUGH, numerically speaking, the display at the present exhibition—the thirty-second—of the Academy is not equal to many of its predecessors, in excellence it is nevertheless superior to the majority, and certainly inferior to none of those that we can call to mind. Exercising a wise discretion, and in direct contradiction to the principle that heretofore induced the Council to cover every available inch of wall-space with any sort of production that might be denominated "a picture," by way of "not discouraging young artists," the present Committee boldly decided on rejecting every contribution that had not *some* claim to merit—and numbers were deemed unworthy—hence the comparative paucity of works this year. We wish, however, that the same principle had been extended to the architectural department, which is contemptibly meagre; and 'twere better far that the triplet sister's name had not been associated at all with painting and sculpture, but were expunged from the catalogue altogether. On previous occasions we alluded to the unpardonable apathy of the architectural profession towards contributing works to these periodical exhibitions of—what should be regarded by its members—a "national" art institution; but never, to our knowledge, has it been so glaringly palpable as this year. Whence the cause? Lack of ability there is none; the general excellence of the designs even furnished in the recent competitions—for the Molyneux and St. Andrew's Churches—incontestibly evidence *that fact*. *Apropos* to this, and cautiously touching on personalities, may we collectively ask the authors of the designs in question, might they not have perpetuated their own merits in the public eye, and conferred an essential benefit on this department of the Academy, by sending them to this exhibition? We learn that such was the intention of *one* of the competitors, the fulfilment of which, however, seems to have been prevented by some unexplained cause; but it would have pleased us to hear that even the *intention* were more general. The first responsibility of aiding an institution in its purpose devolves on its own members' example, and, if contributions be thence found wanting, the fault is trebly culpable; so we must remark, that of those now identified with the Academy, we find but one architect exhibitor—viz., Mr. M'Carthy, who contributes a view of Saint John's new Church, Convent, and Schools at Tralee; but, judging from that gentleman's extensive practice, we should have looked for a more important display; however, the drawing stands out in bold relief from the two or three others—shall we say architectural?—with which it is placed in juxta-position. That in our future reviews opportunity may not be afforded for similar strictures on the profession is our sincere wish, both for the credit of its members, the sake of art, and the welfare of the Academy; and in this spirit are our remarks dictated. Intended changes in the constitution of this body, by which an additional number of architects will be admissible as members or associates, will doubtless effect a desired end in this respect; and let us hope that the elected gentlemen—whoever they may be—will, by their practical encouragement and example, prove themselves worthy of their position.

Among the foreign pictures, the contributions of Otto de Thoren, of Brussels, author of "Managing" (No. 17), and "The Steeple Chase" (No. 168), are distinguished for their solid and effective manner; his paintings of horses are not surpassed by the best of our English artists.

Eugene de Block, another of the Belgian school. produces works in a very vigorous style, full of character, and powerful in colour. He contributes "French Taught Here" (No. 173), a somewhat unintelligible title at first view, but evidently a libel on *how* it *is* taught, as the scholars are all represented at the *wrong* side of the school-house door, and in uproarious confusion; while the amazed master, invested with his badge of authority, sallies forth to allay the tumult; No. 209, "The First Lesson," and 234, "The Prayer at the Grave."

Camille Venneman, of Antwerp, paints very much in the manner of the old Flemish masters, deep in colour and admirable in character and expression. His "Laitures dans la Prairie" (No. 68), and his "Fete de Village" (459), are full of freedom and beauty.

Jules Wagner has two exquisite pictures—probably the most attractive in the large room—"Musique, Femme, et Vin" (No. 38), and "La Châteleine" (No. 50). Deventer, of Amsterdam, has two "Sea Views," and "A Landscape" of merit. Pierre Dielman displays great excellence in "L'Ane et Moutons" (No 24). Versheur's (No. 128) "Horses" deserve special mention. P. V. Schendel, who, if we mistake not, was the artist of "The Adoration of the Majii," displayed at a previous exhibition, has another this year, wherein the effect of lamplight on a lady playing the guitar is marvellously wonderful (see No. 415).

Of the English school we do not find an example this season of extraordinary merit, but there are several possessing considerable excellence. The painting of "the Irish Council," bought by her Majesty, cannot be deemed one of Wilkie's best works, at least as a specimen of colouring: yet in composition, character, and general arrangement, it is clever. It would also appear as if the picture had been somewhat tampered with, by a cleansing process probably.

The cattle pieces of Willis and Cooper are admirable; Armitage, Duncan, and Fisher—our Irish artist, long resident in London—are well represented in their general styles.

In water colour, Harding, Miss Macerone, and a few others, are of the English schools. Our native artists, in the number and merit of their works, contributed by far the most attractive portion of the exhibition; in several departments—in landscape particularly—they may now be said to fear no competition. The representations of our romantic scenery are rendered with a gratifying fidelity, and a great amount of artistic skill. And we should specially make honourable allusion to those by M. Kendrick, R.H.A.; Edwin Hayes, Bradford, Patrick Vincent Duffy, A. Nicholl, T. S. Cooper, A.R.A.; William Craig, J. Richard Marquis, &c., &c., without disparagement to the works of many other artists too numerous in a necessarily circumscribed notice even to allude to.

There are comparatively few figure subjects, but nevertheless some of much merit are exhibited, including Scriptural and other historical and domestic scenes. They afford evidence of a fine feeling for the higher departments in art, and we hope to see an increased demand for works of this class, calculated to inspire an artist with a noble ambition in his profession.

Of portraiture there is less than in any former exhibition. Mrs. Smith's portraits in oil, Mr. Mulrenin's minatures, and Mr. Jones' water colour, are the principal productions in this line. There is an admirable water colour drawing by Burton, of which no words can convey an adequate idea.

Amongst the sculptural works—which we must also remark, *en passant*, are neither as numerous nor as excellent as on previous occasions—Messrs. Thomas Farrell and Joseph Kirk exhibit models of their respective designs for the bas reliefs on the Wellington testimonial pedestal, already described in this journal; as also do Messrs. Terence Farrell for General Cole's statue, to be erected at Enniskillen; Mr. William Farrell a Madonna, Mr. James Farrell a Statuette of Goldsmith, Mr. John Farrell a Sleeping Youth, in marble; in all, serving to sustain the reputation of that eminent firm. Mr. Halse, an English sculptor, has also some figures in marble and plaster, which deserve attention. A bust from the chisel of the late John Hogan attracts much notice, and suggests the oft-repeated exclamation, "Poor Hogan."

The prizeholders in the Art Union of Ireland seem to have already selected various works, and their selections are generally judicious; after the drawing of the Shilling Art Union we doubtless shall notice many others labelled.

COMPETITIVE EXAMINATION.—The Directors of the Waterford and Limerick Railway requiring two junior clerks at the Waterford station, caused all the candidates—fifteen in number—to be examined in writing, dictation, grammar, arithmetic, geography, and history, by the Master of the Clonmel model school, and selected two who had been respectively educated in the Christian Brothers and the model schools in Waterford.

THE USES AND ABUSES OF IRON IN CONSTRUCTION.

By the following remarks we must not be considered as deteriorating a material that the experience of late years has proved of such advantage, both in an architectural and engineering sense; but we wish to point out one or two growing evils, traceable to what may be termed a too eager adaptation. It is a subject demanding larger space, but we must content ourselves with a few brief remarks.

As a nation we are slow, even to a fault, to adopt a newly-discovered article, and treat it often with undeserved suspicion. With iron we were remarkably cautious, but in all forms it has become of such universal use, as facilities for producing it have increased, that to raise a doubt upon its applicability to almost every purpose, would seem to partake of the retrograde. And here we must remind our readers that it is not the material that we would find fault with at all, but the frequent recklessness displayed in dealing with it.

In the first place we allude to shop-fronts, now generally supported on slender cast-iron columns, girders passing along upon the caps, and thus supporting a heavy pile of brick-work. The columns in some instances are weak enough, and their distances apart somewhat alarming to behold. Now, presuming that these, with their superincumbent girders, are strong enough to bear the brick-work or stone-work above—do they look so? Their appearance is calculated to raise a doubt in the mind of the passer-by, as to their stability, and is this consistent with the spirit of architectural effect? We should say not. It remains to be seen in a few years, when settlement shall have taken place, when sand or water may have caused what is called a "drain" upon the footings, whether these columns will remain plumb, and the consequences that would ensue on such an event as their not doing so. We hope they may prove equal to their task. Not heeding eventualities, we may presume a section just sufficient to support the weight above, let one flaw exist in that section, and the safety of the whole building is jeopardised. There are sufficient reasons why those who are so desirous of gaining window-space should be careful not to risk a complete building to the saving of a little more iron in columns on which so much depends. So much more imperative is it that their sectional area should be in many instances increased, not on account of vertical pressure, but, if need be (which is very likely), to resist in some measure a lateral thrust.

In the second place, to make a great stride from domestic architecture to marine, there seems a grave doubt to exist whether we shall not eventually step over the bounds of prudence, and by using iron to an excess, forget that good old seasoned oak has ever weathered the storm in days of yore. The uncertainty of iron in the storm, as proved in the case of the "Royal Charter" and others, owing to its brittle nature, and if it fails at all, in the completeness and suddenness of the catastrophe, must go far to enforce caution on those who are now using it to so great an extent. Highly questionable is it whether it will really last so long as the stout timber; some, nay many, think not, but for the furtherance of sailing properties, we cannot doubt its exclusive advantages. Great improvements will render it more valuable. Cast steel, being of course another preparation of iron, now used so largely for railway purposes, will, ere long, take its proper place, and no doubt will answer, though it cannot in all the modes anticipated by its too sanguine admirers. All we have to guard against is excess, and in engineering or architectural science moderation may be considered a virtue, as in other things. We do not depreciate enterprise when it is conducted in a legitimate and scientific manner, but it is often but a foolish venture, and the strength of material has sometimes very little consideration.

Extensive alterations and improvements are being made at Bride's Church, in this city, under the directions of the Ecclesiastical Commissioners' Architects, and partly comprise new windows, sashes, &c., a pulpit, reader's desk, pewing, &c. Messrs. Barker, of Upper Abbey-street, are the builders.

Twenty-nine houses are proposed to be built simultaneously at Bray. Mr. O'Kelly, architect.

A new Protestant Cemetery is to be formed at Waterford; the Lord Bishop of Cashel gives £100 subscription towards the purchase of the ground.

A new Convent, dedicated to "Our Lady of Mercy," is to be built in the town of Newry. Mr. John Bourke, Architect.

The Armagh District Lunatic Asylum is to be altered, under the direction of Mr. J. Boyd, Architect, Belfast.

The new Catholic church of Killinagh, near Ross, is being proceeded with, and the walls are advancing to completion.

A new National Schoolhouse is to be built at Ballycorus, near Golden Ball, by the Board of Public Works. [For Particulars as to Tenders refer to our Advertisement pages.]

A new Roman Catholic church is to be built at Collon, county Louth; the skeleton and the roofing will be proceeded with on separate contract. Mr. Murray, architect. Tenders to 2nd instant.

THE NEW AUGUSTINIAN CHURCH, JOHN-STREET.

In Notices of the Architectural Designs at the Royal Academy Exhibition by our London contemporaries we find the following, which have taken us somewhat by surprise, as we had authority for believing that the building in question would have been left open for competition by the profession.

"The view of 'St. Augustine's Church, Dublin' (657), exhibited by Mr. E. W. Pugin, represents a design by Messrs. Pugin and Ashlin. The building is, we suppose, one lately erected; but, by one of those omissions which we have frequently to mention, the catalogue does not inform us on the point. The whole western end of the church for the space of one bay of the aisles, rises to the height of the clerestory, so as to form a transept on the western extremity of the plan; whilst the tower rises still higher, and is oblong on plan—being carried upon one bay of the nave. The roofs of the transepts are hipped at the ends, and the tower is crowned by a high-pitched roof, on a similar plan. There are three doorways, and windows over them, the centre being made prominent by a lofty arch, the window under it circular. The whole west end, as shown, has considerable novelty and merit."

657. "This is another fine Roman Catholic church, 'St. Augustine's, Dublin,' by Mr. E. W. Pugin. The tower is raised over one bay of the nave, and is thus broader from north to south than from west to east. The roofs of the corresponding bays of aisles are carried a little higher than the others, and abut against the tower, which gives a very agreeable outline to the building. The details are worked out with Mr. Pugin's well-known skill. The only objection we have to make is the same which we noticed in his drawings in the Architectural Exhibition, that it is rather overloaded with ornament and the features too crowded together."

Organ Building.—Messrs. Telford, of Stephen's-green, have erected a powerful instrument, combining great organ, 56 notes; choir organ, do.; swell organ, 44 do.; pedal organ, with grand double diapason, 16 feet pipes; three composition pedals, coupling action, swells, 82 stops, and 1610 pipes, in the new church of St. Catherine, Meath-street. It is in a gallery at the west end of the church, and the case placed at either side of the great window so as not to interfere therewith.

A new and powerful organ has been erected in the Roman Catholic Church of St. Paul, Arran-quay, by Messrs. John White & Son, of Bishop-street. It is said "to reflect the highest credit on native labour." The design is Grecian, to correspond with the style of the church. There are 42 stops and 1968 pipes.

Two lime-kilns, built by order of the Marquess of Conyngham, are now at full work outside Kilkee, and the Messrs M'Donnell, of Kilrush, have introduced brick burning at Fougha, which affords great facility for building. The Messrs. M'Donnell have erected a hotel at the west side of Kilkee, of brick material.

The telegraph cable of 1,200 miles, to be laid between Rangoon and Singapore is being tested by Mr. W. Reid's process, which consists in placing a coil of gutta percha in an air-tight cylinder, which when exhausted, a column of water is allowed to rush in, filling up the holes and crevices; and in this state tested by a delicate galvanometer. A pressure equal to that it must bear in the bed of the ocean, is then applied, and if there be any defect in the insulating medium, its detection is inevitable. The cost of testing is less than £5 per cent. on the cost of the cable.

The Great Prize Drawings.—Despite the Government warning, the "Limerick Athenæum and School of Art" and the "New Catholic Church of Carrickmacross" prize drawings *will* be proceeded with. In the former case there will be a prize of £300, of £200, of £100, of £50, of £40, two of £25, three of £20, and twenty of £10 each; and in the latter thirty-one, ranging from £1,000 to £10. We have already expressed ourselves on the principle of this system as regards "religious structures."

The Catholic Young Men's Society.—We perceive that there has been a Concert in aid of the Funds of this Society, and said to have resulted satisfactorily. The Committee have published a complimentary statement "in grateful acknowledgment of Miss Julia Cruise's gratuitous services," and of the earnestness and vigour which characterised her performance on the occasion, evidencing her benevolent disposition, and adding another proof—if needed—of those splendid gifts she possesses, and which must always insure success for any undertaking of the kind she may assist in. The obligations of the Society to the other artistes, Mrs. Cantwell, Mrs. Mahon, Mrs. Manley, Mr. Halton, and Mr. Reane were also recorded. This Institution presents many advantages to those for whom it was established, and is exclusively Catholic in its tendencies.

New Lunatic Asylum for Donegal.—It is proposed to build a separate Lunatic Asylum for this county. As yet we believe it has not been determined whether the site will be at Letterkenny or Lifford.

SAINT ANDREW'S NEW CHURCH.

The Paternity of the Designs.

RELEASED from the two distinct ties that bound us in giving our last report to preserve the incognito of the competitors—the one, justice to the authors, that *each* might equally enjoy his opportunity of asserting a claim to the palm; the other, that the committee of selection should be unprejudiced in their decision by a parade of names, some bearing the *prestige* of favourable professional antecedents, while others were less fortunate—we resume the subject, disregarding the *noms de plume* and divulging the authorship. We must, however, remark, that the obligation above alluded to was self imposed from a sense of good taste, which we notice with much regret is not invariably observed by brother journalists with similar mission to ours; and from the various communications—unexceptionally complimentary to the impartiality of our review—we are induced to hope that it has been appreciated. We abstain from referring in this personal notice to the authors of those designs whose display did not come exactly within the circle of our approbation, in the sincere desire that our pen—while guided by an independent hand, and a spirit scorning undue respect of persons, at the same time bent on awarding merit to those who deserve it—may never *intentionally* communicate offensive expressions to any.

Following the same course as before, but merely *glancing* at "Finem respice," we come to the design marked "Fides," by Mr. Slater, respecting which, having already expressed our opinion rather fully, we will not further notice. Passing thence to No. 4 on our list, "Resurgam," we may correct a very general misapprehension by stating, that the author was Mr. William Atkins, of Cork, although attributed to Mr. Brandon, and although that gentleman's (Atkins) name was erroneously identified with another "Resurgam," placed between monogram "Shamrock in a circle" and "Excelsior," in a corresponding angle of the octagonal apartment, and which now we learn was by Mr. Drew, a young architect evidently of ability. To Mr. Drew's merit be it stated, that he wrote to us from Naas, specially informing us of the error, and modestly alleging "that a gentleman of Mr. Atkins's known taste and experience, would scarcely feel flattered at having the design of a very young and comparatively inexperienced architect attributed to him." Mr. Bell, pupil of Lanyon and Lynn, and recently connected with the architectural department, Board of Public Works, was represented by monogram "T in a circle." Again—only *glancing* at *the* "Resurgam" in pity more than anger—we pass to "Delta," by Mr. Semple, architect, who somewhat closely, but much less successfully, perpetuates the same style as that adopted in the Black Church, Mountjoy-street, and in Rathmines Church. Mr. Rawson Carroll, the successful candidate in two recent important competitions—viz., the new Commercial Mart in Grafton-street, now completed, and the Molyneux Church and Asylum at Leeson Park, as illustrated in April number of the DUBLIN BUILDER, adopted as his motto "In fide et in bello fortis," and, as already stated, his designs—two in number—were most creditable; one, the cheaper of the two, somewhat preferable to the other. In the next compartment, Mr. Raffles Brown, with uncoloured, but beautifully handled elevations, and half-finished plans and sections—the set distinguished by "Templa quam delecta"—nevertheless shone refulgent in excellence, and we hazard no censure in advancing that the competitors themselves united in that admission. The financial question relative to this and others, we, of course, for the present leave to the committee to exercise their discretion upon. We must observe, that Mr. Brown was not associated with any other professional in the competition. Probably we assume erroneously in surmising the absence of Mr. Woodward's assistance in the design, "Donec templa refeceris," by Messrs. Deane and Woodward, without disparagement, however, of the capabilities of the gentlemen connected with that firm, and which are of no minor order. Frankly, however, there *was* a feeling of disappointment, probably arising from the invariable expectancy that first-rate artists must never be below the mark, even to a line. The geometrical drawings were, nevertheless, executed by a neat and skilful hand—probably somewhat too rigid; but the external perspective, though a masterpiece of colouring in its style, failed to make the intended favourable impression. The authors of monogram "Shamrock in a circle"—Messrs. Lanyon and Lynn, of Belfast—may justly be proud of the head that conceived, and the hands that manipulated, the exquisite treatment of this most excellent study; and though in the result labour may be partially unrequited, nevertheless it is a something to feel that it has been regarded with intense interest and admiration, as well by the public as the professional competitors. As already stated, there was not a second opinion as to this being A 1; but the committee finding that the amount requisite to carry out the work in its integrity, was considerably in excess of their available funds, and the amount stipulated in the instructions, applied to the firm for an amended design, which was accordingly furnished. This design is substantially similar to the original in its main constructive features, but considerably divested of ornamentation, flying buttresses, crocketed pinnacles, elaborate tracery, &c., and of course the imaginary appendages introduced by architect's license in the previous drawings. The *toute ensemble*, however, is most pleasing, and ably treated. We learn that it is accompanied by an estimate from a Belfast builder, that the work provided for can be executed within the stipulated amount. Next to these are Mr. Drew's designs, under the motto "Resurgam," previously referred to, and though under the disadvantage of being placed in juxta-position with the brilliant star next it, the smaller planet, nevertheless, shines prominently in the hemisphere of talent. Belfast is again in the ascendant—at least *adoptedly* so—in the drawings of "Excelsior," by Mr. Thomas Turner, which elicited—and deservedly—general admiration. Mr. John M'Curdy, of this city, was the author of the designs marked "Dum spiro spero"—the last on our list—next the entrance doorway, and evidently incurred much trouble and expense in their preparation. The order of merit in which the committee have placed the six designs selected for final consideration, is—

Lanyon & Lynn (conditional)	1st.	Deane & Woodward	4th.
Ditto	2nd.	Thomas Turner	5th.
Raffles Brown	3rd.	Rawson Carroll	6th.

We presume that the next step of the committee will be to seek for tenders according to the amended plan, and probably we may have more to say by-and-by.

QUANTITY AND QUALITY OF WATER IN BELFAST.

FROM a report, dated October, 1855, by the Water Commissioners of Belfast, as to the supply with water at that period, we quote the following :—

That "The inadequate supply of water in Belfast has been for many years a matter of great and *increasing anxiety* to the Water Commission. The supply from streams and springs to the old and new reservoirs amounts to about five gallons a day for each inhabitant—only one-fourth of the quantity which is estimated as a sufficient supply. And it is not only insufficient, but precarious. *During dry weather* it has several times been near failing altogether. The present scarcity is such that the Commissioners have lately found themselves unwillingly compelled to refuse supplies of water to steam-boats, and they fear they shall be obliged to withdraw all special supplies whatever, that is to say, supplies to steam-engines, factories, soap boilers', butchers', and bakers' establishments, stable-yards, public institutions, and every kind of tenement, except dwelling-houses. And *there is no possibility of obtaining* an increased supply from the present sources, in consequence of the great value which every stream in the immediate neighbourhood of Belfast has acqired for steam and manufacturing purposes.

"In this emergency—the supply being always insufficient and often in danger of failing—the Commissioners have for some time past been compelled, though reluctantly, to increase it by pumping in part from the Lagan. *This water is filthy and impure*, and it has also the disadvantage of costing £1,600 a year for pumping. So *polluted a source* of supply is of course to be regarded as only a temporary expedient to meet a pressing necessity."

Such was the testimony borne by the Water Commissioners themselves. But if the water be bad in quality, or, to use their own words, FILTHY AND IMPURE, and only one-fourth in quantity of what it ought to be, the payment demanded by the Commissioners ought to be small in proportion The reverse, however, is the case, as may be seen by reference to another portion of this journal, where the taxation of the town is treated of.

The Commissioners say, in the manifesto from which we have already quoted :

"Nothing promotes the prosperity of a town more than an abundant supply of pure water, which is essential to almost all manufacturers and to the use of steam-engines. Another very important advantage of an abundant supply of water will be the easier extinction of fires."

With these statements we heartily agree. Property to the extent of £80,000 has been consumed by fires in Belfast during the past ten months, and the loss to insurance companies has been £70,000; yet, the Belfast Water Commissioners met after the great fire in Victoria-street, which consumed the Victoria Chambers, and passed a vote, declaring the supply ample, and that no blame was to be attached to them. It would seem that this method of setting themselves right with the public was of little avail, as the following appears in the *Daily Mercury* of 16th May :

"The Water Board, we must say, has of late been doing all in its power to disgust the town with its separate existence as an independent corporation, and consequently the feeling is now general that it ought to be abolished, and its trusts transferred to the Town Council."

We regret to say, in addition, that the Town Council have not earned many laurels for the wisdom and economy with which they have managed their own affairs for the past ten years of their existence. But as the rod of correction has been applied to them with no unsparing hand, in the shape of a suit in Chancery, which has now lasted five years, perhaps we might anticipate better conduct for the future.

All that the Belfast Water Commissioners have hitherto done they have done unwisely. They made an agreement to pay the Charitable Society £800 per annum for ever for some dirty water and rotten wooden pipes, the water lying below the level of the kitchen floors of many houses in the town, and cannot be delivered 5 feet above the level of any street. They had also undertaken to pay the Marquis of Donegal £550 per annum for what they now contend that his lordship cannot give them, and for which they are consequently unwilling to pay. But we believe a decision of the courts has been made against the Commissioners, and the unfortunate inhabitants will have to pay not only that, but a neat little sum in the shape of law costs.

What, then, can be done that our towns may be delivered from the incubus of these mal-governing bodies, so as to attain a position in which they may be enabled to supply themselves at a moderate expense, with that indispensable necessary of life, pure water? Elsewhere in this journal, on the subject of "rain-water as an auxiliary," we have shown that a catchment basin, one square mile in extent, or 640 acres, at a sufficient elevation, would supply 25,000 persons with an adequate quantity of water all the year round, if economized and equallized in a reservoir, and also that most towns have mountains in their vicinity of sufficient extent and elevation to yield more than can ever be required for the supply. Providence has bountifully supplied our country with many blessings; amongst them, with water in abundance. Then why should it be dealt out to us by Water Commissioners with such niggardliness? The proverb says that "what is everybody's business is nobody's business," and in truth, all neglect their own individual interests, whilst a few ambitious persons put themselves forward as commissioners for supplying a town with water, and succeed only in preventing the effectual accomplishment of that desirable object, whilst they inevitably fall into the hands of some cunning attorney who turns them and their projects into money-making transactions for himself. Being in 9 cases out of 10, men of business—grocers, manufacturers, booksellers, auditors, and merchants, anxiously desirous to make money by their calling, whatever it may be—they cannot be expected to devote the necessary share of attention to the affairs of the trust which it would require, whilst, at the same time, none of their antecedents would lead us to suppose that either nature or education had fitted them for properly discharging the duties of a water commissioner.

Then, another evil exists. The staff absorbs a large amount of the annual income. Clerks, collectors, engineers, inspectors, turncocks, gatekeepers, &c., all must be well paid.

Again, the question arises, what is the remedy? Unfortunately we cannot turn to any unpolluted source. If we say it would be better to have the water supply of a large town managed by one paid commissioner who would devote himself wholly to the matter, and be appointed by the Lord Lieutenant, and made responsible for the proper discharge of his duties, we might be told, perhaps correctly, that it would be merely making so many situations for the adherents of the government of the day. We would doubt the expediency of this arrangement. One thing, however, is palpable, viz., that the inhabitants of towns should lay aside their contentions and unite for the common good, selecting a better class of men for public offices. It is high time that we had a little more economy in the expenditure of public money, both in the state and corporations, as well as in the construction of our wooden walls. Our boasted liberty seems little better than a snare to us, enabling the few to govern and tax us for their own especial profit and advantage.

A NEW CEMENT.—Professor Edmund Davy lately read a paper before the Royal Dublin Society relative to a cement which he obtains by melting together in an iron vessel two parts by weight of common pitch with one part of gutta percha. It forms a homogeneous fluid, which is much more manageable for many useful purposes than gutta percha alone, and which, after being poured into cold water, may be easily wiped dry, and kept for use. The cement adheres with the greatest tenacity to wood, stone, glass, porcelain, ivory, leather, parchment, paper, hair, feathers, silk, woollen, cotton, &c.

A WONDERFUL OPERATION.—The *Chicago Press and Tribune* describes the raising, by means of screws, of a solid front of first-class business blocks, three hundred and twenty feet in length. The block comprises thirteen first-class stores, and a large double marble structure—the Marine Bank buildings—all presenting an unbroken front, and filled with occupants. The block had been raised four feet eight inches in five days, and the masons were busy putting in permanent supports. The entire weight raised was about 35,000 tons, and so carefully had this been done that not a pane of glass was broken, and the internal order of the block had remained undisturbed. Six thousand screws, and about six hundred men, had been employed in the process. The paper adds, that the work as it then stood was worth a walk of miles to see, and had been the marvel and wonder of the inhabitants since it had commenced.

OUR PUBLIC MONUMENTS AND FOUNTAINS.

EVERYBODY seeks novelty, with an appetite that seems to grow by what it feeds upon; and as, physically speaking, human nature continually requires sustenance, which to be palatable must be novel, so, mentally, novelty is the very charm of our existence. By novelty invention thrives; and, though the practical man invokes the spirit of routine, he thrives by that of invention, and without it his enterprise will not avail. If we can, then, by suggestion aid in the glorious work of invention, reproduction, and adaptation, we consider that we fulfil an important part of our duty as journalists and dotters down of universal progress in the arts and sciences as applied to the useful and ornamental.

> "A chiel's amang ye taking notes,
> An' faith he'll prent 'em" ——.

When we contemplate the many examples of architectural and engineering talent by which we are surrounded, we cannot but be somewhat surprised that there are works of art—and those the most conspicuous—neglected or forgotten amidst the mass of detail. To enter an architect's office, and find him surrounded by building acts, bye-laws, quantities, &c., and trammelled by some clients who have formed strange notions of architectural beauty, and the value of professional time, we must not wonder that he should pay little attention (amidst such a fever of competition) to those generalities—viz., public improvements, wherein so many party interests are involved, to meddle with what is sometimes dangerous to his pecuniary welfare.

Public men are those, then, who should concern themselves about public matters; but, if these matters be not political or municipal, how seldom do they? In matters architectural, which history records as having been the most important among great nations of antiquity, they are provokingly silent; they heed not the editorial pen, and the truest records of a nation's greatness are often forgotten or neglected. However, the spirit of improvement is ever on the wing, and touches with his wand some patron of his country's genius.

Since the fountain movement was inaugurated by a private individual there have been great strides in that beneficial direction. In every city or town of importance in the three kingdoms they have been erected, some ornamental and some otherwise, by public and private funds. Designs are plentiful, many of them elegant; but we venture to remark, that they have not yet taken that important position which they deserve. To make them, at the same time, ornamental, suggestive, and monumental, should be our study; and hitherto our monumental system, with a few exceptions, has been painfully *outré*. In the public squares of our great cities, in our parks and gardens, to combine the mementoes of departed greatness with the emblems of life and health would be a combination much to be desired, and, when effected, much to be admired. To complain that the great poets, painters, historians, and philosophers find scarce a place among our public monuments, when monarchs of doubtful wisdom or morality, and warriors (we do not grudge the latter one tittle of their well-earned fame), find so many—to complain of this will seem perhaps carping and puerile; for "of what use is the marble, the cold emblem of a life neglected, after years of toil unrewarded?" But we may ask for a tardy acknowledgment of their great genius, their benefits conferred upon this and succeeding generations, by raising their effigies upon pedestals, from which water may gush forth, and surrounded by plants and shrubs, the whole presenting an opportunity for grouping superior to anything yet afforded, and displaying taste and veneration, two qualities of lasting excellence—for truly "a thing of beauty is a joy for ever."

This would we do; and now how to do it. A central pedestal, placed within a square or circular basin (surrounding a bed of plants or shrubs), the walls of which would form, as it were, a base to the whole. From the sides of the pedestal the water may flow in jets into the basin, which could thus return the water by pipes and filters. Piers may be formed in the walls of basin to carry ornamental lamps, which, filled with crimson or amber-coloured glass, would display the whole as clearly by night as by day. Besides being ornamental, central basins are ever useful in large towns and cities, affording ready access to water in cases of fire, when sometimes treacherous hydrants fail. We believe this principle has been adopted on the Continent, but, we think, not exactly as we have here suggested, and it is certainly one that calls for the consideration of our public men. To consider the idea here put forth as one involving too great an outlay may be quite natural; but, upon investigation, the combination would be found less expensive than when erected separately, or according to that system of instalment-building which is too often singularly apparent in works supposed to have a pre-conceived and well-digested plan.

When properly patronized and appreciated, none so ready as the architectural profession, true to their principles of art-worship, to carry out a feasible suggestion. Our ardent wish is to see again revived in our public men that spirit of patronage and appreciation which caused cardinals to step lightly upon the threshold of a Raphael, and princes to court the smile of a Michael Angelo! To induce this much remains to be done by the members of the profession, whose rival interests too often clash, and whose competitions unfortunately in many instances savour too much of hostility.

In suggesting a design, our limited space prevents us from giving more than a general hint or so. To solve it practically is not our province; but when fully assured of its feasibility, we recommend it to the attention of those who by position or profession may be enabled to embrace it. R.

THE ROYAL ZOOLOGICAL SOCIETY.

IT is much to be regretted that public patronage as regards annual contributions is so sparingly awarded to this excellent institution; and we believe that were it not for the combined "pennies" of the working classes—the Sunday visitors—it would cease to exist altogether. The subscription of *One Pound* is a paltry consideration for the upper classes, and the £223 accruing from members' subscriptions during '59 and '60, if such were the sole dependence of the society, would be totally inadequate to defray the feeding expenses of even a small proportion of the animals. Much pleasure, instruction, and healthful recreation is afforded by a visit to these gardens; and it certainly is a stigma on our philanthropists that the resources should be so crippled. How far they are appreciated by the toiling artizans of our metropolis is evidenced by the fact that in the changeable month of April upwards of *six thousand* persons were at one time within the gates on a Sunday afternoon; and during the year the number admitted at the *penny* rate was 134,926. Items in the last report are so illustrative both of poverty and claims for consideration, that we subjoin them in the hope of the desired end being even partially attained by publicity.

"The Council wish that, in turning from the humbler ranks to those who, by wealth and education, are placed above them, they could report with equal truth of increased interest felt, or increased support afforded by the wealthy classes of our metropolis; but the treasurer's balance sheet shows no gratifying evidence under this head. On the contrary, although thirty-seven new members have joined the society during the financial year, yet so many more of our old members and subscribers have ceased (or omitted) to pay their subscriptions, that the funds received from subscriptions and entrance fees are less by £29 12s. than in the previous year. The whole income of the society last year from every source was £1,854 5s. 1½d. At the close of 1858–9 there was a balance of £68 3s. 1¾d. against the society; at the close of the present year the deficiency is £296 0s. 2½d. A new house for the Carnivora, capable of properly displaying the fine series of lions, tigers, and leopards, now owned by the society, is very much needed, but its erection has been year by year deferred for want of *the requisite funds*. New cages for some of the larger quadrupeds and birds are also very desirable. The condor, whose outstretched wings measure ten feet, is at present, of necessity, cooped up in a cage of a very insufficient size; so that the fine specimen we possess of this noble and costly bird is in danger of suffering in health by its present confinement, and cannot be considered as being adequately housed until a cage of at least four times the dimensions of the present coop be provided. At present the unprotected side of the pond, as reported last year, 'permits the escape of our waterfowl, and leaves them exposed to mischievous persons, and to dogs.' It also allows the free ingress of deer from the herd in the park, and exposes the ornamental shrubberies to destruction by those wayward animals. This subject has been repeatedly brought under the notice of the government, and is still before the Lord Lieutenant; and your Council are not without hope that the official difficulties may be speedily arranged, and the entire pond enclosed within the garden fence. 'Impressed with the idea that one day or other arrangements will be made by which these extensions of the site will take place, I have been induced to prepare the accompanying design (No. 1) in which they are comprised.'—(From Report of Decimus Burton, Esq., Surveyor and Architect, 6 Spring Gardens, London, October 27th, 1832.)"

PAPERING WHITEWASHED WALLS.—Apply, a day or two before papering, a solution of common glue to the walls, hot and thin, and as it grows thick, add more boiling water. The brush should be applied thoroughly (a clean white-wash brush is best), and the wall must be well saturated with the solution. In papering, mix flour for the paste, with a weak solution of glue. In this way you can avoid using thick paste, which is very detrimental to the beauty and durability of a papered wall.

IRON BUILDINGS.

A VERY instructive discussion on the employment of iron as a material for structures took place, somewhat recently at the Polytechnic Club, New York, which we substantially, and through favour of *Architects' and Mechanics' Journal*, present to our readers.

Mr. Ayres said that iron buildings belong to the present century. Prior to 1847, there was not in existence one iron house. At that time, at the corner of Centre and Duane-streets, the first iron building was constructed by Mr. Bogardus. He noticed various buildings which had previously been erected partly of iron and partly of other materials. Fire-proof buildings could be made of stone, brick, and mortar, but they would be limited in size, and extremely expensive where ground-room is scarce. There never was a decoration or ornamentation of any kind which could not be re-produced in iron : and many effects could be produced in iron which could not be produced in stone. The cheapness of the variety of form which could thus be introduced, would displace the tedium of uniformity, and thus we should be enabled to imitate the surrounding diversity of nature. The old classic models we could imitate, and were imitated, in iron buildings; and this extended the classic taste even in the construction of stone and brick buildings; for there had been more architectural display within the last ten years than for the two centuries proceeding. He summed up the advantages of iron buildings as follows :—

1. The great facility with which any architectural design can be carried out in iron.
2. Great economy of space ; inasmuch as a thinner column of iron is required to support a given weight than any stone column ever constructed. A cast-iron column would rise to the height of several miles before its own weight would crush it.
3. Economy of construction of foundations, and safety to the building, notwithstanding any accidental imperfections of a part of the foundations.
4. The facility with which the building may be removed.
5. Security against lightning, the electricity being diffused over so large a surface as to be harmless.
6. Facility of ventilation.
7. Admission of light through large openings.
8. Durability ; outlasting all other substances.
9. Incombustibility, rendering it invaluable for public buildings, and for many private buildings, for the storage of valuable papers, works of art, &c.

In rendering buildings fire-proof, especial attention had lately been paid to the interior work. The peculiar form of girder employed by Mr. Bogardus is two pieces of cast-iron meeting in the centre, to the bottom of which, cast two or three feet deep, according to the weight to be sustained, a wrought-iron rod is secured. The old beam was formed by springing the wrought-iron tie-rod into the cast iron arch above ; and there was danger of weakening either one or both of the materials used, particularly if sprung too tight. If it were too loose, the superincumbent weight might crush the cast-iron before it would take any tensile strain upon the wrought-iron. The advantage gained in the combination of the wrought and cast-iron, by making the cast-iron in two sections is, that if the cast-iron does not come close together, it cannot have any effect at all, but the cast-iron will have a bearing finally, and will be precisely as strong as if made so in the first instance. In the support of great weights, experiment has shown this form to be superior to any other. A girder twenty feet long, with two feet rise, will support sixty or seventy tons in the centre without any deflection at all.

Mr. Bogardus's building is not entirely fire-proof. The floors are wood. The intention was, that if the building should burn down, the walls should stand. If an iron building be put up tied together by wooden braces, or the columns resting upon wooden floors, the building would fall as soon as the floors and the braces were destroyed. In the Crystal Palace the supports were of wood ; and the same is true of a great many iron buildings. If we are to have iron buildings, we ought to have iron buildings that will stand, even if all of the wood-work should be destroyed by fire.

Mr. Whittemore stated that in 1853 or 1854, a firm in Chicago put up a building with an iron front eighty feet in length. It was put entirely up, and stood three days. He happened to be standing within fifty feet of it when it came down in the street. There had been several instances since that time of fronts falling completely out. One front, on Lake-street, fell from the heat of a fire opposite. He ascribed the falling to the crumbling of the mortar by the heat, where it fell. It was supposed at the time that the heat was the cause of its falling.

Mr. Ayres—There is no expansion in iron buildings under any possible circumstances.

Mr. Whittemore—I know that at Chicago, I drew a building together some fifteen inches, merely by the expansion and contraction of iron. It bulged out fifteen inches, and was drawn together by nothing else than the contraction of the iron. It was for the firm of Geo. Letts & Co. ; the building was on Water-street.

Mr. Ayres—The building of Harper & Brothers', in Pearl-street, which has been standing there some years, has a front of seventy-five or one hundred feet in length, and it comes up against the brick wall at each end. There never was any expansion of that front to lessen, or contraction to increase, the distance between that front and the walls adjoining.

Mr. Garbonetti said that a building might be fire-proof if kept empty ; but if Harper's building should take fire, or a fire should break out in the contents of the building, they would be in an enormous oven, and the destruction of the property would be more certain than if the building were stone or wood. It was not the stone, brick, or wood of a building which usually took fire ; it was the contents of the building ; and he considered an iron building as more dangerous in case of a fire, for paper, or dry goods, or any inflammable material, than stone. The expansion of Harper's building, if the contents were on fire, would be enormous ; and he had no doubt would force out the walls of the surrounding buildings ; so that an extensive iron building would not be, in that respect, a very good thing as regards the surrounding property. The heat would be concentrated.

Mr. Ayres knew of one instance where the contents of an iron building had been consumed. It was a house in San Francisco, stored from the cellar up to the roof with all sorts of combustible materials. The whole inside was burned out ; for the floor was not fire-proof. After the fire the building was examined, and there was not a bolt sprung. The fire companies endeavoured to push down the walls, and could not do it. It only had three sides of iron, and the other side had fallen out. The next morning, thinking it dangerous to leave those three walls standing, they fastened ropes to different parts of the building, to pull it down, but it was too strong for them. The building was then taken down, piece by piece, and moved to another site, and put up exactly the same as before. There was no damage there from the expansion or contraction of the iron, nor did the water thrown upon it crack it.

Mr. Whittemore stated that a button factory was built in Chicago, two and a half years ago, and it had not been built six months before its contents took fire. It was heated so hot that it drew every bolt-head out, and started every screw in the building. The building came down one solid mass.

Mr. Reed stated that he had to-day accidentally seen a statement in the *Mechanic's Magazine* for 1824, that there was an iron light-house erected upon the wharf in Glasgow in that year.

Mr. Johnson spoke of iron buildings constructed prior to 1847 in this country. He had seen in London, in 1834 or 1835, a gas house entirely of corrugated iron and iron rods. As to these iron buildings being fire-proof, he thought that if the Cooper Institute should take fire below, probably the interior of it would all burn. Casting, when hot, has nothing like the strength it has when cold.

Mr. Godwin mentioned having seen cast-iron columns imported into this country, a good many years ago, and described the plan tried by John L. Mott, many years ago, casting square blocks of iron, in sections, and tying them together by a rod going down through the centre.

A gentleman remarked that with the construction adopted in fire-proof buildings, one floor might be burned entirely out, and the other floors might be saved. There was danger of cast-iron breaking from the sudden dashing on of cold water ; as when a stove is hot, the top may sometimes be cracked by opening the door and thus suddenly cooling the iron. Whether a body of iron like an iron column could be so broken must be determined by experience. When the heat is nearly at the point of fusion, the column must expand in the ratio of about one eighth of an inch to the foot ; for it was found that melted iron uniformly contracts in that proportion, and stove castings are calculated to be so much smaller than the pattern.

Mr. Seeley—I think Mr. Bogardus and Mr. Ayres would not dispute the fact that iron will expand by heat at the rate that is mentioned here, or that the expansion is irresistible. If you have a building a thousand feet long, it is going to expand, between ordinary ranges of temperature, nearly an inch If one end is fastened, the other end will move an inch, and nothing will resist it. If Harper's building is made in the way represented here, so as to be a firm structure, as if it were of one piece of iron, and if one end abuts against a brick wall firmly, it must move something at the other end, if there is anything there to be moved. If it abuts closely against two brick walls, they must be moved. If they are so joined to the iron building as to be a part of it, they will be pushed along. All matter expands by heat. Some expands considerably, though not so much as iron.. This was very well shown by Prof. Horsford, at the Bunker Hill Monument. On the inside he suspended a plumb line, and found that when the sun was shining upon one side, it leaned the other way, away from the sun. The side of the monument upon which the sun was shining would be so extended that the whole monument would sway northerly, opposite to the sun. But in very many iron structures, some account is practically taken of expansion, provision is made for it, and the amount is made visible to the eye.

It was stated at the last meeting, that it was the most modern practice in laying rails, that they should abut as closely together as possible, and I have asked a gentleman connected intimately with one of our largest railroads, who assures me that there must be a little error there in, for that he had noticed a rail damaged from the expansion when the rails were laid closely together, and curving upward from the sleepers.

Mr. Ayres—With perhaps a larger experience than any man in the whole country, Mr. Bogardus has never known a single instance in which the iron has expanded to such an extent as to make it necessary to take that into account in constructing his building. We are putting up a building now 700 feet long. No account is taken of expansion, nor has any expansion occurred. It was built here in cold weather, and sent south in very warm weather. The difference of temperature might amount to 158 dgs., yet there is not the slightest indication of any expansion, nor has there ever been in any building that has been put up. We may come to this conclusion, that if, in view of all the experiments that have been made—for we consider them experiments, although they had not that end in view—we can never discover that in any instance there has ever been the slightest variation, and we may assume that, for all practical purposes, there is never any variation; and consequently, the contraction or expansion of iron, as applied to iron buildings, cannot have the slightest bearing upon the subject.

Mr. Whittemore inquired if Mr. Bogardus ever used the expansion or contraction of iron in building; and alluded to the practice of shrinking collars on to their places to ensure a snug fit.

Mr. Ayres—Undoubtedly we do, in the manufacture.

Mr. Whittemore—If it will shrink in that instance, why not in another?

Mr. Ayres—In making castings, of course we take it into account; and in machinery we undoubtedly shrink on collars.

Mr. Howe reconciled the theories in this way: that the expansion is very slight, and that the resistance to that expansion, when the building is put together, and upon a firm foundation, is sufficient to prevent the force of the expansion from being felt. Perhaps the building does not move, but is held by its weight from assuming the extended form which it would otherwise assume by the change of temperature, unless the heat is greatly increased.

Mr. Seeley—I can very readily perceive that if you put iron in a skeleton form, and make a building in the shape of a cube or a parallelogram, it expands as a whole, and proportionally in every direction. If you increase its length by a thousandth part, by heat, the height is increased by a thousandth part, and the relative proportion of the parts is not varied. The building does not change its shape. Mr. Ayres will not doubt that if he has a building 700 feet long, and an iron roof of a large span, and extending over the whole 700 feet, a very little expansion would throw his ends out. Wherever iron of much length is introduced in the form of an arch in such a way as that, the expansion must be taken into account; and if they have not taken this large expansion into account, it is only, I think, because, from the peculiar manner of putting up their buildings, the parts are at right-angles to each other, forming systems of parallelograms.

Mr. Ayres—The roof of that building covers 150,000 square feet. We have madeno provision whatever for expansion, and are not very apprehensive that it will push the walls down.

Mr. Garvey reminded the Association that there is expansion from other causes as well as from heat. Practically, the expansion from the changes of the weather is insignificant. The expansion of wood from hydrometric changes of the atmosphere leads to much greater results. Nearly all the cracking in buildings is caused either by the expansion or contraction of brick, mortar, wood, and stone. The expansion of iron by heat is utterly insignificant in comparison with the others. Take a piece of wood in dry weather of a given length, and if the weather becomes moist, there will be an appreciable expansion in length, while a piece of iron, with the most minute philosophical examination, shows no expansion whatever. The question with regard to building was merely as to relative expansion. It is said that "an inch on a man's nose is a great deal;" but an inch in a hundred feet is not a great deal. A dozen joiners going over it, one after another, with their rules, would differ nearly by that amount in their measurement. The expansion, therefore, is altogether insignificant in this respect. There is not a wall about a building that does not expand or contract more or less. If one part expands more than another sufficiently to throw the wall beyond its base, it comes tumbling down. Again, the joints in iron buildings, frame them as closely as you can, are not absolutely in contact. There is no such thing as bringing the parts into absolute contact, and those minute spaces must be filled up by the expansion before it can exert a dangerous thrust in either direction.

With regard to the danger of fire, the material of the shell will by no means render a building fire-proof. The great danger in modern buildings is, that the partitions create a flue already charged with kindling and fire wood. They are generally put up with studs, leaving an air passage between them. Shavings fall in, and fragments of chips, and bits of laths, and the partition is wood. Start the fire, and you have it ready to blaze, and a draft to the very top of the house. Every apartment should be cut off from every other to prevent this danger. But even a building wholly fire-proof is not perfectly secure from fire. Any building may be ruined by filling it with cotton, gunpowder, or other combustible material, and setting fire to it. Mr. G. proceeded to speak of the advantage of iron in the increased facility of the introduction of light and air, which was rendered necessary in the advancement of civilization. He would take exception, however, to the model introduced, placing one column directly over the other in the manner exhibited.

Mr. Seeley stated that wood expanded more than iron, or any other metal, from hydrometric changes; but that it was at the same time pliable and elastic, so that the expansion could be easily resisted, while the force of iron was practically irresistible. The hydrometric expansion of wood was chiefly across the grain—in length it had been stated to be nothing at all. The wood in buildings was generally placed so that the strain would be lengthwise.

Mr. M. Haskell exhibited specimens of iron roofing. He said that iron for roofing was so much exposed to oxydization that some special means must be used to protect it from the weather. These specimens were of iron, coated with india-rubber which was dissolved in linseed oil, and brought to a liquid state. The iron was heated to 350 dgs. Fahr., immersed in theliquid, taken out, and dried in a drying-room or oven. It would thus be thoroughly covered with a substance impervious to moisture. To allow for the expansion and contraction of the iron from heat and cold, the joining was so made as to allow an expansion of 1-16th of an inch. The plates are two feet wide, and nine feet long. Each plate has the two sides turned up at right-angles, and projecting pieces at one side, by which to nail it to the roof. The turned-up sides are folded, in putting it on, one over the other, and then both together, so as to make it perfectly tight. After the whole is put on it is painted with india-rubber paint, coloured as desired with various pigments, no drying being generally used. The roof is thus perfectly water-proof and tight. The india-rubber paint never contracts or blisters. Mr. H. stated that when the Crystal Palace was burned, there were on exhibition several large glass jars of the india-rubber paint. The glass was melted, and the paint was baked upon the outside, but inside it was perfectly green. It would not burn even under these circumstances.

Mr. Vanderwede said, that if a beam were contracted by cold, it might be prevented by great weight from recovering its former length. So if a horizontal beam were exposed to a great weight and expanded by heat, it would more easily bend, and might not become straight again.

ANSWERING LETTERS.—That a large proportion of the community seems to be totally ignorant of, or if not so, what is more culpable, wilfully to disregard the courtesy of "*answering letters*" is certain. Yet, strange to say, an infinitely small proportion of *that* proportion are so blind to their own interests as not to become ready correspondents when the subject refers to their own immediate profit, and that the position of creditor and debtor becomes reversed. Write, enclosing an order for goods, or suggesting a benefit, and you receive *per return* an acknowledgment of "*your favour*," but write, enclosing an account for money due, and you *may* write and *re*-write, rejoicing in the privilege accorded to you by your *silent* and *absent* friend of adding to your taxes, and increasing the Queen's Revenue by an unnecessary and useless destruction of postage stamps. Probably *we* are not singular in this—indeed we *know* we are not—but touching ourselves, the discourtesy complained of and from quarters one may have the least right not to expect it, becomes more apparent. Proprietors of periodicals or newspapers, or those whose avocations impose on them much correspondence, learn a *trifle* of human nature after a very short while, experiencing politeness often from the otherwise ignorant and lowly, friendly considerations, and off-handedness of dealing from the stranger; while from those whose education ought *to teach them better*, and overwhelming with professions, they fail to extract even "the favour" of a line, and discover that friendship of the *tongue* and the *pocket* are very widely different. Three, four, probably half-a-dozen letters upon an uninteresting subject may be addressed to some without any notice whatever, but if perchance the recipient be encountered personally, the diplomatic alternative is adopted either of feigning grievance at being "*so dunned*," or the opposite in *suaviter in modo* style of taking your arm, apologising to "my dear friend" for *seeming neglect*, but "really being overwhelmed with business, had not time to reply," &c., &c.

FATAL EXPERIMENT WITH SAFES.

SOME experiments as to the burglar-resisting and gunpowder-proof qualities of safes came off recently at Burnley, near Manchester, and one of them resulted unfortunately in the death, by explosion, of a fine child, aged seven years, by name Robertshaw Frankland. The safes tested were respectively 26 inches by 20 inches by 20 inches, the manufacture of Messrs. Milner, of Liverpool, and 33 inches by 25 inches by 25 inches (fitted with an improved patent "*Ne plus ultra lock*"), by Mr. Price, of Wolverhampton. Mr. Davis, one of Milner's local agents, declared that their safe was not one of the most recent manufacture. According to the *Burnley Advertiser* we learn that Mr. Price delivered a lengthened address on the principle and merits of his safes, admitting that Milner's small locks are gunpowder proof, but denying that the lock chamber is so, and that Milner's representatives challenged Price to test theirs with *his*, which the latter declined, as also a request to allow the chamber of the lock to be examined. Mr. Freestone, a tradesman from Nottingham, undertook to open Price's safe in ten minutes, but made two ineffectual attempts with gunpowder; whereas, Price's assistant applying a fuse to Milner's, it was moved several yards from its position, the door blown completely off the hinges, the dovetails of the body in several places drawn out of the lock-chamber, and the wooden filling blown to pieces. It took 7½ minutes to drill the hole, through which about ten ounces (another account states about two pounds) of powder were put. The third safe tested, however, was Price's, and was blown to pieces; and at this stage of the proceedings the lad lost his life.

The *Liverpool Courier* gives the following version of the affair:—

> About a fortnight ago, a Mr. George Price, of Wolverhampton, who has set himself up as a rival of the well-known firm of Milner and Son, of the Phœnix Works, in this town, appeared at Burnley, with two safes of his own manufacture, for public testing, announcing that they were fitted with his "*ne plus ultra*" lock which defied the efforts of burglars, whether aided with crowbar, drills, or gunpowder, and offered any one present £50 who should be able, by any means, to force them open on the ground. A working mechanic belonging to the town stepped forward, and boldly accepted the challenge, stating that he would blow them open by gunpowder. Mr. Price defied him to get gunpowder sufficient either into the lock or chamber to force open either safe, and the man set to work with one of them, which was placed on its back for the purpose. The man, however, managed to get so much powder into the first lock that Mr. Price declined to let him fire it, but defied him to get as much powder into the other lock, if the safe was placed on the ground in the ordinary position, with the door outwards. Notwithstanding this change of position, however, the operator succeeded in getting a still larger quantity of powder into the lock of the second safe, but Mr. Price still declined to let him fire either, alleging as an excuse that there had evidently been some mistake in the manufacture of the locks, which he could not explain without careful examination. The operator accordingly claimed the £50, but Mr. Price refused to pay it to him under the circumstances, and the experiments terminated amidst the loudly expressed dissatisfaction of the assembly. Subsequently, Mr. Price published an explanation in the Burnley newspaper and elsewhere, to the effect that his men in fixing steel nozzles of peculiar construction on the two locks, had neglected to make them long enough to go completely through, and so destroyed their intended value. He announced, however, that he would make a renewed trial on Monday, 30th April, with a new safe made for the occasion, and fitted with an "improved" *ne plus ultra* lock, which should be really impregnable. It was further intimated that Mr. Price would, in order to show the superiority of his safes "blow up" one of Messrs. Milner's *best* construction, on the ground. Accordingly a very large concourse of people assembled on the spot selected for the trial, and two o'clock, p.m., precisely, had been announced by Mr. Price as the hour for the commencement of what he facetiously termed in his placards and handbills—"This great and highly interesting event—the Fight for the Championship in the construction and manufacture of drill-proof and burglar-proof safes."
>
> Mr. Price had on a lorry a new safe of his own construction, and one purchased some eight or ten days before from Messrs. Milner's agents at Manchester, which he said he would blow up, while defying any to effect the same with his. Messrs. Davis and M'Clunnan, the agents of Messrs. Milner at Manchester, had one of the *latest* constructed Phœnix safes on another lorry, which they on their part defied Mr. Price to open. Mr. Price, however, declined to have anything to do with the *new* safe, but repeated that he would blow up the *old* one. A good deal of wrangling took place as to how the tests should be conducted, and Messrs. Milner's agents admitted that the safe Mr. Price had might be blown open by a person thoroughly understanding its construction, and knowing how to get in the powder. Mr. Davis requested Mr. Price to consent that the chambers of the two best safes of either construction should be examined, but Mr. Price declined to exhibit his safe in this manner, saying that he had improvements in the lock and chamber which he had not yet patented, and must therefore keep secret. Notwithstanding the admission made by Messrs. Davis and M'Clunnan, Mr. Price and his assistants proceeded to drill and insert gunpowder into the door of the *old* Milner safe, and blew it open without accident, the door being wrenched off, and the body of the safe thrown a distance of a few feet, the lock, however, remaining uninjured. Mr. Davis pointed out that this was by no means a fair test, for a burglar would not have that intimate knowledge of the interior construction of the safe which Mr. Price's examination had enabled him to acquire, nor would he venture, for fear of detection, on such a serious explosion as had been necessary to rend open the safe in the present instance.
>
> While these proceedings had been going on the utmost excitement was displayed by some hundreds of persons, chiefly working men, who were assembled on the ground, and there were loud cries to try one of Price's *old* safes by a similar test. A safe recently purchased from Mr. Price's agent in Burnley had now been procured from Mr. Robertson, a local manufacturer, and upwards of a pound of powder was introduced through the lock. The charge was fired, and the immediate consequence was, that the safe was utterly blown into fragments, which flew about in every direction. One piece of thin plate iron, about a foot square, flew off at right angles from the side of the safe and struck the boy, who was crouched in a corner some dozen yards off, cutting away the left portion of the upper part of his skull.

The jury on the inquest found a unanimous verdict of "accidental death," coupled with an opinion, that "*both parties deserve severe censure for attempting such dangerous experiments in presence of the public.*"

The father of the deceased accepted from Mr. Ratcliff, who fired Price's safe, £15 15s. as compensation *for the loss of his child!* funeral and other expenses being likewise paid.

VALUATIONS AND TAXATIONS IN THE NORTH.

IT is not only a matter of notoriety that the tenement valuation of Ireland is still incomplete, but that it is retarded by the exclusion of competent valuators, that the period of service of favourite employées might be protracted. We know of some efficient parties who applied for employment, but could not obtain it, and they complain to us bitterly of the injustice so perpetrated. This is neither just to those whose abilities entitle them to at least "a share," nor to the public whose interest must materially suffer by such a dissatisfactory state of things. In Belfast there are no less than six bodies having powers to tax the inhabitants. The Vestry Poor-law Guardians, Harbour Commissioners (power to tax indirectly) Town Council, can make their different rates. Police, Borough and Bath-house Rates, Water Commissioners, and lastly, the Grand Jury. Three of those make valuations, or pretend to do so for themselves, *i.e.*, Poor-law Guardians, Town Council and Water Commissioners, and the Grand Jury use the Poor-law Valuation. All these taxing authorities seem most anxious to keep their valuations at the maximum point, in which they are greatly assisted by the Town Council Valuator, and celebrated collector of the parish rate in days of yore, when political contests were fierce and frequent. We hope the Chief Commissioner of Valuation will push forward his work with a little more alacrity, and introduce a uniform and unimpeachable valuation into the hands of these taxing bodies with as little delay as possible, and deliver the inhabitants from the tender mercies of them and their valuator, at least so far as regards valuation. The utmost extent of the rating power of the Town Council is 16d. in the pound on dwelling-houses, and the rate demanded is seldom less. This year it is 14d., but in order to increase their income (for it seems that no corporation can ever satisfy itself with the amount squeezed out of the pockets of the people) they cause the valuation of houses to be made at the full sum paid by the tenant, the landlord keeping the premises in repair, and paying insurance and income-tax. This corporate body acted similarly for many years, until a decision of the barrister compelled them to reduce their valuations to that of the poor-rate.

THE ROUND TOWER OF CLOYNE.*

THE ancient and interesting town of Cloyne is situated in the barony of Imokilly, and county of Cork, from the city of which it is distant nineteen miles; it is seated in the heart of a rich and highly cultivated country, being embosomed in gently rising hills, and does credit to the choice of the ancient fathers who here took up their abode in very remote times.

Cloyne is known in our annals as Cluain-umha, or Cluain-vania, the latter being a Latinizing of the former; Dr. O'Brien describes *cluain* as signifying "a plain, a lawn, a remote or retired situation," and *umha*, "a cave, den, grave." Thus it is often styled "Cluain of the Caves," as there are in the immediate neighbourhood caves of remarkable extent and beauty.

The earliest notice we have of Cloyne is connected with its ecclesiastical foundations, as we find that in the sixth century a bishopric was founded here by St. Colman, son of Lenine.

It is a matter of surprise and regret that we know comparatively little of these puzzling and singular structures. Start not, reader! I admit that volumes have been written on them, that lives have been spent in poring over the dusty tomes of antiquity, to ascertain their history, their builders, and their uses; that much acerbity of feeling has been created, and much intolerance exhibited, in the pursuit of these investigations; but I still maintain that those learned and dogmatic Pundits have begun at the wrong end, and are, in consequence, no nearer the truth than when they commenced. As contributions to our general stock of antiquarian knowledge, their labours are not without their uses, but as attempts to set at rest the origin and uses of these structures, they have signally failed. It has always appeared to me that the true key to the mystery existed in the towers themselves, and that, until a careful examination and measurement of all or a great number of them were taken, and a critical analysis and comparison of them prepared in reference to their exact forms, proportions, details, and material characteristics, and a thorough exploration and examination of their contents, collecting all the traditions connected with them; I repeat, until this has been done, we are not in a position to form a sound and credible opinion upon them.

The best practical account that we have of them is from the pen of Mr. Wilkinson, in his "Practical Geology and Ancient Architecture of Ireland." In the section of the work devoted to architecture, he gives a tabular account of the principal towers, yet this is deficient in many respects. In several of the towers he gives no measurements; in others they are only conjectural; much of the detailed information is valuable as being the result of his own personal observation, particularly his descriptions of the materials and masonry, for which branches of the subject he was eminently qualified. It would, however, be utterly impossible for any one individual (unless he devoted a life and a fortune to it), to make a thorough examination of these structures, such as I have described.

Dr. Petrie, in his "Treatise on the Round Towers," has given drawings and accurate descriptions of the doors and windows of several of them; but his work is very deficient in plans, elevations, and sections, and in that practical criticism which, after all, is the safest and most rational foundation upon which to erect a credible theory.

In his work, professedly on the Round Towers, he has given us no description whatsoever of the Cloyne specimen; his only allusion to it is an unsuccessful attempt to invalidate and turn into ridicule the researches of the South Munster Society of Antiquaries, who in the year 1841 excavated the base of the tower, and discovered traces of interments therein.

Mr. Windele, in his very valuable and interesting work on "Cork, Killarney," &c., has given by far the best description of this tower; it is evidently the result of careful personal examination, and not of the wholesale copying system indulged in by most of the writers who have preceded him on the subject, as is evidenced by the above extracts.

The tower stands nearly opposite the west end of the present cathedral, from which it is distant 30 yards; its dimensions are as follows:—Diameter of tower at sill of doorway, 9 feet 2 inches; thickness of wall at same, 3 feet 7½ inches; diameter of tower at upper floor, 7 feet 2 inches; thickness of wall at sills of upper window opes, 2 feet 9 inches; height of tower to top of modern battlement, 100 feet 2½ inches; the ratio of batter in the external face of tower is about 1 in 44; height of sill of doorway over plinth, 11 feet 2 inches; height of plint, 7 inches; projection of plinth, 5 inches. The doorway is perfectly cyclopean in character; it is quadrangular, with converging jambs and massive lintel; its dimensions are—width at sill, 2 feet 1 inch; at lintel, 1 foot 10½ inches; height, 5 feet; its massive dressings are of red sandstone, and on its left hand jamb are several deeply indented scores, to which I shall hereafter allude.

The tower internally is divided into stories by seven off-sets taken from the thickness of wall, the inside face of which is built in a curious manner; from each off-set the wall batters outwardly to about half the height of the story, when it batters in again as it approaches the next; so that, drawn in section, the internal line of wall would show a zig-zag outline. At present there are wooden lofts resting on these off-sets, communicating by ladders. The masonry is of a yellowish brown sandstone, in spalled rubble work, not built in courses; the stones large, and dressed to curve of tower; the workmanship is good; a small portion of limestone is used at the north side, a good way up; and a few blocks of red sandstone are used through the facing.

This tower was originally crowned by the usual conical stone roof, which is stated to have been destroyed on the night of the 10th of January, 1749. The circumstance is thus given by Mr. Crofton Croker, in his "Researches in the South of Ireland," p. 243:—

"A thunder-storm with lightning passed through the county of Cork on the night of the 10th of January, 1749, in a line from west to east, and, after killing some cows in a field south of Cork, struck the Round Tower of Cloyne, used as a belfry to its Cathedral. The electric matter first rent the vaulted arch at the top, threw down the great bell presented by Dean Davies, together with the three lofts, and, descending perpendicularly to the lowest floor, forced its way, with a violent explosion, through one side of the tower, and drove some of the stones, *which were admirably well jointed*, and *worked into each other*, through the roof of a neighbouring stable. . . . The conical stone roof destroyed by this accident was never replaced, but the height of the tower was lowered more than 6 feet, and an embattlement substitute!"

I find, however, that this version of the destruction of the original roof of the tower must be wrong, as by reference to Ware's "Antiquities" we find a plate of "Cloyn" Cathedral and Tower, which exhibits the latter with a battlemental parapet, as at present; the date of this edition is 1739, that is, ten years before the above recited accident; it is, therefore, quite evident that the destruction of the original roof must have taken place previously to 1739.

It is stated that, in 1736, the tower was struck by lightning, the conical roof shattered, and the bell dismounted, falling through three of the roofs; it must have been immediately after this that the tower was repaired, as shown in Ware, 1739.

The tower was one time used as a prison; a man named Colbert, being confined therein, got out on the roof, and descended outside by means of the bell-rope—a daring feat.

The Round Tower at Cloyne is locally known by the Irish-speaking people as Giol-cach; the same term is locally applied at Ardmore, at Kineth, and at Ratto, in Kerry. I was never more struck with the poetic applicability of this term to our Round Towers than at the latter place, when I stood on the ancient causeway opposite the tower, and heard the same name applied to the tall, slender, symmetrical pillar, with its perfect conical spire, as to the tall graceful reeds, with their spiral feathered caps, which lined the banks of the Brick; and of the canal which runs up nearly to the base of the tower. Dr. Petrie (p. 397 of his work) says that by "Giolcach is understood a bell-house, and which is obviously a local corruption of Cloigtheach, or Cloichtheach." Now, I am strongly inclined to think that no one understands Giolcach to be a bell-house saving the Doctor himself; the Irish-speaking people at Ratto do not so understand it; they call it a Giolcach; neither do they so understand it at Cloyne, or Ardmore. As to its being a corruption of the Doctor's favourite term, Cloigtheach, or Cloictheach, it is obviously no corruption of any word, but a pure, simple, and very illustrative Celtic term, as the Doctor will see by reference to O'Reilly's "Irish Dictionary;" "Giolcach, a reed, cane, broom;" and I would further intimate that the way in which the word is pronounced is quite opposed to Dr. Petrie's corruption of the term, being thus—"Quill-cogh," which is far removed from either "Cloig-theach," or "Cill-theach,"—another reading advanced by Mr. E. Fitzgerald in your Transactions for March, 1858, p. 223.

The ancient Irish are not singular in their illustrative mode of nomenclature. Thus the Romans derived the name of a similar class of structures, the obelisk, from *obeliscus*, a javelin.

A nautical compass has been lately invented, which is so constructed as to give at all times the specific leeway of a vessel. It may be placed on a table in the captain's cabin, and will inform him of the least deviation from the course to which the vessel may be heading.

Mr. Maclise, the *Athenæum* says, has determined to paint his great cartoon, in Westminister Palace, in the German fresco—that is in the water-glass medium.

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* Collected from a paper read by R. R. Brash, Esq., before Kilkenny Architectural and Archæological Society, and published in vol. ii., part ii. of the Transactions.

THE NEW PULPIT, CASTLE CHAPEL.

A very beautifully designed and elaborate pulpit in Caen stone, as illustrated in this number, has been recently erected in the chapel attached to the viceregal residence in this city. Most of our readers are, doubtless, aware that the building was erected after plans by the late Francis Johnston, R.H.A., Architect, between the years 1807 and 1814, and that it is in the Gothic style of the Decorated period. The interior displays some beautiful carvings by eminent artists of the day, together with a handsome groined ceiling, stained glass, and other ornamentation.* It was necessary therefore, that all the internal fittings should harmonize in style, so as not to affect the beauty of the *toute ensemble*, and the old pulpit being deemed unsuitable, Messrs. Hardman and Co., of Birmingham and Dublin, were entrusted with the designing and execution of a new one. We anticipate, with some confidence, that our approving opinion of the manner in which this firm have fulfilled their task will meet with ready endorsement from those who either inspect the design, as shown in our illustration, or the execution of the original. It is placed at the end of the nave adjoining the communion rail, and is polygonal on plan, the dimensions of the preacher's compartment being in clear 3 feet 4 inches. The height of the clustered shafts sustaining the superstructure is 4 feet, and the total height from the ground to top is 9 feet 8 inches. The figures represent the four Evangelists and St. John the Baptist. We understand that the entire cost was about £120, a sum which, considering the delicacy of the execution and the beauty of the sculpture and the carvings, seems to be very moderate. It may not be amiss to add, that though this work bears the *impresse* of English paternity, it is in reality not so, but is essentially an *Irish* work, in all its departments, even to the illustration, which was reduced, drawn, and engraved (from a photograph by Simonton and Millard) by Mr. George Hanlon, of Rathgar.

KINGSTOWN.

Foremost in the category of "noted spots" whereon the hand of nature has been more than ordinarily bountiful in disseminating the picturesque element, is the subject of this notice; but as the most vivid delineations of the poet's pen and the artist's pencil, in depicting the beauties of "Irish scenery," pale into insignificance before the stern reality, *we* dare not—sensible of our inability—attempt a coloured picture, but confine ourselves merely to the rigid outline of those features coming within our immediate province. Thanks to the genius of steam—that modernizing giant—thanks to the progressive development of the age, and the professional skill of modern engineers and architects, the poor fishing village, the asylum harbour of "Dunleary," has been metamorphosed into a great highway between this and the sister kingdom, replete with artificial as well as natural beauty! An important and populous business town—with outskirts thickly studded with princely mansions, handsome ecclesiastical, hotel, club, and other buildings, and a noble harbour to boot, with outstretched piers and quays, containing an area of some 250 acres, wherein the stateliest craft afloat may ride—has sprung into existence. Of the very recent works, we may remark, that the new pier for the conveyance to and fro of passengers and luggage direct from Westland-row to the vessel in fifteen minutes, attains a desideratum, and reminds us of a similar arrangement at Folkestone. The four powerful steamers, with guaranteed speed of 20 miles an hour, to ply from 30th inst. between this port and Holyhead will assist in the achievement of a miracle in transit—11 hours from Dublin to London—at which the Dominies of our age may well exclaim—"Prodigious!" Quoting from the statement of the respected Chairman of the Town Commissioners, and Mr. Reilly, when urging upon the Chief Secretary the claims of Kingstown to be made a borough, we observe that—

> "The population of Kingstown is 21,000, the valuation £50,000, and the area 923 acres." "It is an important and rapidly rising town. During the last three years 370 houses have been built in it, and there are 80 on the stocks."
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> "The valuation of the electoral division has increased by £10,000 since 1857. Of that, £4,255 was an increase within the municipal boundary, and the valuation of the entire is now £60,000. The number of houses built in Kingstown in 1857 was 40; in 1858, 60; and in 1859; 120. There are seven churches in Kingstown, and there is still a cry for church accommodation. There is one bank and another is spoken of. Dalkey, in the immediate vicinity, contains a population of 10,000. There are but five boroughs in Ireland, including Dublin, that exceed Kingstown in valuation, population, &c., and there are ten Irish boroughs the aggregate of which are only equal to it in those respects. House rents in Kingstown have nearly doubled within the last seven years, and the average valuation is £28, a circumstance unparalleled in any other town in Ireland. The rapid increase of houses in Kingstown is the more extraordinary on account of the impediment to building speculations arising from short leases. The building leases there are only for forty-one years. During the last three years longer leases had been granted than before, but these are not given on the liberal terms on which Mr. Sidney Herbert granted *his* leases; for in Kingstown a shilling a foot was added to the present rent for the residue of the old lease when a renewal was granted As Kingstown is forcing itself into importance, notwithstanding these adverse circumstances, it deserves encouragement from the Government. It is the duty of the Government to assist those who assist themselves. Ireland is accused of being devoid of enterprise and industry, but the inhabitants of Kingstown have proved that they possessed them in a greater degree than any other town in the United Kingdom."

RESTORATION OF ST. PATRICK'S CATHEDRAL.

It would be ungracious to take exception to the motives which induced Benjamin Lee Guinness, Esq., to volunteer single-handed the wherewith to restore from impending ruin this time-honoured relic; but the possessors of worthy spirits and generous hearts are not always proof against errors of judgment. Such at least would it seem to be, and in this instance we cannot attribute to the usual penny-wise, pound-foolish fallacy prevalent, the absence of professional supervision in the carrying out of a work, which the very act of the benefactor proclaims to be one of national moment. An amateur of taste and discernment *may* try his hand somewhat successfully in adapting the internal arrangements of his mansion to suit his domestic requirements, or he may, peradventure, even do the artistic in matters of decoration, with a skilful painter at his elbow; but to tamper, by way of restoration, with a venerable edifice—whose every detail speaks a history—and without competent professional aid, would be quite unpardonable. Already has the structure in question been so thoroughly vandalized by experimentalists, that with example staring in the face, the omission is doubly culpable, and the continuance of the system would be but a perpetuation of monstrosities, alike injurious to the cause of architecture, and a stigma on our national taste. Rumour says that £20,000 are to be expended in the so-called restorations, but a reliable authority informs us that if *double* the amount be *requisite*, the inexhaustible coffers of the philanthropic brewer and ex-alderman will supply it. Seriously must we ask, therefore, is this important outlay to be incurred without *a head* to direct the operations of the builder, who in his *own* province, we must advance, is fully up to the mark, and too respectable a man to ignore the rights of others by undue assumption? For the present we defer touching upon the nature of the proposed works, being only in a position to communicate an idea thereof, *vague* as any of the parties concerned, donor or employées, can form—strange, yet true! and equally true, that in this state of bliss the operations have actually commenced.

Civil Service Estimates.—The total cost of public works and buildings during the financial year on which we have entered is estimated at £621,990, showing a decrease from last year of £171,854. A large portion of this decrease arises from the diminution of the expenditure on Holyhead Harbour, which absorbed £80,000 last year, and will only require £30,000 this year. £24,130 is saved in the expenditure on probate courts and registries, the cost of maintaining which during the year will not exceed £5,000. The large expenditure of last year on Port Patrick Harbour is almost totally extinguished, and a saving of £20,000 thus effected, and £18,000 are saved in the expenditure of the new Houses of Parliament, which are expected to absorb £39,597. Of the thirteen items in the estimate, all but one—that of "Kingstown Harbour"—require a smaller disbursement than they did last year, and in the exceptional case the increase is trifling.

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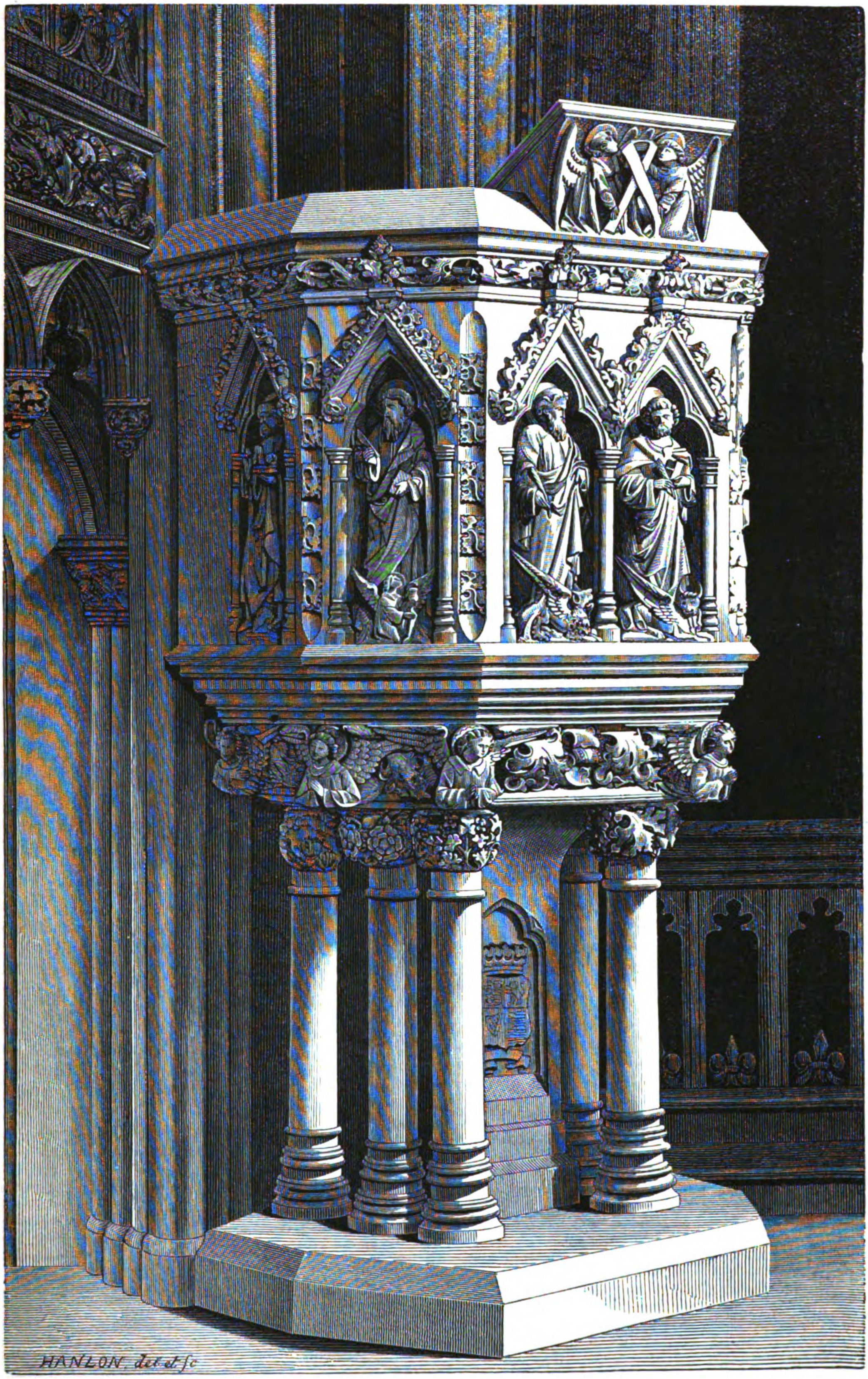
* For more detailed description, see page 131.



NEW PULPIT, CASTLE CHAPEL, DUBLIN.

MESSRS. HARDMAN AND CO., ARTISTS AND CONSTRUCTORS.

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ARTISTS IN "THE MINSTER"—THE LATE SIR CHARLES BARRY—HIS FUNERAL.

RICH as are the associations of the "Minster" with names in almost every path of renown, it seems to fail in respect of painters. Sir Godfrey Kneller, a native of Lubeck, who painted for Charles the Second, James the Second, and finished the Court Beauties for William the Third, though of a gay and convivial turn in life, was so eclectic, not to say irreverent, as to his grave, that when the honors of Westminster were spoken of he would not hear of such a disposition of his remains; so that, although commemorated here, they really lie at Twickenham. But among the men of science are Sir Isaac Newton, James Watt, Sir Humphrey Davy, Telford, and Stephenson. There is Banks, the sculptor, and the prince of sound, Muzio Clementi, with Arnold, Burney, Blow, and Croft. Of architects may be mentioned:—Robert Adam, the chief of the brothers, or "Adelphi," who, after designing many monuments for others, was laid to rest in 1792; Sir William Chambers, in whose hands Palladian architecture reached its culminative point for the time in Somerset House, and who it seems was a Swede by birth, though of Scotch descent; and James Wyatt, who has been occasionally styled "the great," more as it would seem from personal and general qualifications than from the transcendent merit of his works.

The importance attached by the ancients to the performance of funereal rites led to the erection—when the bodies could not be found—of cenotaphs, or honorary tombs, before which due observances were paid; and, besides the monuments of those actually buried in the Abbey, are some of this character; and the names of artists not interred here are also kept alive by the association of their works with famous names, in the same way that some people are recorded in the peerage from being allied to daughters of noble houses. Thus the subscription monument to Shakspeare bears prominently on the face of the great poet's pedestal the names of Kent, the architect, who designed, and of Scheemakers, the sculptor, who executed it.

From this rapid glance it will be seen that Barry is treated with a distinction befitting his high excellence; though no notice be made of Chaucer, Milton, and a list of poets, of the warriors by sea and land, the "long lines of noble ancestry" displayed in the tombs of royalty, or the knights and noble dames, whose honored dust comingles in the reverend pile. "Than Westminster Abbey," says Shenstone, "there is no place more suitable to moralise upon the futility of all earthly glory, as there is none which contains the ashes of men that have acquired a greater share of it."

But, though the "storied urn or animated bust" may serve to record the honors paid to the dead by those among whom they lived and moved and had their being, yet it is the momentary gush of feeling poured rapidly out that is the truest reward of high excellence—is most honorable to the departed and most soothing to the bereaved.

To members of the same imperial body it matters little in what part of the British realm a great man first breathed, still it is a circumstance that always attracts curiosity; and now that Sir Charles Barry is gathered to the "illustrious dead," it becomes a thing to note that his birth took place near the scene of the great monument of his genius—the Palace of Parliament at Westminster—though the name would seem to indicate an origin in Erin. Girald Barry, or Giraldus Cambrensis, the author of "Topographia Hibernica" and "Itenerarium Cambriæ," is the first celebrity of the name. Then James, Lord of Santry, Chief Justice of the King's Bench in Ireland; and Barry, the painter, who was born at Cork. Spranger Barry was a man "in person taller than the common size," and an actor of so great a celebrity as to divide the praises of the town with David Garrick a century ago, and to obtain for himself the distinction of interment in Westminster Abbey.

An obituary memoir was delivered at the Institute on Monday evening, the 21st ult., by Mr. Digby Wyatt, in which Barry's professional career was ably traced from its earliest stages to its close.- Mr. Beresford Hope adding, in his usual graceful and thoughtful way, a few words, tending to draw into stricter bonds of amity the followers of one art, and exhorting *Greek* and *Goth* to think of higher warfare and a holier fight than the merely temporary *battle of styles!* On Tuesday, 22nd ult., the Union Jack was displayed half-mast high on the summit of the Victoria Tower, and a sable pennon floated from each of its angle turrets.

The hour of one was appointed for the ceremony, the personal and professional friends of the deceased being invited to assemble previously to that time at the Jerusalem Chamber, of time-honored celebrity. The assemblage was most prompt and numerous; and not only were those who had some mournful duty to fulfil high in the ranks of art and fame, but there were many such among the general mass by whom standing room alone could be obtained. The top of the organ screen, or the rood-loft, as it may be termed, was occupied by many ladies, and others even essayed the dizzy heights of the triforium arches to witness the procession, while

> ". . . Through the long-drawn aisle and fretted vault
> The pealing anthem swelled the note of praise."

The choir could only hold a small proportion of those congregated; but the first part of the service being there performed, the body was again carried through the beautiful screen of decorated Gothic designed by Blore, who preceded Scott, the present architect to the Dean and Chapter. At the length of three full arches to the westward the grave had been hollowed in the sacred earth, and at the close of the impressive service it was crowded round by many anxious for a final look; then came the last heaving booms of the organ, and in silence, as in honor, repose the remains of Sir Charles Barry. Long will it be, however, before his name becomes "to dumb forgetfulness a prey," and the story of his life will, no doubt, be given to the public in a worthy form, whether by Mr. Digby Wyatt or the deceased's son, the Rev. Alfred Barry, of Leeds.

The drawing of the prizes in the Shilling Art Union of Dublin takes place this day.

The Carmelite community of Whitefriar-street have purchased Terenure House with a view of adapting it for the purpose of a noviciate and house of studies.

The Committee No. 1 of the Dublin Corporation have advertised for tenders for a quantity of new sewerage works, to be executed in the city. Time limited to this date, 1st instant.

The corner stone of a Wesleyan Methodist Chapel was laid on the 22nd inst. (by G. F. O'Flaherty, Esq., of Lemonfield) at Oughterard, County Galway. The style, early English. The architect, Mr. Edward Tarleton. The builder, Mr. Geo. Glanville, Ballinasloe.

THE ROMAN CATHOLIC CATHEDRAL, CARLOW.—This handsome edifice has been, we learn from our vigilant contemporary, the *Freeman*, undergoing extensive repairs and decorations under the direction of Messrs. Barff & Co., which have been carried out in a high style of elaborate ornamentation. The chancel is decorated in colours and gold finely wrought out in suitable designs. The ceiling is tinted a light azure, with appropriate and emblematic ornaments. Over the side altars are two representations painted in encaustic, sixteen feet high each. The one on the Gospel side represents the Saviour in glory, the lower part being occupied with figures of St. Conleith and St. Lazarene. On the epistle side the altar is in honour of the Blessed Virgin, who is represented bearing in her arms the infant Redeemer, the lower part of the picture consisting of figures of St. Bridget and St. Dympana. The vaulted roof of the church is treated in the same manner as the chancel. The walls are highly ornamented to correspond with the rich decorations round the high altar and sanctuary. The transept ceilings are decorated so as to harmonize with the other embellishments of the sacred edifice. The four new stained glass windows in the chancel contain figures of angels bearing the instruments of the Passion. A new organ, by Bevington & Sons, of London, containing 1506 pipes, and of great compass, has also been added.

THE BOOK CLUB.—We were peripatetic, and moved the scene from house to house. We arrived with punctuality, and coffee was served at eight o'clock. After imbibing that not inebriating beverage, and exchanging its concomitant little courtesies, the host for the evening was called to the chair, supported on either hand by the treasurer and secretary. The business then began in the correct and formal manner by a perusal of the minutes; and although it may be thought that the record must necessarily have been of a most simple kind, the discussion was just as animated as though it had taken place in a large assembly. The cornucopia of literature was emptied on the table, and a bouquet selected for the coming month. The works of theologians were freely admitted, but theological subjects—never! General topics after this, with a libation, as modest in quantity as though we had been Epizephrii, but of rare and curious age and quality, usually detained us till the eleventh hour. A two guinea subscription covered the purchase and circulation of books, and the fund was augmented by the produce of the last year's works, which were sold to the members after dinner, at our anniversary meeting—an expensive way of doing the business, but it was our only festival. While a member of that little republic, I noticed that although the books sold for half their average cost, and the current subscription was annually augmented in this ratio, it never doubled itself. According to this view a subscription of £20, augmented by ten for old books, would make £30 at the commencement of the second year, half thirty, added to twenty, would be thirty-five for the third year, and so on; but when, let me ask the mathematician, would it arrive at £40? The property of that singular curve which always approaches a given point, but never reaches it, seems here brought into practical application.—*Morris' House for the Suburbs.*

SCIENCE FOR THE PEOPLE.

"There is a spot of earth supremely blest,
A dearer, sweeter spot than all the rest,
Where man, creation's tyrant, casts aside
His sword and sceptre, pageantry and pride,
While in his softened looks benignly blend
The sire, the son, the husband, brother, friend;
Here woman reigns: the mother, daughter, wife,
Strew with fresh flowers the narrow way of life!
In the clear heaven of her delightful eye,
An angel-guard of loves and graces lie;
Around her knees domestic duties meet,
And fireside pleasures gambol at her feet:
Where shall that land, that spot of earth be found?
Art thou a man?—a patriot?—look around;
O, thou shalt find, howe'er thy footsteps roam,
That land thy country, and that spot thy home!"

THUS does the pleasant, bold, and vigorous pen of James Montgomery direct our thoughts to the blessings around us, and our reply is, that we are ever ready so to turn them. "We love the land we live in," and are filial, fraternal, and fatherly—patriotic, connubial and domestic. Nor these in a light or formal way, but seriously, earnestly, rationally, and deeply!

So far so good, and in proportion to our regard will be an anxiety to adopt every means of increasing the health and happiness of all those who in any way appertain to us, and the general welfare. It seems a very proper course, then, to impart to every individual the power of discerning the principles on which his own good, in a natural point of view, is dependent—a branch of knowledge termed SOCIAL SCIENCE. It takes a wide and comprehensive scope, and admits of universal application.

We cannot but look with interest, therefore, to sanitary enactments, to the proceedings of boards of health, to the growing attention of public cleanliness and propriety, indoor comfort, and health-securing observances. We notice with good will the exhortations of writers and the facilities afforded by inventors and manufacturers, who have already brought many appliances into use, and which our physicians, architects, and scientific men are labouring daily to increase and improve.

To such efforts we shall no doubt have to ascribe, among the results of the next census, an advanced longevity in various ranks and classes, and a corresponding diminution in the fevers and other diseases consequent upon imperfect drainage, insufficient ventilation, impure water, and such like contingencies. The subjects which bear upon these and similar considerations are now grouped, as we have already said, under the designation of Social Science, and are attracting a large share of public attention.

Mr. Morris, in "A House in the Suburbs," has pointed to the danger of internal water-closets, which, when unsupplied, "admit into our dwellings gases of the most poisonous character, fraught with fevers, cholera, death! while the cause is perhaps unsuspected. I used," he says, "to visit a family, who resided in an old house at Islington. The smell from the drains was intolerable to strangers, though not noticed by the inmates, all of whom had, however, most indifferent health, and the doctor was seldom absent. I built a house for them afterwards, at a short distance from town, and their health has improved in so marked a degree, that medicine is almost unheard of. Now, the foul air from the drains escapes unchecked into every house the moment the closet is without water!" Attention to soil and waste pipes cannot indeed be too strongly insisted upon.

Wherever a drain communicates with the atmosphere of a house, the architect carefully provides traps to prevent the passage of unwholesome odours, yet how commonly do we find these very precautions rendered inoperative by the negligence of servants and the want of perception in their superiors. The subject is now well rooted in the minds of certain pioneers, and an association of schoolmasters has been formed, with a view to introduce into school teaching the elements of economical and sanitary knowledge, the advantages derived from mechanical inventions, &c. A class has been opened at University College, London, and Lord Brougham presided at the recent inaugural meeting. The effort is entitled to our best wishes, as such a feature in the education of the industrial, as well as higher ranks, must prove of great advantage to the community; and although the sons of Erin may be running abreast of their London brethren in the race of intelligence, the curling waves and sharp breakers of the Irish Sea are still between them, and the exchange of notes cannot be too frequent and reciprocal.

THE FOSSILIFEROUS GREYWACKE ROCKS OF IRELAND.

AT a recent general meeting of the Geological Society, held in the Museum building, T.C.D., Mr. Kelly read a paper on this subject, of which the following is the substance :—

"He said that this greywacke of Ireland was by no means easily recognised in its subdivisions. The general grey colour was very constant in the north, in both slates and grits. In the south the grits were mostly greenish or brown, the slates were green, grey, red, or purple. All those varieties of both kinds were frequently repeated, and the bands mostly narrow. In fact our greywacke rocks had no constant type. The Tyrone district had but few features in common with Galway, the Kildare and Dublin were different from either. Wexford had a resemblance to the unexplored counties of Ulster, but unlike Tyrone, Galway, or Dublin, and the Kerry and Cork district, in the detail of the beds, lithological character, and other particulars was very different from all or any of the other four. The silurian system of Sir Roderick Murchison had been the guide for the identification of zones of superposition in the greywacke rocks for the last 20 years. By that system the world was led to believe that the greywacke formation was made by nature into seven definite fossiliferous zones, founded on superposition, and that each zone contained a peculiar group of fossils. This was a great error. There were no such seven zones to be found in any known natural sequence of those old rocks. The district of country between Colebrook Dale and Ludlow was selected as the model of this system, but that country had only three of the zones. It is a peculiar district, unlike any other, and therefore unfit to be put forward as a model to teach all nations in geology. In Ireland there was nothing like that district physically, although many hundreds of the same fossils occurred up and down in both. In Connemara the fossils occurred in local groups, and neither the species of the fossils, nor the lithological character of the rocks was persistent for any great distance. Were it not for the basal brownstone band, which was an indisputable index in Connemara, a table might be found of seven or eight columns from those local groups. It was found on examination of the table in the silurian system that scores of the fossils which were put into the upper zone there have since been found in lower zones in other parts of Great Britain and Ireland. This spoiled the system. Connemara, where the bottom of the system was clearly visible, would never suggest a division of the greywacke into seven zones. The original silurian district and the Tyrone district appeared to be geological equivalents. The so-called old red sandstone of Hertfordshire overlays the silurian rocks at Ludlow and Aymestry conformably. The brown stone of Tyrone, the same kind of rock, overlays the fossiliferous rocks at Lisbellaw and at Pomeroy. In both cases the brown rocks were from 7,000 to 8,000 feet thick. Putting the Tyrone fossils in the upper part was contrary to all the laws of fossils hitherto made. The table of evidence alluded to showed that scores of the fossils, which were put as upper silurian, had since been found in lower zones. He got at Dudley 52 species. Professor Sedgwick got there 45, but of those 13 were the same as the author got, leaving 32 not found there before. Those added made 84 species, 34 of these were corals or crinoids, which, taken out of the above numbers left 50 species. If those 50 were strictly examined by the new table it would be seen that 49 of them had been found in lower silurian localities in other places. Even leaving in the corals and crinoids, from 84 take 49, left 35 upper silurian fossils. Thus more fossils were found at Dudley belonging to the lower silurian zones than to the upper, and Dudley cannot be called an upper silurian locality. Another locality, called upper silurian, tried by the same test, gave 16 fossils found in lower silurian zones, and three exclusively upper. With the majority of the fossils this locality must be called lower silurian. At Benson Knot, in Westmoreland, Professor Sedgwick got 50 species. He gave a list of them at p. 352, of the Brit. Pal. Fos. Of these 15 were new, so that he found 34 species known before. Trying this list by the same test as before, it turned out that 31 species had been found in lower zones in other places, leaving only three species upper. In the original silurian country, lying between Coalbrook Dale and Aymestry, 20 miles long and four miles wide, there were found 122 pieces. Testing this truly upper silurian area, the model farm of the silurian system, as it might be called, as before, the result was 82 fossils belonging to lower silurian zones and 40 upper. This also, with the majority of the fossils, must be called a lower silurian district. This extraordinary result could not have been foreseen by the author when he published the silurian system, it had been developed by discoveries and publications made since that time. From the above results, it would be seen that that system must fall to the ground."

The idea of erecting a statue to Gerald Griffin, the author of "The Collegians," is being agitated in Limerick.

Is is sought to place the town of Balbriggan under the Towns Improvement Act.

TURN OFF YOUR GAS.—A boy has been killed at Exeter by sleeping in a room in which the gas had been imperfectly turned off by his mother.

ON ANCIENT MASON-MARKS AT YOUGHAL AND ELSEWHERE; AND THE SECRET LANGUAGE OF THE CRAFTSMEN OF THE MIDDLE AGES IN IRELAND.

Mr. Edward Fitzgerald, Architect, Youghal, in an excellent paper, read before the Kilkenny Architectural, &c., Society, communicated the following .—

The Rev. James Graves has discovered some very interesting specimens in the Cathedral of St. Canice, Kilkenny, and Dunbrody Abbey, on works of about A.D. 1250; the same marks occur in both buildings to a certain extent, and two from St. Canice are identical with two marks from the Cathedral of Presburg, published on the plate to my former paper, being the two last but one on the plate. Mr. W. Gillespie, Architect, Cork, mentions the discovery of some on the ancient parish church of Drumcliff, county of Cork; they consisted chiefly of the favourite emblem in masonry, the square, and were often repeated through the building. In a note from Archdeacon Rowan, he says—"You will find some worthy your attention in Holy Cross Abbey, where I saw them a few years ago, in a hasty visit made between two trains from the adjacent railway station. I had not time to copy them, and I dare say there are a great many more than I noticed in a cursory inspection, especially on the interior north wall of the nave."

The Rev. John W. Hopkin also, in a note, mentions the discovery of some on the south transept of the old church of Kinsale; they chiefly consist of varieties of one of the marks found at Youghal, which were published with the former paper.

On a semi-Norman arch in the ruined Cathedral at Ardmore, I discovered one mark very similar to a specimen given in Mr. Chalmers' Plate, in the "Archæologia," which was taken from the ancient hospital at Brechin.

At a comparative late period, it would appear that others beside the building operatives used mason-marks on their handiworks, as we find them on cooking and other utensils, showing that a fraternity existed in which *they* were included. On an ancient bronze three-legged pot, which was found in an Irish bog, and now deposited in the Museum of the "Royal Cork Institution," are some interesting mason-marks. This old culinary utensil is no bad specimen of the sixteenth century casting. The exterior is divided into ornamental compartments by radiating raised lines, two of the compartments being ornamented with mason-marks, and the Roman numerals, DMI, which I am inclined to consider is the date 1501. The marks represent interlaced triangles and a heart, similar to the marks taken from St. Ninian's Lodge-books, Brechin, figured on the plate to my former paper. In the second volume of the *Dublin Penny Journal*, at page 249, an interesting woodcut is given of an ancient drinking vessel—the old Irish mether—on the surface of which is carved several mason-marks, and among them the owner's name forms a conspicuous object, DERMO + TULLY, 1590. Dermo, it would seem, was a thirsty old soul, from the value he seems to have set on his old wooden wine vessels, and there can be little doubt that he was a free-and-easy member of the mystic fraternity.

In the former paper on this subject, an inference was drawn from the remarkable fact that the Irish mason-marks, already discovered, exactly coincided with those copied from ancient British and Continental buildings, and the conclusion come to, that instead of the early Irish being indebted to English and Continental architects and artists for their architecture and arts—so generally asserted by superficial writers—we have the strongest reasons to conclude that they were the debtors to the early Irish; and not only for their architecture and arts, but also for their religion and literature, as the following gleanings from numerous sources will amply prove—all-important facts, tending to show the close connexion which existed in the early ages of Christianity between the Irish, British, and Continental Churches.

The learned Dr. Prideaux, speaking of Ireland during the early ages, mentions it "as the emporium and prime seat of sacred learning in Christendom." Dr. Johnson also mentions the "times when Ireland was the school of the west, the quiet habitation of sanctity and literature." In Guizot's "History of Civilization" we read—"Of all the western countries, Ireland was that wherein letters maintained themselves and prospered, amidst the general confusion of Europe." And lastly, from a host of evidence of similar import, I select a word from St. Bernard, where he says—"From Ireland, as from an overflowing stream, crowds of holy men descended on foreign nations."

In the "Ordnance Survey of the Parish of Templemore." p. 230, the writer (believed to be Dr. Petrie), speaking on the Grianan of Aileach, places the masonic dialect or Barelogirnasair much higher in the scale of antiquities than I have done. He says:—

"The ruined fort of Aileach presents an example of barbaric art, not imitative of the refinement of the Egyptians, the Greeks, or the Romans, but of that ruder and more distant effort at civilization, belonging to the heroic ages, of which so many vestiges have been recently found in various countries; an example of the architecture of that race who have left so many other evidences of their existence in Ireland, as to their religion, their language, called the *Masonic dialect*, and composed of Semitic words, and the Punic or early Greek-shaped swords and other antiquities of bronze, silver, and gold, so constantly discovered in the country. In the general characteristic of this ancient work the antiquary will at once recognise the features of the first efforts in architectural art, 'les ouvrages *d'un art sans art*,' as they have been fancifully called, which, whether ascribed to the Titans, Cyclopeans, Pelasgians, or 'Wandering Architects,' are found to pervade so extensive a portion of the old world."

OBITUARY.

SIR CHARLES BARRY, R.A., ARCHITECT.

THOUGH anticipated by our brother journalists to the extent of a fortnight or so in the chronicling of this sad and unexpected event, we must not—even though hazarding censure for repetition—refrain from adding one quota *in memoriam* of the great architect of universal fame yet modest worth that has passed from this breathing world to, we hope, a better. He too, like his illustrious brethren in the engineering world, Brunel and Stephenson, was summoned to eternity before his professional mission was accomplished, and though he lived to see the main features and "the cloud-capped towers" of his noble work, the Westminster Palace, realized, yet "death tolled his knell" before the infant offspring of his genius was fully matured. The national loss thereby sustained will, we trust, be mitigated to an extent by the judicious appointment of a successor. Sir Charles Barry was born on the 23rd of May, 1795, in Bridge-street, Westminster, the scene of his future great triumph, and was articled to Messrs. Midleton and Bailey, surveyors to the parish of Lambeth; and died on the 12th ult., after a few moments illness, of disease of the heart and lungs. There appears to be a supposition that Sir Charles Barry was a Corkonian, in which, however, as we learn, there is no truth whatever; though the frequent occurrence of the name in that county may present a possibility of some of his relatives being natives thereof. Sir Charles's chief works, in addition to that before alluded to, were the Earl of Ellesmere's house—perhaps his *chef d'œuvre*—the Traveller's Club, Reform Club, the Manchester Athenæum, and various palatial residences throughout England. In Italian as well as Gothic architecture the late professor was pre-eminent—indeed his works in the former style somewhat supersede in excellence the latter, and he may with all truth be adjudged the palm therein, before his fellows in any quarter of the globe. We are not aware that Sir Charles's practice at any time extended to this country. On the 11th February, 1852, after the new House of Commons was opened, her Majesty conferred the honour of knighthood on the then Mr. Barry; but it must be regretted that that perishable title was not afterwards supplanted by one assignable to perpetuity. His remains were interred in Westminster Abbey on the 22nd ult., in presence of an artistic constellation—an honour to which both the country and the profession will bear grateful recognition.[*] It is enough to add that Sir Charles's genius did not—like that of many, "whose light is hid under a bushel"—pass unrequited, for he has left outside the tomb—and perpetuated in substantial monuments of his skill, for posterity "to admire and be instructed"—a name immortal as his great predecessor, Sir Christopher Wren, and, despite his treatment by Government in the £ s. d. matter of fees for the Palace, has left a handsome fortune to his family.

Mr. Thomas Hughes, a respected fellow-citizen, and for a large number of years proprietor of the Oxmantown Foundry, North King-street (now in possession of Mr. William Turner), expired on the 14th ult., at the advanced age of 72. He had executed some important contracts in iron castings during his lifetime; amongst the ornamental of which, we may name the railings of the Four Courts. Viceregal Lodge, &c.

The organ of St. Patrick's Cathedral—which, doubtless, our readers are aware, was taken from the Spanish Armada—has had new stops added thereto by Messrs. Bevington, of London, at a cost of £200.

Mr. Frederick S. Barff is to deliver a lecture at the Dublin Mechanics' Institute on "Decorative Art."

Mr. Foley has completed his statue of Caractacus, which will immediately be placed at the Mansion House, London. The artist has also received the commission to execute a statue of Goldsmith, to be placed in Trinity College, Dublin.

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[*] For reference to funeral, &c., see page 277.

KERFS AND COGITATIONS.

BY A CRAFTSMAN.

NO. III.—ARCHITECTURAL FUNGI.

IN the midst of a building mania, now almost chronic in its duration, one seeks for something of progression in architectural taste, and constructive ability; but, alas, little truly worthy in name as regards correct classical taste, combination, or chaste ornamentation in detail are to be met with. Ability we have; innumerable are the pens and pencils employed in our service, competition is rife, and contract rebellious; but we lack the Spartan rigidity of principle, the fixity of purpose, the moral code of honour, the self-denial and disinterestedness the manly spirit, and the manly act, and the many other *traits*, which go to distinguish the man amongst men before studious perseverance and acquirements make him a prominent worker of the world. Archimedes is reported to have said—"Give me a proper position, and a lever, and I'll move the world." But it would take a greater than Archimedes, with all his putative profundity, to raise the antique taste of architecture from the ruin, and rubbish, and cold neglect, which for two-thirds of a century, in this city, has been obscuring it. Architects we've many, capable of better than the "foundlings" that bear their name. and which are continually appealing to them for a parent's protection, but the niggardly spirit of the age often obliges them to strip nude the children of their brain before they can present them to a callous public for adoption; thus the chiselled granite of their imagination often becomes the plastic patchwork of their patrons, and by it, the glowing genius of many a youthful aspirant in marble perishes on the mortar-board of the scaglioli worker. Builders we have, but few indeed of the old school, the claims of the scientific man are ignored—forsooth his estimates are too high, he wishes to carry on his work under the superintendence of an architect—and to escape the never-ending alterations of ever-changing novice, or eccentric over-seeing owner, he usurps no office but his own, he pays his workmen a fair and remunerative rate of wages, and, come what will, he finishes his work in a creditable and workman-like manner. Not so the confirmed botch, turned incipient builder, escaping by some fortuitous help, he chooses 'twixt continued degradation and resuscitated respect, opens "shop," and begins. Quantity not quality becomes the order of the day. Contracts are undertaken at first, not for *paying*, but for popularity; not the popularity of credit, but the notoriety of *consequence*. Matters go on for awhile, work increases, hands are put on, profits *must* ensue now, fortunes *must* be made, and to do all this the toiler must be driven; but all fails, stagnation staggers on, and the *finale* is bankruptcy and ruin. Need we wonder that artizans, under such a system, become mechanical automatas instead of invaluable workmen?

Architecture—practically speaking that which springs through the manipulations of the finger—has certainly degenerated, but its decline is more or less attributable to the contract system, and the low condition which the artificer, by the abuse of that system, was reduced to. The architecture of any age is the surest criterion of its civilisation; but if *some* of ours be judged by *that* standard we shall appear in a pitiable plight before posterity. Let us stroll through our suburban districts and see what a medly of architectural monstrosities present themselves—a conglomerate of all sorts of styles zig-zag meddled together in indescribable confusion, sometimes detached, sometimes twin—like Siamese, and inseparable—Saxon and Saracen, mock Mosiac and Moorish, Oriental and outlandish; all evidences of a morbid and corrupt taste, and distorted design, alien in nature and in name; even the native vocabulary was eschewed for their baptism, and they were accordingly christened after some disembowelled bandit, or Russian redoubt; their access is guarded by some Cerberus, or Centaur of defunct genera—fitting emblems to the imbecile erections they are supposed to adorn. But if the foregoing be taken as a sign of the discriminating task of our people, let us help them out. Up then with inverted consoles and composite cornices! up with mock entablature and sham pilaster,—the reign of vandalism begins; up with baseless shaft and headstone capital! up Peter de la Roche from the grave of the Capulets, age will lack no disciples now. But enough! If the "Modern Master" wishes to excel the grace and perfect proportion of his Pagan prototype, let him try, but let him not mutilate and disfigure what his little knowledge may citicise, but which it can never create. Oh, art-student and artist-craftsman, would you take a lesson from one of noble monuments of your own, pass out with me into that old hallowed "green" on one of the mellow midnights of this moonlight May! Come out too, *ye dilletanti* of our squares, and *ye* pale enthusiasts of our liberties, if the iron has not entered your soul, you will see something worthy of admiration in that grand old pile before you! Alas, no sculptural Titan of Ireland's past greatness adorns those naked niches—the accumulating *deltas* of time seems incrusting on column and cornice—but age is only shadowing forth in greater relief the undying grandeur of Corinthian capital and Ionic volute—old haunt of buried hopes and baffled aspirations, fit symbolization without, of the intellectual stature once within! Where are now the souls that quickened, the hearts that leaped, the bosoms that swelled, as fiery tongues with lightning flash, and thunder declamation lit up and reverberated within those walls? Gone! all gone! Speaker's chair and strangers gallery are vacant now! Mammon alone sits here in council supreme, and close by, bartering Jew and gabbering Gentile beat time to that never wearying accompaniment on "change;" but let's home! on out, under piazza, and round underneath portico. Behold where the corruscation of Gandon's genius left an everlasting frontispiece for succeeding generations to admire and copy! While works like these are amongst us, we can never grow poor or disheartened—they will act as incentives for emulation and study, and under their shade some youthful aspirant may yet take courage. Sooner or later some great architect will arise, trampling down the trammels of his time, soar to heaven with the conceptions of a soul sublime for the ennobling of an art that has outlasted the wreck and ruin of empires, somnolent systems, and degenerated species.

C. C. H —y.

LAW NOTES.

WE learn that the case of *Kempston* v. *Butler*, fully reported in our Nos. for March and April, and upon which the jury disagreed, will again come on this (Trinity) Term. It appears to be a matter greatly to be regretted, after the lengthened and expensive contest that has passed, eventuating in nothing, and the scales so evenly divided for plaintiff and defendant that an amicable adjustment is not being come to even at a sacrifice to either party rather than again risking "the hazard of the die."

Hugh Kelly v. *John G. Smyley*.—Action brought by plaintiff to recover from the executor of the late Sir Philip Crampton £663 for extra work and labour. The amount of the original contract (£2,000) was paid. The plaintiff stated he had a series of interviews with the late Sir Philip Crampton, relative to the construction of a house at Violet-hill, county Fermanagh, for his son, the Rev. Josiah Crampton; in the course of which, Sir Philip desired him to make any alterations in the building which the Rev. Josiah Crampton wished. The house was intended for his (Josiah's) benefit, and therefore he was the best judge as to what was requisite. There were several conversations between them about the progress of the work and the requisite changes and improvements; and Sir Philip invariably said that he (plaintiff) should make any alteration which the Rev. Josiah Crampton desired. He saw Sir Philip upon four or five occasions, and received four instalments. The plaintiff was cross-examined at much length. Sir Philip said, that he ought to make any alterations that his son suggested, and he thought Sir Philip added, "any alterations directed by the architect." He might have the sanction of either, and was to do whatever his son or the architect desired.

Mr. Sergeant Fitzgibbon for the defence said—In reference to the evidence of the plaintiff relative to his alleged conversation with the deceased baronet, that assuming his version of the conversation to be accurate, Sir Philip merely intended that the plaintiff should follow the written orders of the Rev. Josiah Crampton, or the written orders of the architect, approving of the recommendations or suggestions of the Rev. Josiah Crampton; but in any case written orders were necessary, which had not been given.

The jury, at an advanced hour, came into Court with a verdict for £300 for plaintiff over and above the £100 lodged in Court.

Messrs. Rollestone, Q.C., and Armstrong, Q.C., and Mr. Coffey, were counsel for the plaintiff, with Mr. Tinkler as attorney; Sergeant Fitzgibbon, Q.C., Messrs. Chatterton, Q.C., and Levinge, for the defendant, with Mr. Franks as attorney.

Relative to the same matter a counter-action is on the *tapis*.

Smyley v. *Kelly*.—Mr. Coffey for the defendant, applied for liberty to plead double matter. The action is for alleged breach of contract, entered into with the late Sir P. Crampton, to build a glebe-house near Enniskillen, and in reference to which the defendant lately obtained a verdict against the present plaintiff. It was sought to plead that the work was done in accordance with the plans and specifications, and that the work done and the materials used were not of the description alleged in the summons and plaint.

Application granted.

Harford v. Right Honble. Sydney Herbert, Secretary at War.—This action is being brought by Mr. Hans Harford, of Green-street, builder, for £530, for works done upon a chapel school at the Curragh Camp, and liberty was granted by the Court of Exchequer to substitute service upon William Roche, Esq., Solicitor, Colonel Frome, R.E., and Captain Synge, R.E.

Correspondence.

THE GEORGE'S DOCK BRIDGE.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—May I beg the favour of your publishing the following letter, originally addressed to the *Freeman's Journal*—but for some seemingly unaccountable reason not inserted therein—as a reply to some of my anonymous friends, who, I believe, think it fair sport to hunt a man to death—particularly if he be Irish, and attempt anything new—but who "little know the ills that envelop him that meddles with cold iron."—I am, Sir, your obedient servant,

M. KENNY.

TO THE EDITOR OF THE FREEMAN'S JOURNAL.

SIR,—In justice I hope you will publish the following in reply to the continuous attacks made in your commercial notice against the George's Dock Bridge, of which I am the patentee. The last article is so insulting, injurious, and untrue, without the slightest pretext or foundation, that I must individually, in self-defence, protest against its continuance; for a better, sounder, or more substantial work of the kind has never been executed, and I defy the writer to point out any single portion of the principle of workmanship to which his choice language is applicable. The only argument I need offer in favour of the design is its subsequent adoption in four instances by the leading engineers of the day. The calculated speed of the bridge has been exceeded by two minutes—not a very grievous error in so large a piece of work, and the first of the kind executed. The other portion of the writer's information is so preposterous as not to need a reply. I may add, that it is rather discouraging and dangerous to attempt anything national or new, if one is to be subjected to the ordeal of the continual annoyance consequent on the evidently limited information of any gentleman having the ear of the public through your popular and valuable paper.—I am, sir, your obedient servant, M. KENNY.

THE EXCURSION SEASON—RECREATION AND IMPROVEMENT.

SIR,—That enterprise which always characterizes our English neighbours, both in matters of business and pleasure, is prominent even at this early period of the season in their excursion arrangements for the million. Many coloured bills, scattered everywhere, and feet—not inches—of the advertising columns of newspapers announce a complete system of "cheap trips", commencing with the Whitsuntide holidays—for example, per two trunk lines from Manchester, Liverpool, &c., to London and back, allowing three days to visit the metropolis, for 12s. 6d.! and *vice versa;* again from Manchester and Liverpool to Dublin and back for 8s. 6d!—to Belfast and back, or to Isle of Man and back for 8s.! besides innumerable others proportionately cheap. Now is it not a strange fact that our City of Dublin or Liverpool Steam Packet Companies display no desire to reciprocate these trips, and, by a mutual understanding, give the Irish public the benefit of such facilities to recreate and improve themselves by a short visit to the manufacturing districts and metropolis of England—should I not say the world? To meet the trips alluded to, the cabin fare from Dublin to Liverpool is alone 12s. 6d.! and *another* 12s. 6d. back!—viz., *double* the amount of a return excursion ticket from that town to London, and *treble* the sum for which a Manchester excursionist may visit Dublin, Belfast, or the Isle of Man, and return home. Is not this deficiency worthy the consideration of a Marcus, a Cole, or a Stanley, the enterprising conductors of various excursion systems? May not the London and North-Western and Great Northern Railway Companies—both of whom now hold constant communication with this metropolis—be convinced of the desirability to extend their speculative arrangements to Ireland, and on a clearer principle than that adopted some years since by the former company?

AN ARTIZAN.

CITY NUISANCES.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR—Your vigilant exposition of "municipal improvements," and various sanitary abuses demanding reform, suggests to me to seek aid—denied me by a morning cotemporary—from *you*, towards the suppression of what may well be characterised a "public nuisance." In your and other columns the popular phrase "dear dirty Dublin" is sometimes quoted, and though an Irishman to the back-bone, I must admit that there is much truth in it. In the slums of the Liberty, the Poddle, and other classic (?) localities, it may not be a matter of *much* wonder that filth and indecency find some countenance; but in a leading thoroughfare, the high road to the most important of our southern coast suburbs, and to the terminus of our most prosperous and fashionably patronized line—the Kingstown branch—that the evil I allude to *should exist unheeded,* "shocks all common sense." Compared with other cities and towns of even less magnitude, Dublin is fearfully deficient in structural provisions for necessity, and the substitutes therefor found in her lanes and alleys, are positive outrages on decency. To *one specially* of these I would now direct your attention, and when I particularize it as the notorious Spring Garden-lane, leading from Great Brunswick-street to Townsend-street, and intersecting the former at Giblan's, the stucco plasterers, and Clarke's the upholsterer's respectively, I trust you will not deem my occupancy of your space an uncalled-for intrusion. Surely something might be done, if not totally to suppress, at least to mitigate, this nuisance? May I, Mr. Editor, ask your opinion?

A HOUSEHOLDER.

[Being a public thoroughfare, it cannot be interfered with without the consent of the Corporation; to obtain which, a requisition would be the proper course. Assuming assent to be granted, we have no doubt that the parties locally interested would, by subscription, defray the expense of a pair of gates, a duplicate key to be held by each party having now a right of passage.—ED.]

THE APPOINTMENT AT THE ECCLESIASTICAL COMMISSIONERS BOARD.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—In the leader of your May number, entitled "Appointments and *dis*-appointments," you say, with reference to the above matter: "Whatever the result may be, clamour infallibly will arise, not amongst the professional competitors whose abilities might entitle them to the office—for gentlemen would contemn the course—but with those garrulous, useless, busy-bodies, who meddle and talk and write for the sake of notoriety, without one particle of sincere feeling of interest in the issue." Probably, on principle, you *may* be right, and I think you *are;* but, as there is no general rule without an exception, I must, though having some claims to the appellation of a "gentleman," take respectful exception, without being "clamorous," to the course pursued towards the profession by the Commissioners—not, mind you, to their *act* in making the appointment in question, but to the *course.* In your and other journals advertisements issued from the Board soliciting candidates for the vacancy in the architectural department, requiring testimonials, &c. Quite an *emeute* amongst those members of our worthy fraternity who are not burthened with the good things of this life followed the announcement, and every credential that could be hunted up was speedily deposited in the "sanctum sanctorum," 24 Upper Merrion-street, while, all aghast, the owners awaited their honours' "ultimatum." In suspense protracted and dire, consequent on various adjournments, were the candidates detained, until lo! the startling announcement at length was made, that the Board had selected Mr. Gillespie and Mr. Welland—the son of the late architect—two of their own *employées*—conjointly to fill the office. Now, sir, I abstain from personalities to either of these gentlemen—though one of them was most insultingly assailed in the morning journals—assuming, for aught I know, that they are both perfectly qualified to fill the office, and certainly convinced that the latter gentleman had more than an ordinary claim to a preference from the Board. But, quoting your words, though I am not "garrulous," nor "useless," nor a "busy-body," I nevertheless feel myself justified in proclaiming that such a result could not have arisen from an *impartial* consideration of *all* the candidates' claims, and, therefore, the form gone through was a mere mockery, giving much useless trouble, and causing much chagrin to each professional who, like me,

SOUGHT FOR THE APPOINTMENT.

REPAIRING RAILROAD IRON.—The Great Western Canadian Railway Company has introduced a new system of repairing damaged and worn-out railroad iron in its shops at Hamilton. The mode of accomplishing this is simple, and it is said to be successful. The Hamilton *Spectator* describes the process somewhat as follows:—"A rail which is damaged at the end by the peeling off of a portion of it, or the spreading consequent on hard wood, can have a new piece put in in a very short time, and that, too, in such a manner that the rail is better, and will stand more wear and tear than when new. The rail is heated to a white heat, and a piece of common bar iron welded into the damaged spot, and the rail is as good as new. This operation may be performed to a greater or less extent, as the case may be; some of the rails we saw would require only one foot of new iron, while others would require as much as seven feet. The great advantage of this system over re-rolling is its cheapness. Messrs. Dunning and Wormley, the conductors of this work, say that they can repair these rails at a cost of 6 dollars per ton; while to re-roll them would cost 30 dollars, besides the expense of transportation and duties, if they were done in the United States.

Notes of New Works.

The Mining Company of Ireland are about having twenty cottages erected at Knockmahon; also additions made to the Manager's house, according to plans by Mr. Charles Tarrant, C.E.

The churches of Donacloney (Waringstown) and Drumgooland, county Down, are to be enlarged according to plans, &c., by the Ecclesiastical Commissioners' architects.

A new Roman Catholic church is to be built at Crosspatrick, county Wicklow, for which tenders were received up to 1st inst.

The dwelling-house of Anthony Fox, Esq., of Glenageary, near Kingstown, is being improved under direction of Mr. Caldbeck, architect. Additions were also made thereto recently.

The church of Narraghmore, county Kildare, is to be rebuilt. The rector states that the present roof—flat, ill-constructed, and ceiled—the present windows—wretchedly mean, ill-proportioned, and crooked—the present plastering—uneven, patched, and whitewashed—the present floor—of rough, cracked, and mis-shapen flags—must all be removed; in short, he is about to carry out the designs of the architect for a church more worthy of its holy object and name, including a nave, chancel, and vestry (the two latter are already built) also a porch and spirelet, at a proposed expenditure of about £500. The style is early gothic, and the architect Mr. B. J. Withers.

The new Roman Catholic Church at Raheny is progressing after designs by Mr. Patrick Byrne, architect. It is situated on an elevated mound opposite the church, and at the intersection of two main roads. Interiorly it will comprise a nave 60 feet by 28 feet, and choir 28 feet by 23 feet, sacristy, porches, &c., and display a great chancel arch, traceried east triplet, and west four light windows, five lancets at either sides, and open timber roof, stained and varnished, rising from ornamental stone corbels.

The solemn dedication of the new cathedral at Enniscorthy took place on the 20th ult.

The chapel school at Newbridge, county of Kildare, is to be completed. Tenders till 4th June.

A villa is to be built at Clontarf according to plans by Mr. Joseph Maguire, architect. It is much to be regretted that building works are not more numerous in this locality.

The new church at Newtowncunningham is stated by a correspondent of the *Derry Journal* to have all the advantages of a fine site, being situated on the right hand side of the road leading from Derry to Letterkenny, near the shores of Lough Swilly, and in the midst of a beautiful and picturesque country; and within a short distance of it are the very interesting ruins of the old churches of Belleban and Killyodonnell, overhanging the glassy surface of Lough Swilly. It is built on the site of the old chapel, the foundation stone of which was laid in 1810. After a short time the old chapel became entirely inadequate for the wants of the congregation. The new church is built in the mediæval style of architecture (from a design by Mr. E. W. Godwin, architect), with high pitched roof, &c., and comprises nave, chancel, porch, and sacristy, with bell tower over chancel arch, terminating in a cross. There is also provision made for a transept on the north side, which shall soon be added. The chancel is apsidal and semicircular, and is lighted by three windows, each of one compartment, trefoliated, all filled in with stained glass in rich colours. The central light contains a full length figure of "the Redeemer carrying the Cross," in ruby and purple colours, over which is a canopy, on a blue ground, of passion flowers. The windows on either side are also of stained glass, and contain emblematical devices. In the west gable is a quatrefoil window, the spandrils of which are pierced with geometric forms, and filled in with richly-decorated glass, surrounded by a vine branch and clusters of the rich fruit of fair Italy. The traceried windows in the nave, each of two lights, are made up of tinted cathedral glass, with stained borders, with monograms and flowers in the tracery. The stained glass has been supplied from the studio of the Messrs. Barff and Co., Dublin.

The house No. 39, Westmoreland-street is now undergoing alterations and improvements prior to occupancy by the proprietor, Mr. Austin, of St. Andrew-street.

An effort will be made at no very distant period to carry forward the project of making a railway from Waterford to Fermoy.

The contract for the entire completion of the Newry and Armagh Railway has been taken by Messrs. Wm. M'Cormick, M.P., Green, and King. The works will be completed in eighteen months from the present time, and delivered up to the company, with the rails laid, stations built, and everything in complete working order.

The directors of the Ulster Railway Company have accepted the tender of the Messrs. Edwards for constructing the line of railway from Monaghan to Clones, for which Sir John Macneil is the engineer. The works will be commenced at once, and will be completed by autumn, 1861.

Reviews.

The Poet Shoemaker. By John Carroll. Dublin: John F. Fowler. 3 Crow-street.

"MODEST merit in the shade" is fully exemplified in this little work, and though only dropped casually into our letter-box with the intimation that "its purchase will be thankfully acknowledged as a support" for one "to fortune and to fame unknown," we volunteer it a notice in our columns. The author, with true nobility, prefaces that "he does not offer his composition to the world as the poetry of learning, but merely as the effusions of a naturally sensitive heart, a poetic, yet not highly cultivated mind," and "pleads the many disadvantages surrounding a poor mechanic, whose only opportunities of courting the muse are a few moments now and then abstracted from incessant toil or needful rest," being a member of that humble confraternity which often before gave proof to the world that the making of boots and shoes is an avocation not altogether deserving of the oft-flung learned approbrium, "*Ne sutor ultra crepidum.*" Our poet, for such we term him, believing him to have no small claim to the appellation, must bear in mind the example of many amongst the working classes who "never saying fail," by the dint of energy and perseverance, rose to eminence and opulence;[*] and be not discouraged because *his* sun has not *yet* peeped from behind the clouds which overshadow him. The poetry throughout, though lacking in some respects prosodaical orthodoxy, nevertheless displays an intuitive taste and a naturally musical ear.

"THE POET'S MISSION.

"INTRODUCTORY POEM TO THE AUTHOR'S VOLUME.

"The man who makes one little flow'r
Bloom where no flow'r had bloom'd before;
Born 'neath some happier planet's power,
What blessings he on earth might pour!
That simple, honest, useful man!
He builds a monument to fame,
Where, though the world may fail to scan,
Heaven reads a worthy hero's name!

"So, in the higher realms of thought,
The humblest Bard that brings to light
One flow'r of soul, divinely taught
To root, and bud, and blossom bright;
That anxious, toiling, tearful Bard!
Though slow the world to recognize,
And hears his name but to discard—
Angels may breathe it in the skies!

"On desert wastes the traveller fails—
Parch'd—fainting 'neath the simoom's wings;
But lo! the camel snuffs the gales
That call him to the isle of springs.
Some thoughful patriarch in his day
Had sunk these pleasant fountains here,
And pilgrims halt upon the way
To gild his memory with a tear.

"Thus, in this wilderness of woe,
The Poet strikes the desert's sands,
And forth sweet springs of comfort flow—
Cool fountains in the barren lands;
And oh! when I shall breathless sleep!
Some weary traveller by the brook
For me a grateful tear may weep,
And love me for this little book."

Photographic Etching. By William Strudwick, 2, Bolton-terrace, Newington, London.

THE object of this little pamphlet is to show how drawings may be copied *ad infinitum*, by a simple but certain photographic process, and without a camera or other expensive apparatus. We have seen some specimens of the process, and to architects, engineers, surveyors, &c., the invention is an incalculable acquisition. Relative to the saving of time effected, we may state that, on a fine day, one person can produce from thirty to forty copies of any drawing; and, if the drawing be simple and worth while to make two originals, separately or on the same plate, of course double the number of copies could be obtained in the same time. We trust that appreciation will be evidenced by extensive demand for possession of the manipulatory secret, which is obtainable from the author as above for *eighteen* postage stamps. Who, for such a paltry consideration, would notbe enlightened?

Kilkenny and South-East of Ireland Archæological Society. Dublin: M'Glashan & Gill.

WE have to acknowledge receipt of Vol. II., part ii., new series, 1859, of the proceedings and transactions of this excellent Society. The contents evidence increased energy and devotion, and are replete with matters of interest to the antiquarian and archæologist.

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[*] See page 240, "Memorials of Workers."

Engineering Journal.

RAIN AS AN AUXILIARY WATER SUPPLY FOR TOWNS.

SITUATED as Ireland is, with the Atlantic ocean on her west, an almost boundless expanse of sea on the south, everywhere surrounded externally by water, and abounding in internal lakes and rivers, it ceases to be matter of marvel that rainy weather is the "rule" and fair weather "the exception" in an island so placed. To this abundant supply of moisture we are indebted for the verdure which everywhere abounds, and the consequent soubriquet of "The Green Island." The quantity of rain which falls per annum in Ireland varies from 22 to 42 inches in depth. The average of those two extreme quantities being 32 inches, may be safely taken as the average, and is fully verified by meteorological observations. One-third of this rain fall flows into the sea, and might be reckoned on as a source of supply for any purpose. Hence the rain fall in one square mile, if impounded and preserved, would yield about 500,000 gallons daily, or sufficient for the supply of 25,000 persons on an average throughout the year. Now nearly all our large towns in Ireland are built almost on a level with the ocean, and in the neighbourhood of hills towering above them many hundred feet, on whose tops the rain descends unheeded and unrecognised, whilst the inhabitants of the adjacent towns are suffering innumerable inconveniencies from the insufficient and impure water supplied.

We would suggest that it be made compulsory for the builders of any tenements, whether domestic, commercial, or otherwise, in cities and towns, to provide for the preservation of water falling from roofs, and its collection first into cisterns for local use, and thence by an overflow into a special main communication, with a public reservoir or reservoirs of sufficient capacity. By this means much waste might be prevented, and much water of superior quality, now used for inferior out-door and household purposes, find a fitting substitute in the unfiltered dews of heaven.

APPARATUS FOR CONVERTING SALT-WATER INTO FRESH.

THE ingenious invention of Dr. Normandy—so says the *Architects' and Mechanics' Journal*, New York—converts the briny sea-water into clear, sparkling, spring-water. It first purifies it of salt; it then charges it, not only with the common air which all wholesome water contains, but also with those other gases which are far more difficult to compose artificially, and which the tongue instantly recognises and craves from habit; it then cools it down to the temperature of spring-water; and finally extracts from it the foreign oily particles made sensible by the act of distillation, and delivers it sparkling and clear. If our own taste is any criterion, we must say that we never tasted better water, either from the purling spring on the mossy bank, or from the well's deep fountain, than that which flowed from this apparatus; and this water, but a few minutes before, was laving the docks of the East River. The first sensation upon drinking it, is that of surprise at the perfect manner in which the object sought has been obtained. This being the case, the great importance of the invention is at once made manifest.

The apparatus is sometimes placed on deck, in which case the sea-water is forced into it by means of a steam pump, which is connected with it for that purpose; and sometimes it is placed in the hold of a ship, below the water line, when the sea-water flows through it by means of two pipes which pierce the vessel's side, one at a lower and the other at a higher elevation, but both under water, the sea brine entering at the lower pipe, and discharging at the upper one.

Steamships, by using this apparatus, can remove a portion of their water-tanks, and thus make room for 30 tons more cargo—the saving effected paying for the apparatus in one voyage. A number of steamers and sailing vessels have had it for a shorter or longer time in use. It is destined to work a complete revolution in the comforts or discomforts of sea voyages, and shortly no passenger ship will be patronized which does not carry within it this artificial fountain of living waters.

A semaphore signal, stated to be "in point of safety, accuracy, and simplicity, one of the greatest improvements in railway arrangements ever contrived," has been placed at the Mallow Station of the G. S. & W. Railway.

Relative to the new patent balance rolling bridge erected over George's Dock, and of which we gave a drawing in April number, a correspondent writes that "for the opening and closing of the late swivel bridge the public were only detained *four* minutes in addition to the time occupied by the vessel paseing, and that *four* men were sufficient to do the work, whereas that with the new, *eight* men, with strength considerably overtaxed, are employed, and the operation takes *thirty-six* minutes to draw back the bridge partially, and would *ten* minutes more if the entire space were required." [For the patentee's explanation we refer to correspondence to be found in another column.—ED.]

A draw-bridge is about being erected by the Corporation of Drogheda, crossing the River Boyne at Shop-street. The time for receiving tenders is limited to this date.

Messrs. Kitson and Co., of Leeds, have made an eight-wheeled engine for South America. She has around the frame a beautiful hand-railing, mounted with brass, so that the driver can walk round the foot with perfect safety. In front there will be fixed a "cow catcher." The trial of the engine was perfectly satisfactory.

The time for sending in proposals for the erection of a lighthouse tower on the Calf Rock, also dwelling-houses in same locality, is extended to 6th inst.

The bog-water of low countries causes a galvanic action in boilers, where brass and iron come together, in contact with it or the steam; and the effect is, rusting away of the iron.

The remarkable increase in the English railway returns is attracting much attention.

The Carrickfergus and Larne Railway Bill has passed.

The Blarney and Macroom Junction Line, as at present projected, is almost straight between the termini.

The committee have reported the preamble of the Letterkenny Railway Bill proven, but rejected the bill for the Lough Swilly extension.

Lord Redesdale refused a deputation on behalf of the West Cork Railway to assent to a proposal for £100,000, at 5 per cent., on baronial guarantees, in lieu of the £80,000, with guaranteed interest, at 4 per cent.

The Mallow and Fermoy Railway was executed at a cost of about £6,500 per mile, total £110,000; including expenses of bridges, stations, and every adjunct. At present only a single line of rails has been laid down, but provision has been made for a double line at any future period.

The viaduct built to carry the railway over the Carrick glen, a deep valley and stream of the Blackwater, is of hewn limestone, on six solid columns of mason-work, the centre columns being 72 feet high, each arch being 45 feet span and 20 feet in the arch.

The Kilcummer viaduct consists of ten arches of iron framework resting on the same number of columns of solid masonry, built of hewn stone. The length from the first column to the last is 250 yards, and greatest height 72 feet. The iron work which though in reality exceedingly strong and capable of withstanding a load of 300 tons at full speed, appears of singularly light and compact construction, was completed by Mr. Anderson, of Dublin, sub-contractor under Mr. Dargan. The mason-work was executed by Mr. Cunningham, also sub-contractor for Mr. Dargan. The construction of the viaduct occupied nearly a year and a-half. There was great difficulty experienced in getting good foundations, but after great labour and anxiety on the part of the resident engineers, Messrs. Dillon and Cotton, and the contractors, Mr. Dargan and Mr. Edwards, solid foundations were obtained, and a thick bed of concrete laid under the highest piers which support the fine lattice girders. The total length of the viaduct is about 540 feet.

TURBINE WATER-WHEELS.—During the trial of the model of a turbine wheel on the Jonville principle, 925 pounds were raised 25 feet, by 70¼ cubic feet of water falling 6 feet. This produced a result of nearly 88 per cent., and to this should be added 3 per cent. for friction of the transmitting machinery, making the true value of the wheel 91 per cent. The chief engineer, and the committee of councils, under whose supervision all the experiments were made, say that no country could have produced wheels of greater power of practicability in their results, than those exhibited. The experiments have brought together inventors and machinists from all parts of the United States, and the comparison of the various wheels, under careful tests, will do much to increase the knowledge of the inventors, and add ultimately to the value of their wheels.—*Phil. Ledger*.

WANT OF LIFTING CRANES ON THE QUAYS.—It seems that there is no crane upon our quays capable of lifting more than five tons, though there is a fifteen ton crane in the Custom-house Docks, and owing to this want Messrs. Cook & Co., of Glasgow, found a considerable difficulty in landing a rivetting machine to the order of Messrs. Courtney and Stephens, and had to employ a pair of shears from the light-house yard, with fifteen men assisting, for that purpose.

Miscellaneous.

LEAD AND PAINT.—A writer in the *Mining Journal*, who has given some calculations, produces very curious results as to the consumption of lead. Taking the export of red and white lead, the chromate of lead for paints and other purposes in the arts, and of litharge for glass making, at 5,000 tons, he proceeds to calculate the yearly waste in connection with the absorption of metals, a subject little investigated, and, so far as building is concerned, of much interest to the trade. He ascertains the home quantity of lead applied for all purposes to be 60,000 tons, being an increase from 30,000 tons in 1825; he estimates that of these 60,000 tons there are worked up for perishable purposes not less than one-half—namely : Paints and glass making, exclusive of export, 20,000 tons ; shot, ditto, 2,000 tons ; paper lead for wrapping, capsules, trade purposes, mechanical uses, chemical works, refining, lotions, pharmaceutical purposes, &c., 8,000—30,000 tons. This is most likely under the mark, for the consumption of lead in the glass manufactures, besides that for glazes, cannot be less than 4,000 tons, leaving only 16,000 tons for paints. The estimate, therefore, cannot be regarded as excessive. The export of white and red lead alone was 5,000 tons in 1857, besides chromate, and quantities employed for engineering and in paints, and further 662 tons of litharge, and the unknown quantity employed in flint and crown glass exported. Taking 30,000 tons as the figure it is estimated that this amount is yearly taken out of the market, leaving not more than 30,000 tons in a metallic shape, such as sheet lead, piping, &c. ; and contribute to the total stock of lead in the market, to be worked up over and over again until consumed. The total value of paint exported cannot be altogether ascertained, but the following are the approximate figures:—Painters' colours (1857) £442,719 ; white and red lead, £140,000 ; ditto unenumerated, £50,000 ; total, say, £630,000.

WARNING TO GAS CONSUMERS.—There is a prejudice against gaslight as being the most injurious form of artificial illumination. There can be little doubt that, from its abuse and bad management, it is really doing more mischief than any other kind of light; its very excellences are turned to bad account; its extreme cheapness, compared with other sources of illumination, naturally leads to its use in excessive quantities: floods of light are poured forth, so that persons may read and sew for hours together in the remotest corners of the room. The air is heated by the excessive combustion, and poisoned by large quantities of carbonic acid, which there are no means of removing. In cold weather shopkeepers shut their doors, so that the gas may warm the place—this, however, is a most dangerous and unhealthy practice, as dangerous as a charcoal stove. When you burn gas take care to have plenty of ventilation.

ROCHESTER, N. Y.—This city contains nearly 50,000 population. It has four English-speaking Catholic Churches, two German, and one French; with convents of the Sacred Heart, Sisters of Mercy, &c., a large hospital, and schools. Two of the churches—St. Patrick's and St. Mary's—are of large dimensions; the latter is a noble edifice, and very handsomely situated, fronting a beautiful park. The church, convent of the Sisters of Mercy, and schools, as projected, will occupy nearly the entire front of the square.

CARBURY CASTLE.—This once noble building is now a complete ruin ; the length of the line of the southern wall is alone 100 feet, and the general view of the castle, with its chimneys, narrow pointed gables, and large stone sashed windows, is one of the best specimens of the castellated mansions of about the time of James I. which we know of in this country, combining lightness, taste, and comfort, with strength and durability. The eastern front, which measures 60 feet, still remains, with several of its mullioned windows even yet quite perfect; and upon a gentle slope leading down from its walls on this side may still be traced the vestiges of a garden with a few of its flowers now wild and neglected mingling with the rank florin grass with which it is surrounded. We perceive from the character of the masonry, the massive walls, the deep, stone-roofed donjons (the principal of which runs for 85 feet underneath the great keep from south to north) the manifest antiquity of the western end, and the general arrangement of the whole, that the present ruin consists of the remains of structures very much older than the early part or middle of the 16th century—indeed some of them would appear to be as old as the twelfth century—and there are remains of walls of great thickness, built with rubble masonry and grouted, extending even beyond the confines of the present ruin to the north-west. The modern additions all exist on the opposite side, and their later date is at once manifest. Four of the chimneys, three of which are in the eastern front, have sixteen sides, and are like some of the chimneys of English castles built about the year 1530, being beautifully wrought and moulded at the top.—*Beauties of the Boyne, by Dr. Wilde.*

INTRAMURAL INTERMENT, ST. PAUL'S PARISH.—On the 8th ult. a meeting of the parishioners was held to denounce and stop the present system of intramural interment. The movement was alleged " to have arisen out of an imaginary cause," and " to injure the rector by depriving him of part of his emoluments." Dr. Madden, a near resident, had no reason to complain of it as a nuisance; Mr. Johnstone deposed similarly; but Mr. Stephens alleged that " the complaint was not any offensiveness of smell, but that in one instance *two* coffins had to be dug up to make room for one to be buried ; that skulls and human bones were at a distance of 18 inches from the surface, and that such had actually been sold at bone-yards in the city." An argument on the illegality of the meeting terminated the proceedings without any result being arrived at ; and very unfortunately, say we, for we believe that on principle the requisitionists are strictly right, and that under any circumstances, intramural interments should not be tolerated.

TO DESTROY WOODLICE.—Place some boiled potatoes, broken in small pieces, into flower-pots, or any other small vessels. Cover the potatoes lightly with some dry moss or hay, and place these where the woodlice are most troublesome ; they will feed upon the potatoes during the night, and finding an agreeable hiding-place beneath the moss will remain there, and can be emptied in the morning into boiling water, and the traps replaced again.

BRITISH DEMAND FOR AMERICAN OAK.—The British Government is drawing largely on the white oak forests of Virginia. Over three hundred men are employed in getting timber in the mountains near Rowlesburgh, on the Cheat River, which is to be used for gun-carriages. The contractor has orders which it will take two years to fill. The Cheat River oak is said to be the best yet imported into England, far surpassing the Canada oak, which it is fast superseding.

BELFAST SCULPTURE—NEW ULSTER BANK.—The top stone has been placed in its position, in the centre of the parapet of this edifice, which is, even under all its disadvantages of situation, by far the most splendid detached building in Belfast. The chastely-classic, yet magnificent, group designed for the crowning ornament of the structure received its principal figure. These highly ornate sculptures, which since their elevation have attracted much attention, consist of, first, an erect and noble figure of Britannia, eleven feet in height. The right hand extends in an easterly direction a wand emblematical at once of imperial sway and mercy; the left is intended to grasp an oar—the rudder of early navigation—symbolical of maritime commerce. Britannia stands upon a massive heraldic shield, two quarterings of which show the arms of Ireland in relief, and the other two those of England and Scotland. The shield is encompassed with a wreath of shamrocks, exquisitely designed and chiselled. The central piece is supported on the right by a recumbent female figure, representing Commerce, as is indicated by the cornucopia, bales of merchandise, and other emblems of abundance and traffic piled in her vicinity. She is delineated as reclining upon a rock, amid verdant and graceful tendrils of the national plant. The figure on the left or western side of Britannia symbolises Justice. As at present seen, Justice is merely armed with her sword, her more appropriate insignia—the scales and nicely-poised beam—having still to be supplied. Whenever it may suit the sculptor to complete the gracious lady's order, it is to be hoped that more respect will be paid to the horizontal line in the beam than that so unaccountably adopted for her prototype on the apex of the County Court-house. "Justice," for a couch has, like St. Kevin, a " flinty rock ;" yet the graceful lines of the figure impart a degree of grace even to her rude resting-place. At the base of the figure are a terrestrial globe, cannon, and other ideal adjuncts of such imagery, whether in stone or on canvas. They, as well as all the rest of the appliances, are admirably executed from the solid block. The measurement of each of the recumbent figures equals that of the Minerva-like statue in the middle—namely, eleven feet as extended. The boldly-defined helmet of Britannia, however, and her commanding position, cause the figure to appear considerably larger than either the others. The entire height of the centre-piece, plinth included, is sixteen feet, and the breadth of the whole group is twenty feet. We learn that the stone used for these sculptures, procured from a highly-prized quarry in Scotland, is excessively difficult to mould to the workman's model, but very durable. After having thus noticed, somewhat in detail, the beautiful ornaments above referred to, we have only further to state that they were executed by our townsman, Mr. Thomas Fitzpatrick, of Wellington-place, to whom also the new Ulster Bank owes whatever it can boast of beauty in the sixteen splendid vase-like ornaments which are scattered about its parapets, and also for the classic heads so generally admired, forming the keystones in the architraves of the principal windows. All the finer sculpture of the building, indeed, we believe, was completed by the same talented artist. He was also the sculptor of the beautifully-massive groups of figures in the tympana of the pediments of the County Court-house and New Custom-house.—*Banner of Ulster.*

THE FINE ARTS.—"THE LIGHT OF THE WORLD."—(Painted by Holmar Hunt.)—When the word "Let there be light" went forth from the lips of God, swift as his thought, light permeated chaos and illuminated the darkness; but time has passed by, year has followed year, and no branch of art has taxed more severely the labour and the patience of the artist than the imitation of light. In our public exhibitions we have had some pictures that surprised and delighted the spectator, but few, if any, challenges the scrutiny of the public more than the picture at present on view in the establishment of Mr. Cranfield, Grafton-street. It may well, indeed, be said that the Arts are handmaids to each other—Poetry suggests the beautiful to Painting, and Painting supplies Sculpture with the features of some beloved one, to which it gives in marble a more permanent existence. Lope de Vega had written some striking lines upon the subject of our Lord waiting, throughout the gloomy nights of winter, outside the shut-up casement of a sinner's soul seeking admission, and the "To-morrow, and to-morrow, and to-morrow creeps on its petty pace from day to day," the casement remains closed. The poet Longfellow has translated these lines, and the painter Hunt has embodied them in a small but effective painting. The picture at first looks like some most highly-finished Japanese or Chinese picture, Pre-Raphaelitic in its every degree; but it is a myth—an allegory—and requires more deep study than the public can generally bestow upon a work of its class to be understood. The lights and shadows are marvellous in their effects, but "one touch of nature" there is not. It is for the hermit in his cell, the nun in her cloister as a study, and not for the busy mass of mankind attractive. How it will engrave it is hard to divine, for the charm of colour for the eye as now present will not be found. This work will have its worshippers in this country, as it has had elsewhere.—*Saunders.*

GRAND JURY PRESENTMENTS FOR THE YEAR 1859.—DUBLIN COUNTY.—New roads, bridges, pipes, gullets, quay walls, hills and hollows and ditches, £1,153; repairs of roads, bridges, pipes, gullets, or walls, £21,053 14s. 10d.; court and sessions houses repairs, £65 8s. 10d.; gaols, &c., building or repairing, £714 5s. Gross amount, £37,543 17s. 2d.

DUBLIN CITY.—Repairs of roads, &c., £300; court of sessions repairs, &c., £194 7s. 9d.; gaols, &c., repairs, &c., £758. Gross amount of presentments, £32,294 6s. 6d.; re-presentments, £3,566 12s. 3d. Net amount, £28,727 14s. 3d.

The total net amount of presentments for all the counties in Ireland is £1,046,409.

STAINING *v.* PAINTING.—There can scarcely be a second opinion that stained and varnished woodwork is in every respect, *when well executed*, superior to painting, however excellent, especially for internal decoration; but we are far from admitting that a couple of coats of clean, plain, ungrained painting is not infinitely preferable to an unsuccessful effort at staining. The latter work must be well done, and the material employed be of the best quality, otherwise it is, like all mere attempts, quite intolerable. Judging from the specimens forwarded to us, with request for special attention, by Mr. F. Swinburn, 22, Bush-lane, Cannon-street, London, we may state, that his fluids and varnish are quite up to the mark of his professions; and the testimonials from eminent architects appended to his prospectus, attest the excellence of his work more forcibly than we are enabled to do practically.

CHROMOTYPOGRAPHY.—M. Rochette has devised a new method of printing the different colours used in this art. Instead of applying a series of plates of stones, each bearing one colour in the usual way, he ranges his plates upon a rotating platform, of smaller dimensions, but like those used on railways. Suppose four plates thus arranged with black, red, blue, and green, and a sheet of four pages, which it is desired to print imposed upon them. One page will be printed in each colour, and by turning the sheet a quarter round each time, the remaining colours will be printed in succession. This apparatus has a mechanical contrivance to ensure accuracy of position; and as the colours admit of super-position, green may be formed by successive printings of yellow and blue, orange by yellow and red, &c.

RAILWAY TRAVELLING ON THE CONTINENT.—Calculations based upon the most authentic returns have established that since the introduction of railways into France there has been only one traveller killed outright in every 2,000,000 of passengers, and there has been only one traveller wounded in every 500,000 passengers. What was the ratio of such casualties in the good old times of slow travelling? Why when the diligences were in use there was on an average of 10 years one killed of every 356,000 travellers by these vehicles, and one wounded in 30,000. It seems, also, that in France, where every care is taken to prevent timid dowagers, nervous *rentiers*, and fast young people getting into danger at stations, the results have been less favourable than in Belgium, where only one has been killed in 9,000,000 of travellers, and one wounded in 2,000,000. Against railway accidents one ought to be able to assure his life and limbs at a very small figure in Germany. In Prussia and the Duchy of Baden there has been but one killed in every 17,500,000 of travellers, and only one wounded in 1,200,000.

THE PALACE OF THE FINE ARTS AT PARIS.—The new buildings of the Palace des Beaux-Arts, on the Quai Malaquais, are advancing rapidly. They are to comprise two large galleries—one on the ground floor, to be specially set apart to the works sent by students at the school at Rome; and the other on the first floor, for the exhibition of the works of pupils of the Ecole des Beaux-Arts. The gallery on the ground floor will be less extensive than the other, as at each end of it space will be reserved for the formation of a small saloon. The entrance to the palace is by a large gateway on the quay. At a later period, a large gallery is to be constructed, somewhat in the style of the Bibliotheque Sainte-Genevie, to unite the Ecole with the new buildings.

THE THEATRES, ETC.

THE THEATRE ROYAL.—Madame Celeste and her Royal Lyceum Company commenced an engagement on the 23rd ultimo, at our National Theatre, and shortly after the extravaganza of "King Thrushbeard" was presented, in which a beautiful transformation scene is the chief attraction. It seems to be a pity that the encouragement afforded to our excellent lessee by theatrical habitués is not sufficient to enable him to keep his establishment open even during a reasonable proportion of the year; and it is doubly a matter of regret, considering the number of his employeés who are thrown out of bread during the intervals. Has public taste declined so much that it is *now* more impracticable than *heretofore* to have a theatrical season? It must be so; for the well-known enterprise of the lessee supplies an affirmative answer! We presume that he yields to the conviction that "an empty house is better than a bad tenant," *ergo*, that it is better to shut up shop altogether than keep open at a *loss*. To the "starring" regimé the fact, however unfortunate, is palpably attributable; for during the first three or four years of Mr. Harris's lesseeship, and while the novelty, contrasting with previous management, of a permanent stock company of excellence in the various branches of histrionic art, tragedy, comedy, opera, burlesque, &c., &c., lasted, did we notice "overflowing houses" during nine months in the year at least, and constant employment afforded to all. But the scene changed, "old favourites" lost their attractions—even Robson, who owes his immensely successful career to his graduation on the Dublin boards, and now A 1 in his peculiar line; T. C. King, admittedly a tragedian and melodramatist of the first order; Henry Haigh, our second English tenor to a certainty; Durand, the barytone, and last, not least, the ladies—Miss Lanza and the Misses Cruise, whose excellence as vocalists is unquestionable; nor even forgetting our old friend, Granby, with his "mustard plaster, sad disaster," his "ma conscience," and "prodigious;" all this combined talent were insufficient to draw a house; and our lessee, yielding with the tide, was compelled to change his tactics and espouse the "starring" system, hitherto prudentially rejected. Hence it is now that none others but a Grisi, a Piccolomini, a Titiens, a Garcia, an Alboni, a Tamberlik, a Mario, a Guiglini, a Sims Reeves, a Graziani, or a Ronconi in Italian opera; a Catherine Hayes, or a Louisa Pyne in English opera; a Charles Kean in tragedy; or a Mathews or a Buckstone in comedy, will serve to keep the coffers of a lessee even reasonably full. And when some one of the constellation is not to be fetched for love or money from their metropolitan engagements, the lessee, feeling that mediocrities *will not pay*, has to close his doors, turn his staff adrift on the chance of their re-assembling, should nothing better turn up, until "the stars," in their annual course, with some speculating deity to guide their movements, pay us a periodical visit. Such is the picture, and for the mutability of public taste we exclaim, "O Tempora, O mores! Tempora mutantur, et nos mutamur ab illis."

HENGLER'S CIRCUS.—This is the most complete establishment of its kind out of London or Paris, and although only a temporary structure, is substantially and tastefully erected, the rostra radiating octagonally with stepped stages from the equestrian circle, and the ventilating arrangements, so necessary in a place of the kind, admirable. The performers are of superior ability, and the appointments and stud such as must command admiration. Much variety is introduced in the bills of fare, and the happy countenances of the audiences proclaim unanimous approbation.

IRISH ACADEMY OF MUSIC.—The Annual Amateur Concert, in aid of the Funds of the Irish Academy of Music, will take place at the Ancient Concert Hall this evening—the Lord Lieutenant has signified his intention of being present. The Concert will consist of an Opera Recital of Bellini's "I Puritani," and a Miscellaneous Selection from the works of eminent composers. The Committee announce that the following distinguished Amateurs are to take part in the performance:—"I Puritani"—Elvira, Lady de Vere; Arturo, Mrs. Edward Geale; Ricardo, Mr. Hercules Macdonnell; Giorgie, Mr. John Stanford; Bruno, Mr. Alan Close. And in the Miscellaneous Selection: Mrs. J. Stanford, Mrs. Joseph Robinson, Colonel Hume, Mr. J. Scott, &c., will assist. Conductor—Mr. Joseph Robinson.

FREEMASONRY PRESENTATION.—At a quarterly meeting of the Provincial Grand Lodge of Munster, held last month, Brother George Chatterton, J.P., Provincial Grand Master of Munster, was presented by Sir John Benson, as Provincial Grand Architect, on behalf of the Mayor, Brother Sir John Arnott, M.P. (unavoidably absent), with a handsome mallet, manufactured by Mr. Hawksworth, having silver head, pure ivory handle, with silver square and compass, in commemoration of the valuable assistance rendered by him and the masonic body at the laying the foundation stone of the new bridge in November last.

CATTLE SHOW BUILDINGS AT CORK.—The plans for these buildings, by Mr. Walker, Architect, C.E., pupil of Sir John Benson, provide for cattle sheds, covering an average of 1,000 lineal feet, horse sheds, do., sheep and pig sheds, implement sheds, 1,300 lineal feet, and 1,000 additional if necessary, a central covered promenade, another at northern side, 330ft. by 81ft. The tender of Messrs. James O'Connor & Son, for the timber, was accepted.

CURIOUS COINCIDENCE.—The four new and powerful steamers in progress for the Atlantic Royal Mail Steam Navigation Company, intended to ply between Galway and America, and those of the City of Dublin Company for the Kingstown and Holyhead route, are, by a singular similarity of thought, christened the same names, viz., Ulster, Munster, Leinster, and Connaught. The words "Province of" attached to those of either company would remove the awkwardness and still serve the purpose.

TO CORRESPONDENTS.

Collenzo, Edinburgh (Your communication is rather *cool* and too palpable *a puff* for our pages, besides being unauthenticated with a name, by which the *competency* of the authority might be judged); W. A., Cork (The same writer in both cases); J. M., Dundalk (In time); C. C. H——y (Please call); Subscriber from the First (Vol. 1 has been bound in wrapper, with index complete, and Vol. 2 will also be separate, with special index, but is paged consecutively, that, if desired, it and Vol. 1 may be permanently bound together); W. T. M., Belfast (Too late).

NOTE.—*Our Subscribers will please to observe that the Journal is (again) enlarged from 24 to 32 pages, irrespective of illustrated supplement, and double the original size, without extra charge.*

BANKRUPT.

Mr. J. H. Carroll, of Upper Dorset-street, formerly of North Frederick-street, Dublin, builder.

TENDERS

For erection of three small houses at Sandymount. John S. Sloane, C.E., architect:—

Mathers	£1220
Laughlin	1120
Pennefather	1055
W. Butler (accepted)	1050

[We are often asked why we do not publish more lists of tenders; the fact is, we cannot obtain them. Architects practising in Ireland seem to be peculiarly churlish on this point, while their brethren elsewhere are only too glad to furnish voluntarily such information. For those, however, as will favour us, we shall be happy to publish them.]

A NEW SQUARE AT RATHGAR.

NEW and very superior Building Sites are now about being laid out and offered to the building public between the top of Kenilworth-square and Roundtown, with approaches from Kenilworth-square, Rathgar-avenue, Garville-avenue, Roundtown-road, and Harold's Cross-road, to be called

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Garnavilla House and Garnavilla Cottage (the latter now vacant) are on this property.

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The Dublin Builder.

Vol. II.—No. 19.

THE CLOSE OF THE ARCHITECTURAL SESSION.

THE Session of 1859-'60, which commenced last November, has now reached its close, and it is impossible to deny that very great exertions have been made, we will say with undeviating aim; and though we may not, in all cases, add, with uniform success, still zealously made, in the cause of architecture and its allied subjects. Mr. Tite may be said to have opened the campaign in Conduit-street, with a paper, in his usually comprehensive manner, "on the present condition and future prospects of architecture," in which he rapidly glanced at the characteristics and tendencies of the present time, both domestic and foreign.

Then came Mr. G. G. Scott, with his Gleanings from Westminster Abbey; that building, above all others, pre-eminent in mediæval beauty, in historic associations, in the value of its relics, and the ashes of its honoured dead. Mr. Burnell gave a sketch of the improvements in building materials and construction, during the present century.

Another evening was devoted to Mr. Wyatt Papworth's inquiry into the superintendence of buildings in the middle ages, in which he illustrated the subject by a more particular reference to the life of William of Wykeham. But one of the papers, which, to our mind, is of a most important class, from its direct practical character, was Mr. E M. Barry's description of the design and construction of, together with the mode of carrying into effect, the Italian Opera House, Covent Garden; which he accompanied by several of the working drawings.

Dr. Druitt went into the consideration of the construction and management of human habitations, with direct reference to their bearings on health; and in the course of the subject gave some extraordinary instances of early neglect, and of the circumstances attending the gradual development of ventilation and sanitary improvement.

The subject of Symbolism in Art, with reference to Christianity and Architecture, was ably treated by Dr. Barlow; and the origin and development of the use of Crypts was very fully gone into by Mr. Ashpitel. The closing paper, being that of Mr. Digby Wyatt, on Illuminated Manuscripts, exemplified by illustrations in chromo-lithography, by Mr. Owen Jones and other artists, displaying the progress of illumination, from the fifth century down to the introduction of typography.

From this enumeration, it will be seen that subjects of a large and varied scope, all bearing with more or less directness upon architecture, have engaged attention during the past eight months; and it may be noticed, that the observations elicited by the papers read are often of the greatest interest and value, so that did the Institute alone represent the entire architectural sphere, it could hardly be said that matters had been stationary, or that the working within the great seat of centralization had not kept pace with, and reflected, the general movement of the outer world. So far, however, is the Institute from being that sole seat of energy, that many other societies of vigour and importance might be enumerated, as for example, the Association, which, although to some extent absorbed with considerations touching its own vitality, has not failed to render efficient service to the general cause. The Architectural Museum, at South Kensington, where a series of seven lectures of considerable professional value, though treated with an eye to popular entertainment and instruction, was delivered; but in this case the opportunity of discussion is from necessity precluded. The Architectural Exhibition has also produced a similar number of lectures, more strictly appertaining to the subject of architecture, but still addressed to the general public, and rendered in a form suited to popular acceptance. Then there are the Ecclesiological, the Oxford, the Cambridge, and the Liverpool Architectural Societies, which have all been working with more or less of energy and benefit. Would that we were afforded an opportunity of including in the category an "Irish Institute of Architects," but for some unaccountable cause the pleasure is denied us!

But we must not confine our view to the societies alone, when the character of the press devoted to the objects and furtherance of the profession is daily increasing in utility, importance, and public estimation. The most valuable contributions to art and science being by its means widely disseminated and rendered effective in the grand advance of civilisation. Not only are many articles of great value originated in the pages of the architectural journals, but they afford the most ample reflex of those which emanate from the associated bodies, and which, but for the assistance thus rendered, must be confined to the immediate hearers, or, at most, to the subscribing members of those associations. Nor does the usefulness of the press end here; but it attracts to its aid the powers of graphic illustration, thus presenting at once to the eye faithful representations of works, which for their varied associations may be invested with great interest. So we have had, during the last few weeks, in the *Builder* a very accurate representation of the Bridge over the Rhine, at Cologne, intended for the use in parallel lines of the railway, and a road for general traffic. The house of an architect at Paris, which is certainly one of the most *piquant* little specimens, both in plan and exterior, that we have had the pleasure to meet with for some time; and a view of the interior of the Oxford University Museum, a building of very considerable pretension, in which not only is the spirit of the middle ages attempted to be generalised, but the new constructive element of iron is largely employed internally, and in a form of free and even elaborate ornamentation, the illustrations themselves evincing great merit.

In the *Building News* we have had isometrical plans of agricultural buildings, to say nothing of the reproduction of Sir William Chambers' work on Architecture, gratuitously furnished to its readers. An example of Provincial Street Architecture, at Folkestone, where some of the hybrid features of the day are brought under notice; a view of Elvetham Hall, by Mr. S. S. Teulon, in which the prevailing love of banded walls and surface decoration are prominently displayed; a Country House in Norway, unimportant in itself, but deriving interest from its locality, the employment of an English Architect, and the very clever drawing and engraving. The rich features of Spanish Mediæval Architecture are well displayed, by a view of the cloisters of San Juan de los Reyes, Toledo.

An eye has been very properly turned to the subject of public monuments, that is to say, of those most interesting vestiges of remote ages which yet remain, but which have hitherto suffered most extensively from the wanton and devastating hand of the ignorant and inconsiderate. What an Irish antiquary would probably feel, if our round towers were blown down by gundowder, and the materials converted into buildings of the most ordinary and vulgar purposes, we may suppose the British antiquary to feel, when he sees stone after stone removed from such memorials as Stonehenge; and building after building, though of great antiquarian and professional interest, blotted out of existence. Some society or body having for its object the preservation of such works of national interest ought certainly to be established; and though the Institute cannot, perhaps, be said to have taken the initiatory step in this good cause, it evinces a welcome sympathy by its memorial to the Dean and Chapter of Worcester, for the preservation of the Guester Hall in that city; and last, not least, we may notice the agitation which originated a few years since in the Architectural Association, and has been from that source communicated to the senior corporation, respecting professional examinations.

After some preliminary consideration of this subject by the Council of the Institute, a special meeting of members took place on the 25th, when it was resolved, "That it is desirable to afford an opportunity for a voluntary professional examination."

It is well, perhaps, that the simple affirmation of a principle, and a most important one it is, was the only achievement of the evening; for the subject demands extreme delicacy of treatment, and may be permanently prejudiced by one precipitate step. Far better, therefore, was it to pause at the point to which perfect unanimity extended, than to hasten into the field of practical difficulty and diverse opinion.

To see how the case stands, let us look for a moment at the Institute itself, and we behold a body of gentlemen associated for the general advancement of civil architecture, and for promoting and facilitating the acquirement of the knowledge of the various arts and sciences connected therewith. It has three classes of members, one being honorary, and the other two comprising the efficient members, divided by considerations of age, standing, or certain peculiarities of practice; but all bound to abstain from any interest or consideration, except such as may be directly and openly derived from the patron or client, nor can any candidate be elected except on the recommendation of three Fellows.

The operation of such a bond is to place the members of the Institute on a higher platform of public estimation than they would otherwise have held; and it is certainly undeniable that this attested respectability of position, high professional principle, and the concomitant dignity of character, are the very highest credentials that any man courting public confidence could be armed withal: therefore to restrict an examination to members of the Institute, is but to create invidious distinctions, it may be enmities, among honourable men, already raised above their unassociated brethren—to do which is surely needless—"is wasteful and ridiculous excess."

It should be recollected, too, that the Institute, though professing to facilitate, does not undertake to impart, by direct teaching, the information her members are presumed to require, or to possess; while to place an educational barrier on her threshold, might preclude the desire of many to enter, and the sap and sinews of her being would fail.

Now, in our humble opinion, the entrance of all engaged in architecture, who are duly recommended, and are willing to conform to the existing rules, should be by all fitting means encouraged, and the influence of the Institute rendered universal, her funds be augmented, and her power for good increased. This ingathering of all the members should extend however to the associateship, and between that and the higher class of Fellows, the academical barrier should intervene, though in cases of great ostensible merit the Fellowship might be conferred at the instance of the Council, as now done in ordinary.

The examination, though entrusted to the Institute for administration, ought not to be restricted to its members, nor ought it to be of such a character as to preclude those intelligent men, who bring into the general stock a vast amount of practical experience, but are not adepts in theory—who may feel the beautiful, but cannot reduce it to metaphysical analysis. It should not be such, indeed, as would give the prating critic an advantage over the more highly but differently endowed artist.

The examination to which all candidates for District Surveyorships are now subjected, would be quite sufficient as to building science; and a similar inquiry on artistic principles would complete the necessary course which ought to be kept at a minimum, both as a safeguard for the nervous, and against the possible infusion of malice. The examinations should be held quarterly, and be open to all candidates; but the rules of the Institute would always invest its members with a stronger hold on the public mind, and those of the class of Fellows would stand in high social estimation, while the liberal artistic character of the vocation would remain uninvaded and unimpaired.

LAW NOTES.

Cunningham v. *Knox.*—Action for injuries sustained by plaintiff, a hotel and tavern keeper in Lower Abbey-street, by reason of defendant's (the proprietor of the *Irish Times*) machinery used in printing a newspaper in the house adjoining.

Mr. Whiteside, Q C., on behalf of the plaintiff, described his client's case substantially, thus.—The result of the working of the machine was, that when the visitors in the Ship Hotel sat down to dinner, the plates danced before them, and the knives and forks indulged in the same amusement. Cheap news might be a desirable object, but counsel doubted very much if a man would not be sulky if he was to read a newspaper while hungry and deprived of his dinner. The thumping of the engine shook the plaintiff's house. the heat passed through and became offensive, and wooden tops put on the chimneys of defendant's house took fire, burned a hole in plaintiff's roof, and burned the lead on the gutter, besides doing other damages.

The action was ultimately arranged by the defendant paying £5 and costs, and undertaking to have the requisite building alterations made, under the direction of Mr. Murray, architect.

Kempston v. *Butler.*—This action, which our readers are aware is for damages sustained by reason of the fall of a house in Grafton-street owing. as plaintiff alleges, to defendant's neglect as a builder in not taking the proper precaution to shore up, &c , is again, for the third time. before the Chief Justice of the Common Pleas, and a special jury. The proceedings of the last trial were fully reported in our Nos. for March and April, and all particulars together with the evidence of the various witnesses on both sides, being substantially the same as before, we deem it unnecessary to repeat them.

Cooper v. *Gray.*—Action by a plumber for £13 16s. 6d. for contract and extra work, and materials delivered. The defendant only acknowledged £6 2s. 6d. as due on foot of contract, and £4 14s. 6d. for the extra work, which sums were lodged in court, leaving only £3 in dispute. The Chief Justice severely censured plaintiff's attorney for bringing the case to a superior court, and directed his client not to pay him any costs, and the attorney to pay all costs if there was a verdict against his client. The case was settled by the acceptance of the sums lodged in court.

M'Curdy v. *Taaffe.*—Action for damages for injury to a house in Cole's-lane, adjoining defendant's, by interfering with the foundation of a flank wall. Defendant traversed the allegation. Several professional witnesses were examined, whose evidence as to the cause and origin of the damage was contradictory. Verdict for the plaintiff, £100 damages, and costs.

Colley v. *Connolly.*—Action for £251 9s. 8d. for work and labour done as a builder, and materials provided. Defendant pleaded no agreement, that the alleged cause of action did not arise within six years before the institution of the suit, &c., &c. Verdict for defendant, with 6d. costs. Counsel for plaintiff—Messrs. Armstrong, Q.C., and Malley; for defendant—Messrs. MacDonough and Walsh, Q.C's., and Walker.

Burke v. *Carroll.*—Action brought by the proprietor of the Shelbourne Hotel, against a neighbour, Dr. Carroll, for alleged damages owing to defendant having caused to be pulled down a stack of chimneys, by which plaintiff sustained material injury. Defendant denied that he committed the damage. Verdict for the plaintiff, £10 damages and 6d. costs.

Michael Brophy Moran v. *Walter Bourke.*—Action by an architect and surveyor to recover a sum due for making drawings, surveying. and superintending erection of sundry works, measuring and valuing buildings, paying workmen, &c., at defendant's request. A sum of £5 was lodged, but Mr. Sidney, counsel for defendant, offered £20 as payment for debt and costs, to which plaintiff's counsel acceded.

Meighan v. *Baker.*—Action by a builder to recover £662 claimed as a balance for the erection of a residence, Frankfort Castle. Co. Dublin. The Chief Justice said he had been considering this case. and he found that it was purely a matter of account, which could be better investigated by an architect than in that court. He would, therefore, suggest that the question in dispute should be referred to arbitration. The parties adopted his lordship's suggestion, and agreed to refer the matter to the arbitration of Mr. Murray, architect, Lower Gardiner-street.

The Chief Justice said that if any question of law arose, he would be happy to receive Mr. Murray in his chamber, and afford him any assistance he might require.

Counsel for the plaintiff—Messrs. Rollestone, Q.C., Kernan, Q.C., and Heron. Attorney—Mr. H. K. Butler. Counsel for the defendant—Sergeant Fitzgibbon and Messrs. Armstrong, Q C., and Sidney. Attorney—Alderman Hudson.

THE *AUSTRALIAN BUILDER*—MELBOURNE.

OUR professional brethren at the antipodes are represented by a publication of similar mission to our own, and judging from a recent No. (14, vol 2), that has reached us, the conductor is turning comparatively limited resources to such good account that we anticipate a very prosperous future for the undertaking. Through its pages we learn that there is to be a competition for "the new Bank of Victoria," that there has been "a turn-out of masons at the Treasury buildings," that there is "a Victorian Institute of Architects" holding monthly meetings, at which valuable papers are read; that there is also "a Builders' and Contractors' Association" in the colony, together with information relative to local building matters, Original papers on appropriate subjects are also introduced. We say with all sincerity to our contemporary, "go on, and prosper."

DISINTEGRATION OF GRANITE.

THIS mineral, in its perfect form, consists, as our readers are aware, of three constituents—mica, feldspar, and quartz. The mica being that shining substance which may be detached by a sharp instrument in their flakes; the quartz is the hard white body which the masons call horsetooth, when in large irregular pieces; and the feldspar is the cementing medium in which the others are embedded.

Sir Gardner Wilkinson has noted the liability of the feldspar to decay under the action of nitre, so that in Egypt, where a block of granite has by displacement or accumulation of soil been brought into contact with the earth, the granite has suffered from nitrous agency, while, where exposed to the air only, it has remained perfect. The fact, he thinks, was well known to the ancients, who usually placed granite on a foundation of sandstone.

When this communication was made to the Institute the other evening, the President remarked, that granite, which at a time within his recollection was applied almost exclusively to paving, had now acquired an important position among the materials at the architect's command, and that observations of this practical character were therefore of the greatest value.

A partnership has been entered into between Mr. J. J. M Carthy, M.R.I.A., architect, and Mr. Daniel O'Connell, grandson of the "Liberator," and late pupil of Mr. Hansom, of London, architect.

The distribution of prizes to the students of the Government School of Science applied to Mining and the Arts, took place on the evening of the 25th ult., at the Museum of Irish Industry, Stephen's-green, East, at which His Excellency the Lord Lieutenant presided, and delivered an appropriate address.

AMUSEMENTS.—Madame Celeste and her Royal Lyceum Company, including Miss Kate Saville, Messrs. James Vining, Villiers, Rowse. Johnston, &c , terminated a very successful engagement here on the 19th. The magnificent transformation scene from "King Thrushbeard" elicited universal commendation.

THE ARCHITECTURAL PROFESSION.

THE architectural world seems to be in that state of peculiar confusion that precedes every revolutionary crisis. For years past it has been rushing on like a reckless stream—swelling beyond its bounds with alien waters, and carrying strays and rubbish to that mighty sea of Commerce which imperceptibly and surely increases. No longer is the cool and refreshing ornamental, health-giving water decked on each side by the classic schools of Greece and Rome, or the sombre though majestic lake—as we could picture to our imagination for a simile—reposing beneath the moonlight in Gothic splendour. No! the stream has become muddy, and how little mud taints the whole! Our ideas have become commercial, rather than tasteful or artistic. That all-important and all-powerful revolutionist, money! is working the change. To attempt to stem the torrent individually, would be rushing to certain destruction; to write, and fill whole pages with indignant ink, will be but waste of time that could be more valuably spent, perhaps, and treated by those whose cause it is intended to espouse, as theoretical and useless.

To come to the point, then—in what does this mud and rubbish consist, tainting our architectural river? The cause is a commercial spirit of activity and speculation; the effect is deterioration of the architectural profession. Your man of capital builds; he wishes excellence and cheapness, two articles that by a strange process peculiar to juggling are now made to class together. He thinks he gets them, at any rate the latter, and charitably leaves it to his heirs to discover what sort of heirloom it is. Finding such a sudden rage for cheap houses, surveyors, valuers, auctioneers, have entered the field; and now what is the result? Members of a scientific profession are frequently known to undersell their commission to purchase a job—we do not say these compose originally the clear part of the stream (the simile that we have adopted), but they certainly lay claim to the mud and strays of the polluted river. "Get money honestly if you can, but get it," seems to be the maxim generally followed, and we cannot see any difference or distinction between commercial monopoly—or fraud, and architectural want of faith, or using means of competition which the user would be ashamed to avow. The jerry-house building, then, has given rise to so many evils, that we scarce know on what side to face the hydra-headed. Unfair competitions, professional disputes, and public suspicion follow, and the coming generation of architects must be content to bear the punishment for the sins of their fathers, if they would attempt to revive the true spirit of architectural science.

To rake up the competitions unjust, and competitors maltreated, will be useless; enough of this is done every day to shew the mischievous system that is prevalent. We are daily importuned to expose some scandalous trickery, but such things are so managed as to elude proof. It must all work its own cure; the assumption of degrees by the Institute of British Architects and the Architectural Association, perhaps, will do little if not coupled with a determination among the members to reform their professional morals. Acts of parliament cannot moralise people, nor can degrees really elevate a profession whose members will not elevate themselves; but in such a case we should have the consolation of knowing that they who aim at fine houses at small prices, fee included, cannot derive the glory of having employed first-rate talent, or what is considered as such. If the conferment of degrees be honorably and rigidly enforced by *practical* examinations and admissions, then indeed we may hail it as a regenerator of the architectural profession. It will at least constitute a citadel from which legitimacy may eject the bastard or irregular, and be a rallying point for those who work harder than any other profession, in proportion to their profits.

Consider the case of the engineer, and his work in proportion to his commission—we mean the civil engineer. Suppose the works he is entrusted with to be railway, dock, or otherwise. He gives plain, general directions, and his drawings are carried out by subordinates, and the work by others, without requiring that practical supervision which an architect in an elaborate structure is presumed to use. The most trifling ornament placed wrongly may derange the whole of the design; it is a work of detail, and as it rises, ideas occur by certain combinations of form, colour, light, and shade, that the architect must constantly think, contrive, and execute. The engineer generally has his whole scheme planned, and, being rather precise than artistic, it must fall, each portion to its place, and when finished, is really so, and he has done with it. He hands it over to the contractor to keep in proper repair for a twelvemonth, and responsibility is off his shoulders. But the architect's work is never finished—a tint here or a finial there, and so on, and he has not a truly architectural soul who cannot watch over his production after its completion as a mother her darling child. We bring forward this in support of our assertion as to the architect being the hardest worked professional man in existence in proportion to the remuneration he receives.

To return to our subject—the present relative position of the genuine architect and the *quasi* one, reminds us somewhat of the satirical description in "Gil Blas" of the reception of the author by the "comedienne," wherein the sporter of others' brains assumes the dictatress and bombastic. Very much akin to this parallel is that of the architect and builder of the present day, who, though they cannot of necessity be hostile, need not so energetically play into each others' hands. Truth is unpleasant, but it must be spoken, and we as faithful chroniclers must speak it.

The agitation going on in the metropolis concerning the assumption of degrees by the Institute, to which we have already had occasion to allude, if properly carried out, will indeed be a step in the right direction, and may tend to exalt, whilst it instils the principle of study into the younger members of the profession to gain an honorable grade, which we only hope may be done without cramming, as is fashionable now-a-days.

HARD CEMENT.—The following cement has been used with great success in covering terraces, lining basins, soldering stones, &c, and everywhere resists the filtration of water. It is so hard that it scratches iron. It is formed of ninety-three parts of well-burned brick, and seven parts of litharge, made plastic with linseed oil. The brick and litharge are pulverised; the latter must always be reduced to a very fine powder; they are mixed together, and enough of linseed oil added. It is then applied in the manner of plaster, the body that is to be covered being always previously wet with a sponge. This precaution is indispensable, otherwise the oil would filter through the body, and prevent the mastic from acquiring the desired degree of hardness. When it is extended over a large surface it sometimes happens to have flaws in it, which must be filled up with a fresh quantity of the cement. In three or four days it becomes firm.—*Scientific American.*

ON ECONOMY OF FUEL, IN DWELLING-HOUSES, PUBLIC BATHS, AND FACTORIES.

In drawing attention to some methods of preventing waste of heat (and consequently of fuel), I beg to premise that I am not about to advocate bad fires and deficient warmth; nor do I flatter myself that I can lay claim to any great originality in the means which I recommend. It is, however, of equal advantage to the public, as if some ideas (previously unknown) were for the first time brought forward. What can be more absurd, than to object to the adoption of a principle, that we have heard of it before; if, all the time, we ignore its existence, and act as if the opposite view of the question were the true one? When I say that the atmosphere itself is one of the best, and cheapest non-conductors of heat that has ever been discovered, I do not tell you anything new; but I lay down a principle, whose existence seems to be forgotten, notwithstanding the beautiful exemplifications of its truth which nature furnishes in such never-ending profusion. In the fur of the quadruped, in the winter garment of the earth, in the soft lining of various spring buds, and in the husk of the cocoa-nut, which is to resist the sultry beams of an equatorial sun, we see the perfect arrangements of an All-wise Providence, for the purpose of preventing the too rapid transmission of heat, from within outwards, or from without inwards. Man knows how to avail himself of the non-conducting properties of natural substances; but he will not adopt the simple expedient which pervades them all, of using confined strata of air, as barriers against the conduction, or convection, of heat. That the so-called warmth of wool, fur, feathers, silk, &c,, is really owing to the entanglement of air in their interstices, is a fact which can be very easily demonstrated; and it is obvious that where high temperatures are to be endured, the medium selected as non-conductor, must be such as not to lose its properties in consequence of the heat to which it is exposed.

Now, it so happens, that no ordinary substance, with which we are acquainted, is so little altered in this respect by heat as atmospheric air, and it therefore affords a much better protection against its escape than most of the substances which are now employed with this view. Of this I shall say more when speaking of the construction of baths; but, as our greatest national consumption of coal is in its domestic use, I shall first say a word about the construction of grates; and especially of the kitchen grate, where cooking is performed. The abundance of coal and iron in England lead us into two great errors in the construction of fire-places; as we are thus disposed to waste the former, and to make too frequent use of the latter. If I address anyone who does not care (personally) how much coal he consumes, let me remind him that the amount in our mines can never be increased, however much it may be diminished; and that, therefore, every day's consumption enhances the value of the remainder, and diminishes the comforts of the poor. I do not speak at random, when I say, that very high authorities expect a great rise in the price of coal during the life-time of the present generation. And, as our continental neighbours are now being provided by us with the above-mentioned munitions of war, we may expect a further advance in the value of our staple productions. It may, perhaps, surprise some to be told that a fair representation of the amount of coal annually consumed in England alone, would be a mass of it equal in area to the surface of Hyde Park and Kensington Gardens, and in height to that of the tallest houses in the neighbourhood. But, perhaps, it is unnecessary to say more to prove the importance of wisely using so great a material blessing. The disadvantage of using much iron-work in the construction of fire-places, intended to throw heat forward into a room, is very apparent. That iron is a rapid conductor of heat, is well-known; and it is also known to be exceeded in radiating properties by bricks and other cheap and common substances.

The amount of labour and knowledge required to set a few fire-bricks in the back of a grate, ought, surely, not to be a very formidable barrier against their substitution for a material which is dearer to put up, and more wasteful of fuel than a properly-constructed fire-place. It also appears to me very strange, that almost all grates (as now constructed) should have sloping backs, which throw the heat rather upwards instead of directly into the room. The latter object may be accomplished without impairing the draught, by only commencing the slope at the top of the fire-place. The coverings of ordinary grates are also too oblique, (and therefore badly suited for reflecting heat) as may be seen by comparing the best reflecting surfaces, when at a wrong angle, with the worst, when properly set. I once set a grate myself (with the assistance of a journeyman mason), making the covings at each side, at about an angle of 45 degrees with the back, (which latter was nearly perpendicular); and I can vouch for the amount of heat thrown out, although there was no metallic surface to reflect it. Perhaps this may be the proper place to remark that the mantels of fire-places are generally placed too high above the grate, which occasions an influx of cold air into the chimney; and, in windy weather, very often causes the smoke to puff backwards into the room, from the diminished draught occasioned by the cooling of the smoke. It is quite amusing to see the number of kitchen-ranges which now advertise their rival pretensions to convenience and economy, but I should be flying directly in the face of the public interest if I were to recommend the general adoption of any one of them. The mass of metal in them is so utterly disproportioned to that which ought to exist in any fire-place, that even if they were cheap as regards first cost (which none of them are), they might be stripped, on this ground alone, of all pretensions to economy in the application of heat.

Most of them are also constructed with but one fire-place, which is intended to heat an oven, or roaster, on one side, and a boiler on the other; and the mode in which this is effected is by the creation of a strong draught which causes the flame to rush violently over (and partially at the side of) the boiler, and oven; but never directly under them. It is easy to see that where there is a strong draught, no contraction of the fire-place is any guarantee of diminished combustion, and it is also very plain, that if a given amount of heat be generated, the more directly it is applied, the sooner will a proper temperature be attained. In the ranges alluded to, the metal plates on the top sometimes get red-hot during cooking, thus giving evidence of the heated condition of the air which is suffered to escape up the chimney. This is the secret of the efficacy of these ranges for the cure of smoky chimneys, which they certainly do effect, but in the most expensive conceivable manner. The same amount of draught may be produced in any chimney by bringing down the mantel, removing the hobs, and contracting the throat of the chimney to reasonable dimensions, whilst the flame may be made to give off heat (where it is required) before it escapes, (as cool smoke), into its proper flue. There can be no doubt at all but that the best position to apply heat to an oven or boiler is directly under it, as fluids are heated by convection; and the heated particles have a natural tendency to ascend. This principle is duly attended to in some continental ranges, and the practice is certainly as old as the time of Count Rumford, who erected a kitchen for the Baron de Lerchenfels, of which I have here a rough sketch, showing the disposition of the flues. It represents a mass of masonry, extending two or three yards into the room, and furnished with several distinct fire-places, all of them small, and situated directly under the principal boilers and stew-pans. The flues from these fire-places give off their heat successively to several vessels before they enter the chimney, and as they are double (or surrounded by strata of confined air) no loss of heat by conduction is experienced. In addition to the damper of the modern ranges, the fire-places of this kitchen have separate doors to the ash-pits, provided with register-slides. to regulate the amount of air to be admitted. The quantity of fuel consumed in this range is stated by Count Rumford to be small, and the quality of the cooking unusually excellent. The covers of the fixed boilers are all double, and therefore, their contents are very easily kept warm, as none of the heat is abstracted by the atmosphere. I may be told that this is very fine in theory, but that practical men will not adopt such ideas, because they find they can do very well without them. Of course there is no use in reasoning with a person who declares that he has no desire to do better, when he knows of a better way; but any one who really doubts that much heat can be lost in this way, can easily satisfy his mind by placing his fingers on the lid of a boiling pot or kettle having a single cover; and if burning his fingers does not convince him, anything that I can say will have little effect. The same principle is indispensable for furnace doors, which ought never to be single, the outer plate being made a little larger than the inner, thus forming a rim which shuts against the frame. I need hardly say that when rooms are required to be kept at a high temperature, the walls ought to be built double, as the truest economy in the end. The stratum of air enclosed ought to be, at least, equal to the thickness of a brick, and will form so good a barrier against conduction, that the outer wall will be scarcely perceptibly warm. This mode of building was well understood by the Romans, and is practised by the modern Turks in the construction of their Baths. The ventilators of these, and of all other buildings ought to be in, or near the ceiling, as the Romans were also aware, although Vitruvius imagined that the air came down through them instead of going up, as it must necessarily do. In the construction of furnaces and boilers, we are far ahead of both the Romans and Turks, and therefore we can learn nothing from them; and the ordinary furnaces which are employed in factories will be found well-adapted for the heating of public baths. I have examined the construction of the heating apparatus in some large establishments, viz.—baths, breweries, and in a factory employing at least a thousand hands, and do not hesitate to say that some points require more attention than has yet been given to them. The simple matter of controlling the ingress of air into furnaces (when the combustion is too rapid) by means of register-slides to the closed ash-pit doors, is seldom or never put into practice, and most firemen continually leave the ash-pit door open. But the most important suggestion which I wish to make, for the prevention of the entrance of cold air into the furance, is respecting the operation of stoking. Everybody knows that periodical clouds of black smoke are seen issuing from factory chimneys, when this is going on, and that such smoke represents soot to be breathed by the public, and coal to be paid for by the proprietor of the factory. Now, it seems to me, that the chief reason why there is so much smoke on these occasions is, because cold air rushes into the furnace when its door is kept open; and that at the very time when the presence of a quantity of fresh fuel makes combustion difficult. To obviate this, the plan recommended by Count Rumford seems to be very efficacious. It is simply the construction of a porch opposite the furnace, with a close window and a well-fitting door. It should be large enough to contain a few charges of coal, a seat for the stoker, and the ashes which may be raked out in twenty-four hours. The door may be left open except when stoking is going on, and should then be closely shut. The effect is, that the cold external air no longer rushes into the furnace in a torrent, carrying off the heat and preventing the combustion of the fuel which has been freshly thrown in. If this porch could be entered by an ascent, the effect would be still better, as heated air naturally accumulates in the top of a room which is not provided with a ventilator. We may even learn in this respect from the practice of the uneducated Esqnimaux in the construction of their snow-huts; and from the vapour-bath of the Russian peasant, which costs him nothing but the labour necessary to scoop out a cave in some bank, and to arrange a few hurdles round its sides at some height above the floor. As it is impossible to disconnect the subjects of warmth and ventilation, I shall take this opportunity of bringing forward an idea which lately struck me, by which the flue of the kitchen fire may be employed for creating a draught sufficient to ventilate an entire house. I am not unaware that the kitchen chimney has often been proposed as a receptacle for foul air, which thus is discharged along with the smoke; but I think the same object may be much better effected by keeping the smoke flue perfectly distinct from that which carries off the consumed air of the house. My proposal is to let them lie so near one another (only separated by the thickness of a brick) that the air-flue may be sufficiently warmed throughout its whole extent, to excite a gentle current of air upwards through the flue. This air-shaft may begin at the bottom of the chimney and be continued upwards until it discharges at the base of a chimney-stack, or under the eaves of the house. Communications may be made with every room by short tubes commencing at the ceiling directly over the mantel-piece, and running into the air-tube, which never puffs back smoke, like Arnott's, or other valves opening into the chimney.

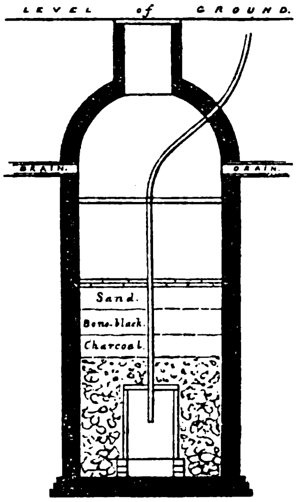
This system will work well if the fire be freely supplied with air, but in tightly closed rooms the current will set down the air-shaft to the supply of the fire. To obviate this, air-tubes from without may be carried under the grate so as to allow the warmed air of the room to remain, until gently wafted upwards by its own altered specific gravity. In a complete systen of ventilation all these tubes might be regulated to the greatest nicety, so as to alter the temperature of a room immediately without poking, or otherwise interfering with the fire. This is best effected by register-slides, such as I have already described. Tubes to admit air into the body of the room can also be adapted when required, being made to pass at the back of the fire so as to warm the air in its passage; and may be made to open in any position, or by any number of apertures, by carrying small branch tubes round the floor or walls of the room. A perfect arrangement of this kind, is (of course) unattainable by the poor, but if the principles I am advocating be sound, the poorest cottage in the land may at least have a properly-constructed grate, and a ventilator in the right position. Moreover, physiology teaches us that less food is required when the body is kept sufficiently warm, and therefore, any plan which will enable the poor to maintain a better degree of warmth within doors (without restricting the ventilation), must diminish their expenses as well as increase their comforts. These considerations invest the subject with no ordinary interest, and as we cannot do without fuel, nor increase the quantity which the country now possesses, it is plainly the part of wisdom to construct our fire-places in such a manner that the heat actually generated may not be suffered to escape without being of some service to us. I have carefully avoided allusion to the housekeeper's province, as I do not think that a careful builder will throw the "onus" of management on the occupants of a house; nor do I think that stinginess has any pretensions to be called economy, and should never be confounded with it. On the contrary, I consider a genial warmth within doors to be both conducive to health and happiness, and perfectly compatible with real Economy of Fuel.

E. HAUGHTON, M.D.

Mr. Keile, the eminent architect, has erected no less than 197 Catholic Churches in various parts of the United States.

FILTRATION OF WATER.

CONSEQUENT upon our remarks at page 283, concerning rain-water as an auxiliary supply for towns, a suggestion has been made to us by an architect for a simple and rapid method of filtration applicable to insulated situations and country houses, where the observance of economy in water may be necessary.



Let the rain falling on the roofs of such buildings be conveyed by gutters, pipes, and drains to a tank or water-tight reservoir sunk deep in the earth, and a separate set of drains be provided for taking off the slops and sewage to another and distant receptacle.

We may assume the rain-water tank to be six feet diameter in the clear, and the bottom to be twenty feet below the surface of the ground, the sides and bottom being built of brick in cement and lined with a coating of tiles. On the bottom let a few circular courses of bricks be built in the middle, forming a ring two feet diameter and nine inches high, without mortar or cement of any kind. Upon this, place a length of the large stoneware drain-pipe, with a stone cap cemented on the top, and a perforation in the middle for the suction pipe of the pump, which must be inserted and have the joint made close. The pipe having been fixed and brought up to a wooden stage near the top, the well has to be filled with clean rough stones, large at the bottom and diminishing in the successive layers. There must then come some wood charcoal, mixed with the animal charcoal or bone-black, and then some fine shingle and sharp grit-sand, covered loosely with flag-stones or tiles, to prevent displacement by the fall of the water as it enters from the drains. It will now be obvious that as soon as the pump draws the water upwards in the suction pipe, it takes that which has first percolated through the screening beds, and a corresponding action must be kept up whenever the pump is at work.

It may be worth an enquiry whether filtering pits on this principle would not be suited to the purification of stagnant lakes such as the Serpentine, of which so much has lately been heard? They must, for such a purpose, be sunk below the bed of the lake.

ART PRIZES OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

WE may serviceably, at this season, remind our architectural and engineering readers of the medals which are open to their enterprise and talent, as the rewards of this body are calculated to confer a high and permanent distinction on those who obtain them.

There is the INSTITUTE MEDAL for the best Essays on—

1.—The application of wrought iron to structural purposes.
2.—The application of wood in England, constructively and artistically, from the year 1500 to the present time.
3.—An essay on the introduction of Italian architecture into England, particularly with reference to the influence therein of John of Padua, or John Thorpe.

The SILVER MEDAL, with five guineas—

For measured illustration of a mediæval building, in Ireland, Scotland, or Wales, hitherto unpublished in that manner.

The SOANE MEDALLION—

For a design of a grand railway station, adapted for the junction of two or more lines of railway.

This medal is limited to persons under thirty years of age, and carries with it the chance of a travelling gratuity of £50.

Kilconnell Abbey,[*] Galway, was the subject of Mr. Blake's drawings two years ago, and obtained for him the medal and five guineas, with some very encouraging words from the late Earl de Grey, the President, whose name is remembered with honor as our Lord Lieutenant.

⁂ We advise those who think of studying these subjects, to obtain the printed particulars from the Honorary Secretaries to the Institute, T. H. Lewis, Esq., and James Bell, Esq., 9, Conduit-street, London, W.

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[*] We regret to notice in the "*Building News*" of June 8, an obituary record of Mr. Blake, who obtained the medal for his memoir and sketches of this Abbey; and who was—as stated in our contemporary, a native of Galway.

THE NEW KILDARE-STREET CLUB-HOUSE.

THIS building is rapidly approaching completion, the masonry and brickwork being quite finished, and the planting of "the flag" celebrated convivially by the contractors' employées at the expense of the club, whose members thereby laudably revived a time-honoured custom. A multitude of hands are busy at the interior, and the decorative portions generally; and whatever may be the opinions entertained by fastidious critics, respecting the architectural merits of the building, it must be conceded by all, that it is the most important structure of its class in Ireland; and we may add, that we hope to see many others equally so, speedily reared in this metropolis. We present, herewith, a plan of the principal storey, whose features explain themselves; and as a lengthened description of the building appeared in a previous No.,* we refer thereto for further particulars.

BUILDERS AND THEIR SECURITIES.

WE learn that it is a practice amongst some public bodies, to require from builders contracting for the execution of certain works security to *double* the stipulated amount. Really this seems to be preposterous in principle, and certainly is vexatious to the trade generally. As a rule, every public body and every private individual has a right in embarking in building matters to protect his own interest, and ensure the due performance of the contract by obtaining security to the *amount* in question—though there are various exceptional cases in which it might, with perfect safety, be altogether dispensed with, and the employer protect himself beyond the possibility of an exigency by making only proportionate advances—say two-thirds—on work executed and materials delivered. But why security to *double* the amount should be necessary seems to us inexplicable. The Board of Public Works adopts the course suggested, and it forms an excellent precedent for all other departments.

ST. PATRICK'S CATHEDRAL,

REFERRING to the "restoration" now being proceeded with, a correspondent (Fides) thus writes—

"Having heard of the doom which now threatens our ancient cathedral of St. Patrick, I was induced to visit the building last Sunday, and with much regret perceived that the work of destruction was rapidly advancing; scaffolding had been raised for the support of the roof, windows have been ruthlessly broken away, and apertures made through the walls for the introduction of beams of timber, &c. I understood that the whole of the south wall of the church, with its flying buttresses and graceful demi-arches, and the beautiful south transept, or chapel of St. Paul, (now the only remaining ancient portions of the building, with the exception of the great tower,) are to be altogether removed and re-built. Is this, may I ask, what is called *preservation*, and can the Cathedral, after it has undergone handling, be deemed an ancient one, when not a stone of the original building can be said to remain? And is there really no other alternative than thus to destroy these last remaining relics of antiquity? the walls appear perfectly sound throughout, and the flying buttresses at the south-west part of the church seem strong enough to defy the power of time. The arches on which the walls of the nave rest, have lately been repaired and new columns been erected; ought not this, with the proposed groining of the ceiling by supporters springing from the columns, with the addition of two or three buttresses on the outside where the walls were deemed weakest, be sufficient to strengthen the building, and at the same time preserve its ancient attributes? Indeed it is strange if the architectural skill of this city could not devise some means for the preservation of a building that has so long withstood the hand of time, and carried down, even to our own day, some traces of its original grandeur, despite the storms, the wars, and vicissitudes of five long centuries, and, worse than these, the improving hands of modern vandals."

MEDIÆVAL ART IN METALS.

THE devotedness with which our brethren at the other side of the channel have applied themselves to the revival of mediæval art in Ecclesiastical structures, is especially noteworthy in the department of furniture and decorations, an excellence being attained therein, both in originality of design, and beauty of manipulation, by some of the modern manufacturers, fully equivalent, if not superior in many respects, to the works of any of their great prototypes. On more than one occasion we have noticed in this journal, from observation either during personal visit to the manufactories or otherwise, the executed designs of some of the firms most eminent in this line; but we are, nevertheless, not thereby precluded from recurring to the subject where additional novelty is offered in the communication. A new and improved edition of an illustrated catalogue issued by Mr. Thomas Brawn, of Birmingham, now lies before us, and it comprises numerous original patterns—both external and internal—in the mediæval style, of church utensils, ornaments, and furniture. We learn that the author and manufacturer was, for a lengthened period, intimately connected in a mechanical department with that great Master of Gothic Art, the late A. Welby Pugin, and, doubtless, imbibed more or less the principles of a school whose pre-eminence is universally patent. The sketches throughout the catalogue, which are given in a free and bold style of pen-and-ink etching, are effective, and the designs both in detailed and grouped subjects, most meritorious. It will be found to be an acquisition to the Clergyman, the Ecclesiologist, the Church Architect, and Builder, and in fine, to all connected with the rearing of Ecclesiastical structures.

"ANGLO-HIBERNIAN ROMANIST" ARCHITECTURE.

UNDER the foregoing somewhat complex heading, our contemporary, the *Ecclesiologist* for June, notices the designs of "English Architects for Churches said to be on the eve of erection in Ireland;" but we have good authority for knowing that *at least* one of those referring to a local structure, and even presumed by the reviewers for kindred periodicals of the drawings at the recent Royal Academy Exhibition, to have been completed, is not only not yet commenced, but not commissioned. National spirit is not quite departed from the country; and as long as we have the testimony of works actually erected, and of such designs as many as those exhibited for the proposed St. Andrew's Church, we apprehend that no necessity exists for calling in foreign aid, more especially if volunteered to the detriment of our own practitioners.

SOLID PARQUETRIE FLOORS.

THIS invention, by Messrs. Arrowsmith, of New Bond-street, London, seems to find favour amongst not only our architects, but amateurs of refined taste. Sir Thomas Esmonde, Bart., of Johnstown Castle, Wexford, has had his principal reception-room laid therewith, as also an interlaced pattern introduced with considerable effect into the dado of the apartment, as similarly applied in numerous instances in England. About 2,000 feet of this flooring has also been laid by the patentee, at the newly-erected and magnificent mansion of Phineas Riall, Esq., at Old Connaught, Bray, Messrs. Lanyon and Lynn, architects, and it is said to the great satisfaction of all parties concerned. The invention combines the advantages of endless variety of patterns, applicability to any and every style of architecture, and durability of wear.

NEW INVENTION TO OBVIATE RAILWAY COLLISIONS.

AT a recent meeting of the Royal Dublin Society, Dr. William Bevan communicated some particulars, illustrated by a diagram, of an invention which he alleges will obviate collisions on railways. He stated that, "hitherto the effort used to prevent a collision was the pulling up of the train, that the momentum of the train was generally such as not to allow of stoppage—steam off, and break on—within a less distance than half-a-mile; that statistics showed that very little injury to life and property occurred where the train slipped off the rail." This gave him the hint for his invention, which was a wedge projecting from the front of the engine at the right-hand side. Two trains coming in opposite directions, the engines having these wedges would, when they met, be forced off the line by the transverse forces coming in contact, and the trains would pass side by side. Dr. Bevan promised a model at next meeting. The chairman (Dr. Waller) expressed a doubt of the efficiency of the invention, and Professor Haughton said that the mechanical theory was correct, but how was it applicable when trains met *in* an embankment? (A laugh.) We presume that of the two evils the unhappy passengers might choose the least!

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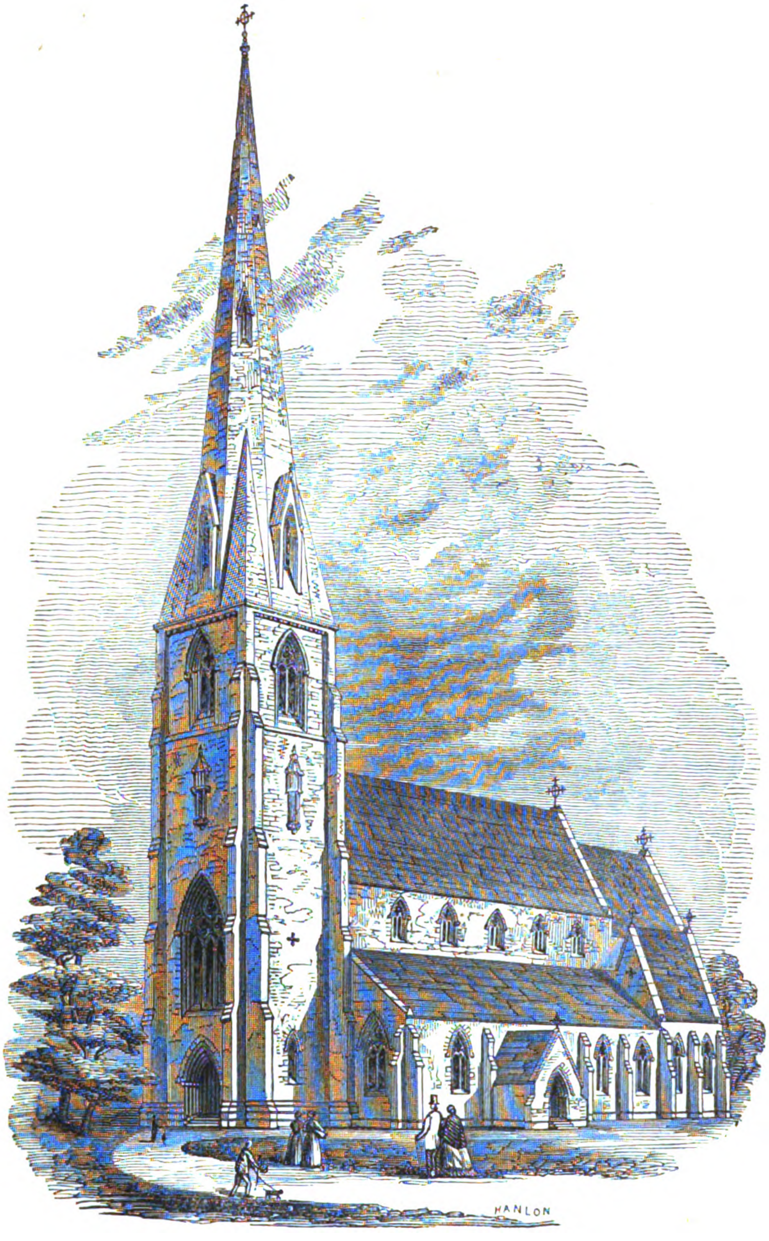
* See page 144, Vol. 1.

HOLY TRINITY CHURCH, COOKSTOWN.

This building—of which we give an illustration—was consecrated on the 3rd ult. by the Most Rev. Dr. Dixon. The plan is a parallelogram, and combines all the requisite arrangements for a symmetrical and commodious parish church. It consists of nave, 80 feet by 25 feet; aisles, 80 feet by 14 feet, separated from nave by an arcade of pointed arches, 23 feet 6 inches, to soffets, and springing from circular shafts; chancel, 32 feet deep; tower, 12 feet 6 inches square; chapels of the Blessed Sacrament and Blessed Virgin, sacristy, and vestry. The interior is lighted by aisle and clerestory two-light traceried windows, three-light ditto in the side chapels, and a five-light in the chancel, filled with stained glass, by Messrs. Hardman, mediæval artists, of Birmingham and Dublin—the upper compartments containing symbols of the Blessed Trinity, and forming a memorial of the late Rev. Canon M'Conville: and the lower displaying figures of St. Patrick and canonized bishops of the diocese. The roofs are of open timber-work, stained and varnished, arched ribs being introduced over nave. The height to wall plate of nave is 36 feet; to ridge, 57 feet 6 inches; and to wall plate of aisles, 16 feet 6 inches. The chief entrance is through a deeply-recessed and moulded arched doorway in the tower, which is placed central on west elevation, and will, with the spire (when completed), attain a height of 175 feet. The label moulding of this door is supported on two corbel heads, representing St. Patrick and St. Athanasius. An inner porch of massive wood-work protects the interior of the church from draughts, and forms the groundwork of a beautiful organ gallery. The high altar is of Caen stone, by Mr. Lane, of Dublin and Birmingham. It is a magnificent work of art, with a frontal consisting of three panels, enclosing sculptured representations, in bold relief, of the Last Supper of our Lord (the institution of the sacrifice of the New Law) and the typical sacrifices of Melchizedeck and Abel. The panels are separated by shafts of highly-polished coloured marble, with moulded bases and foliage capitals. The interior fixed carvings are by Messrs. Purdy and Outhwaite, of Dublin. Mr. J. J. M'Carthy, A.R.H.A., was the architect, and Messrs. Johnson (M. D.) and Charles, the contractors.



NEW CHURCH OF THE HOLY TRINITY COOKSTOWN—Mr. J. J. M'Carthy, A.R.H.A., Architect.

DALKEY.

Bountiful as has been Nature, in her general dispensation of gifts to our "Green Island," she was peculiarly beneficent in modelling the subject of this sketch. Supremely picturesque, replete with noble and romantic grandeur—poetic even in its pristine rudeness—hallowed by historic associations, and dignified with the prestige of *ci-devant* royalty, "Dalkey," within eight miles of the Irish metropolis, and possessing a facility of access by rail, reducing distance to a time consideration less than that between the metropolis and other much nearer, less beautiful, but more *fashionable* suburbs—remains comparatively neglected; still a wild, barren waste, a field whose apparent infertility seems, with few exceptions, to deter modern innovators and speculating capitalists from investment.

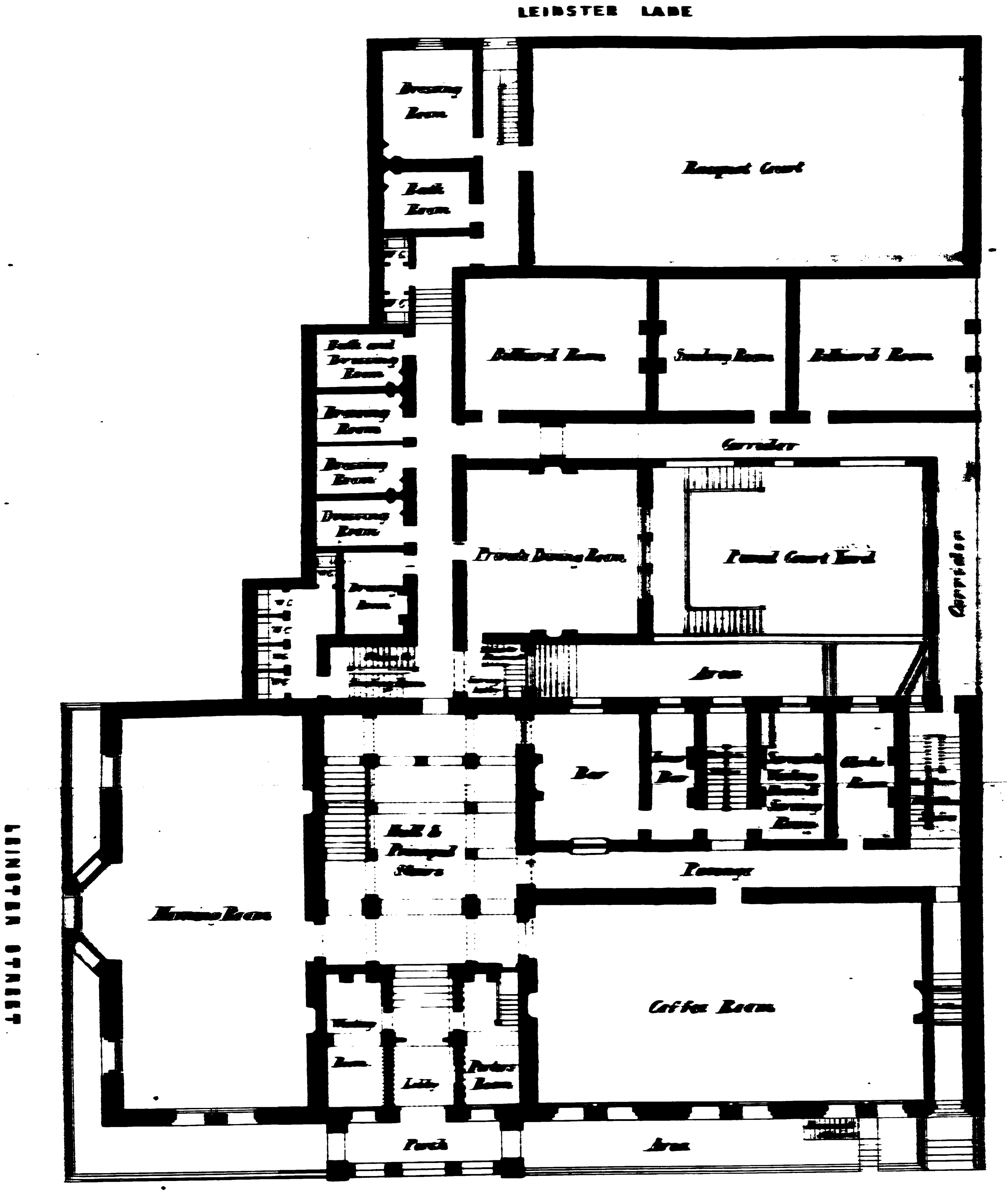
That, however, the "Dalkey" of to-day is not the Dalkey of bygone times, when "ye Saxon nobles," with brazen helmet and nodding plumes, the Deputies of Majesty and Governors of Ireland, with pageant and pomp landed or embarked in her—then assumed to be—"noble harbour," it is not our purpose to advance; but that she has not kept pace with the subsequent progress of the age—that she has not been clad by the hands of man with artistic garments commensurate with her natural dignity and rank—that, in short, her aspect bears the impresse of apathy and absence of appreciation for her natural beauties, admits of no controversy. Assume her transport possible to the site of a Greenwich, a Gravesend, or a Margate, and we may, without much stretch of imagination, picture, "in our mind's eye," an altered landscape; princely mansions, lordly villas, substituted for the few usually ill-fashioned, depressed cottage structures, partly fishermen's huts—dressed to the highest capabilities of their owners' finances, on speculation "of lodgings" for the summer season—balustraded terraces and handsomely-planted esplanades, in lieu of the rough, but *not* ready, almost inaccessible "stile" approaches now in vogue. Let us hope, however, that there is in embryo a more befitting prospect; that the numerous available sites for residences will be taken advantage of speedily; and that those locally interested in its progress—the Dublin and Wicklow Railway Company especially—will offer inducements to capitalists corresponding with those in others of our suburbs.

The Dublin Builder.

Vol. II. Nº 19. July 1860.

THE KILDARE ST. CLUB.

MESSRS DEANE & WOODWARD ARCHITECTS.



GROUND PLAN

KILDARE STREET

Scale

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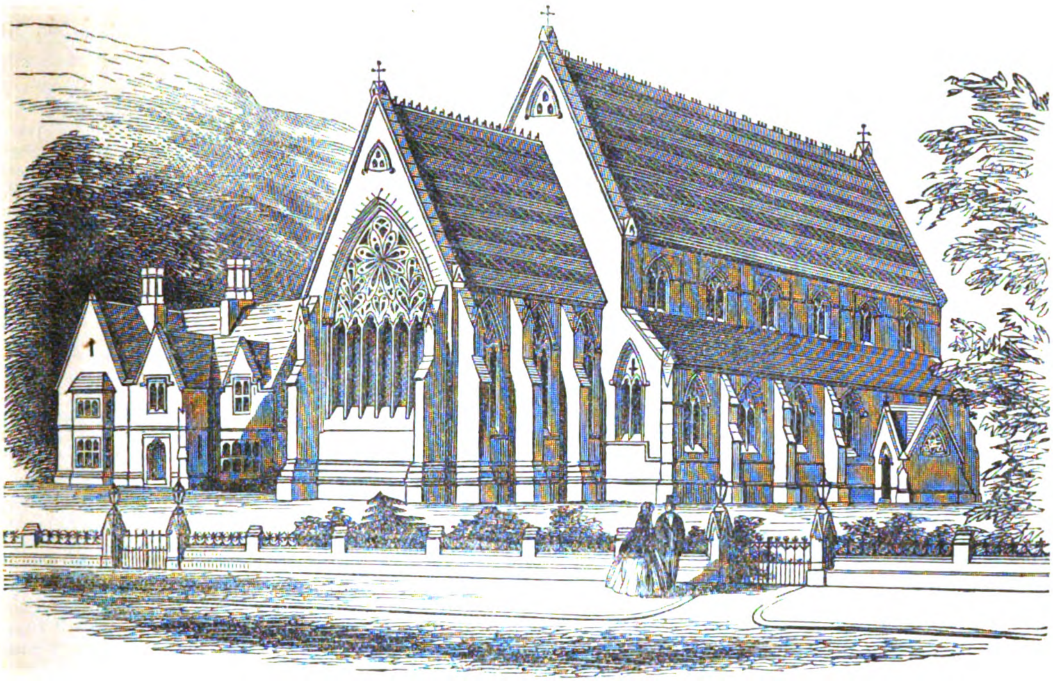
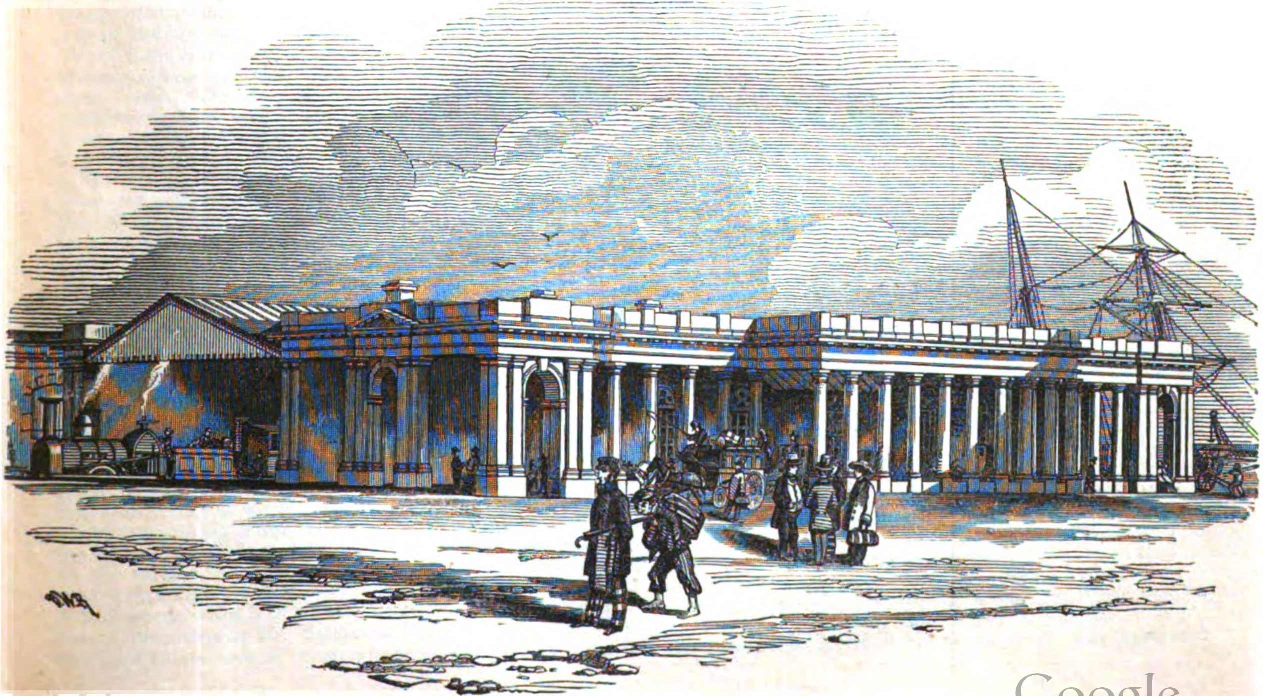
OF THE
UNIVERSITY OF ILLINOIS



OPENING OF THE CHURCH OF OUR LADYE AND ST. MICHAEL, ABERGAVENNY.

THIS edifice, dedicated on the 15th May, is of late decorated Gothic, and consists of a nave 75 feet by 24, north and south aisles of the same length, and 9 wide, and a chancel 25 feet by 18. The nave is divided into six bays, supported by quatrefoil columns and high pointed arches, and lighted by six clerestory and six aisle windows on each side; the height to the summit is 55 feet, and it is spanned by an open timber roof, with exposed rafters, stained and varnished. The chancel is entered from the nave through a stone archway, 42 feet high. The roof of the chancel is divided into three bays by ribs springing from stone shafts, and subdivided into panels. On the northern side of the chancel are three lofty two-light tracery-headed windows, and there is a similar window on the south side. The eastern window fills up the entire end of the chancel with very elaborate and graceful tracery. The floor is laid throughout with coloured tiles. The windows are glazed with cathedral glass, with the exception of the window at the eastern end of the north aisle, which is of stained glass, from the designs of Mr. Maycock, of Clifton. It is a memorial window to the late Mr. Simon Ardus, of Abergavenny, whose widow has been the principal contributor to the building fund. It embraces the figures of our Ladye and St. Joseph, with appropriate inscriptions. The high altar is a massive stone slab, supported on three columns of polished Devonshire marble. The reredos is inlaid with coloured majolica tiles, and the decorations of the eastern wall include a canopied niche for expositions, richly carved in stone. A presbytery, with accommodation for two priests, is in course of erection adjoining the church. The material employed for the building is wall stone of the immediate neighbourhood, in random courses with Bath stone dressings. The covering is of Welsh slate, and the gables are surmounted with floriated crosses. Mr. Benjamin Bucknall, of Rodborough, near Stroud, is the architect. The builder is Mr. Henry Williams, of Broadmead, Bristol.



GREAT SOUTHERN AND WESTERN RAILWAY TERMINUS AT CORK—SIR JOHN BENSON, ARCHITECT.

(For Descriptive Particulars [illegible] 7.)

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CORK.

However in accordance with the business capabilities and acumen of her citizens may be the commercial progress of Cork, a very passing glance must convince even a casual visitor, that her architectural advancement is by no means commensurate with her elementary faculties, as evidenced by the numerous gifted children of art with whose nurture her name is so universally celebrated. It is not now our purpose to conjure up the shades of her bygone celebrities—we let them sleep in peace in their earthy bed—but, after a preliminary sketch, to treat of her recent and present doings, as noted from personal observation during a brief visit. We should have been much better pleased had the task proved a more arduous one, for in truth the sum total of her improvements of any importance now in progress may be arrived at in *two* items, the one an engineering construction, the other an architectural. Without intruding upon the mission of guide-book compilers, or indulging in a romantic strain on the picturesque, we must premise, that the present deficiency of Cork, in matters of art, is more than amply compensated for by the gifts of nature, which have been dispensed to her with no sparing hand; and the panoramic beauties of her suburbs, from west to east, from Sunday's Well along Glanmire by Blackrock, Passage, and Monkstown, to the world-famed "Cove," now enjoying the more "loyal," but questionably orthodox, appellation of Queenstown, are unrivalled. While discussing the portfolio of an antiquarian and professional friend—not altogether unmindful of the accompanying good cheer hospitably provided at the former place—we enjoyed "the feast of reason," too, in contemplating the surpassing beauty of the scenery along the Dyke and the route of the meandering Lee, which here is aided by the artistic, in which the Queen's College, by Sir Thomas Deane, forms a crowning and most conspicuous feature. We must, however, regard *it*, the Lunatic Asylum, and the Sisters of Mercy Convent (designed by Mr. William Atkins, a gentleman deservedly occupying a high rank in the profession) as matters of the past with which our readers are already familiar. Comparatively so, perhaps, is also the Athenæum which we must remark *en passant* contains a noble hall, but which from the general arrangement of the approaches producing draughts enriches the local faculty after each occasion of a crowded assembly. The exterior has some classic points, but the absence of the lath and plaster superstructure would be an acquisition. Going back from whence we came—probably an Irish privilege and peculiarity—we note that one of the most important local improvements has been effected in the locality of the Great Southern and Western Railway Station, which, much to the comfort of the travelling public, and to the benefit of the city, is transformed from an awkward temporary structure at Blackpool, to the more approachable, more substantial, and more artistic building near Penrose's Quay. On another page we introduce an illustration of this neat and appropriate structure, and the following are a few descriptive particulars. The site is remarkably convenient for shipping and unloading cargoes, &c., a consummation devoutly to be wished for in all instances where practicable, and productive both of economy in time and money. The Passenger Station, with its offices, &c., consists of a colonnade of 20 Roman Doric columns, forming a covered way of 200 feet long in the centre; by this arrangement passengers are set down or taken up under the shelter so afforded. The whole of the buildings are constructed of the beautiful white limestone of the district. The offices separate the colonnade from the departure platform, and are same length as the colonnade, containing the usual accommodation of Waiting Rooms, Booking Offices, &c. The foundations of the buildings were of an expensive character, owing to the site being marshy; 600 beech piles, averaging 24 feet long, were used with concrete in this part of the works. The roof over the carriage platform is 62 feet clear span, composed of iron and timber. The cost of this building, including foundation, is about £8,000. The architect, Sir John Benson, and Mr. J. J. Bagnell the contractor.

Passing thence towards the city, we find the site of old St. Patrick's bridge the scene of busy operations, and with a pardonable inquisitiveness penetrate the paled boundary. A dredging machine—such a one as Dublin cannot boast of—is busily emptying its endless chain of buckets in clearing the foundations for a pier, and numerous masons are engaged on those partially built. One peculiar feature in their construction is, that there were no cofferdams used, but iron caissons 7 feet 6 inches high, and forming boxes for the bed of the piers were substituted. The width between the abutments of the intended bridge is 183 feet, and the number of arches three, of elliptical form, viz.—one central of 60 feet, and two of 51 feet span each. The height from the bed of the river to soffett of arches is 26 feet, and the width of the roadway at top 44 feet exclusive of pathways, total 60 feet between parapets, which will be balustraded. The entire structure is being built of the local limestone, except the first course of foundations, which is of Foynes stone. The engineer is Sir John Benson, the contractor Mr. Hargreave, jun., and the clerk of works Mr. Barnard, to each of whom we beg to tender our acknowledgments for facilities to furnish these particulars being kindly afforded. The contract is for £14,500, and it is expected that the bridge will be open for traffic in January 1861.

Seeking the site of the new Roman Catholic Church of SS. Peter and Paul, said to be in St. Patrick-street, we experience some difficulty; but at last succeeding, we exclaim, "What a place to build a church!" An important structure, too, and replete with architectural beauty, both internally and externally. Approached by a narrow laneway to its main western entrance, its southern flank parallel with the rere of the shops in Patrick-street, and completely surrounded by high buildings on all sides, some of which, if funds permit (a problematical question) may be removed hereafter, this handsome and costly edifice is now actually in progress. As we purpose giving an illustration of the interior—probably in the next number of this journal—we reserve particulars, further than that the structure will be 145 feet by 80 feet in the clear; height to apex of roof 87 feet 9 inches, style transitional Gothic, total height to top of spire 232 feet. Messrs. Pugin and Ashlin the architects; contractor, Mr. Barry M'Mullen; clerk of works, Mr. Langford. Save some preparations for the approaching agricultural show, improved market arrangements, to which we shall revert in a future No., the recently constructed water works, probably amongst the most complete and effectual in the kingdom, and a new grocery establishment in Patrick-street, Mr. Scott, architect, with a few works of private character in the suburbs, we are not aware of other subjects to chronicle in this notice. If, however, we rejoice in the soubriquet of "dear, dirty Dublin," we may return the compliment to our Cork friends, who should look more sharply to their pavement and scavenging operations.

THE MEMORIAL WINDOWS—ST. ANNE'S CHURCH.

We have already noticed the building works in progress in this Church, which may be said to have been so far completed; but there are others also on which we have not yet touched, comprising two memorial windows, a new pulpit, baptismal font, lectern, sedilia, and enclosure railing, all of very beautiful design and elaborate execution. For the present, however, we confine ourselves to the windows, but shall return to the others when accompanied by a beautiful grouped illustration now in our engraver's hands, and intended for an early number of the Dublin Builder. The windows are memorials of Knox the Reformer, and the late Mrs. Hemans respectively: the one being 21 feet in height by 11 feet 6 inches in breadth; the other, 16 feet by 7 feet 6 inches, both of Byzantine character, and executed with all the artistic carvings by Messrs. Purdy and Outhwaite of Great Brunswick-street, in an excellent quality of Bath stone, from the quarries of Messrs. Pictor and Son, of Chippenham, Wilts. This is the first Bath-stone introduced here, but there are several cargoes of it now being imported for various works, and it appears admirably adapted for ecclesiastical internal decorations.

Each window is to be filled in with stained glass; the design of that for the Knox memorial being not quite decided on, but the other, to Mrs. Hemans, is daily expected from Mr. Warrington's establishment, London.

PROPOSED PROVINCIAL EXHIBITIONS OF THE ARCHITECTURAL PHOTOGRAPHIC ASSOCIATION.

We learn that overtures have been made to the Committee of this Association by some professional gentlemen in the provinces, for the purpose of securing an exhibition in their respective towns of a collection of photographs; and furthermore, that the attendant expenses would be guaranteed. How far negociations may have privately progressed towards this end in the Irish provinces, we are unable to say, but as yet no step has been taken as regards Dublin. That the exhibition would prove most instructive and pleasing, as well as be very extensively appreciated by the members of the architectural profession, is a certainty; but we would infer, that it is a *sine qua non*, that a local committee should indemnify the Association against loss, and here arises a difficulty. We apprehend that few of our local professionals would be disposed to undertake the responsibility—however nominal it might virtually be—finding their time and attention fully occupied by their ordinary avocations; but, if we might offer a suggestion, the Association would probably experience no difficulty in obtaining from some one of the Societies here identified with the advancement of art, permission to occupy their galleries for a limited period, a small fee being charged to the public for admittance; and the proceeds, after deducting advertisement, carriage, and other expenses, to be disposed of as may be mutually arranged.

We anticipate that the important accession of members for the ensuing year, would very amply repay the committee any extra trouble incurred, provided that a creditable display be secured.

THE DE VESCI TESTIMONIAL AT ABBEYLEIX.

SOME time ago the designs of Mr. John S. Butler, architect, of Hume-street, were selected for the above testimonial, although the committee had previously awarded to a Mr. Crofton a premium offered in competition, and the structure is now being carried out. In a recent number of the *Agricultural Review* we find the following, accompanying an illustration of the structure:—"The committee of this memorial of a true 'Irish country gentleman,' deserve every credit for the happy conception. The memorial will not be a mere useless heap of stones, but, combining the useful with the ornamental, will be a sanitary boon to the inhabitants of the town, and contain an open reservoir for water, from which the thirsty cattle may "drink deeply." From the centre of the reservoir rises a handsome structure in the Italian style, enclosing a water tank from which the basin is supplied; and, we believe it is contemplated to run a pipe from this tank under the flagging of the basin, and from thence to the houses of the inhabitants of the town. The testimonial will be twenty feet square, and twenty-five feet in height, will be of limestone, and promises to be in beauty second to no similar structure of the kind in the United Kingdom. The cost is not to exceed £225, and how so beautifully decorated a structure could be erected at so insignificant a cost is truly marvellous, and leads us to hope that many of the streets and squares of our city should be provided with ornamental fountains, be they of a *testimonial* origin or otherwise. Mr. John Rafter, of Rosenallis, is the contractor."

KERFS AND COGITATIONS.

BY A CRAFTSMAN.

NO. IV.—DEAD MEN!

START not, reader! our title may be ominous, but we speak metaphorically. Though inclined to a "kerf" betimes, the scalpel is not the instrument of our incision, nor the grave the scene of our investigation. In crowded city, in busy workshops, on Queen's highway, our subjects are legion, our material is at hand. Young, stalwart, and seemingly endowed with all the physical attributes of ordinary members of society, are myriads of our youth, drawling "dead" men—mentally "dead" to all high endeavours, noble impulse, or individual exertion. To incite them to a sense of their position, to present incentives for their study and advancement, to guide them to the goal of honour and distinction, are the objects of our mission; be theirs the ambition to follow on. Each man, though dissimilar in taste to his fellow, can try his hand at something; and by persevering application, combined with even moderate ability, may succeed in carving an indelible imprint on the mind of his age. Who, then, ought to hesitate, at least to tread on the threshold of a career open to all? To young men in the mechanical departments of the Architectural, Engineering, and Building professions, we would specially address ourselves; and remind them that there is no lack of ability amongst their fraternities, although each and every of them have had their energies and skill taxed, and creditably so, to a large extent in working out architectural intricacies and complex construction; that they live in an improving age—that they must not be content because they can do as well as their fathers, but travel in an onward direction, and invoke science to aid them in their handicraft. But the pursuit of science is a bugbear to many, sufficient to scare them, though from her recreative fount may be imbibed stimulating influences and prolonged sensations of pleasure. Opportunities innumerable present themselves on every side to anxious and willing hearts, ready to burst the degrading fetters of apathy that bind them mentally and physically. Awake, then, from your lethargy, Craftsmen! spurn idleness and laziness, with all their degenerating concomitants; take pattern from the example set you by a Stephenson, a Watt, a Soane, a Britton, and others, who worked in the ranks at the rising of their sun, but who, by dint of application during the ensuing morning and day, found themselves at its setting in the evening placed in the foremost van of fame and fortune.

C. C. H——Y.

THE WESTMINSTER CLOCK.

THE origin of such an idea has now passed from our recollection, but we have at some time been under an impression, that had not the first "Big Ben" succumbed as it did, it must yet have continued to lie at the foot of the Clock Tower; but perhaps many of our readers may remember, that the second bell was of an altered form and less in height than the first, that it was laid on its side while being hoisted, and that it was still understood to be as large as the inner well of the tower would admit.

The tone of the present bell was never to our ear strictly agreeable, but always induced the opinion that more was expected than it was able to perform, that the blows were too heavy, and instead of a rich and mellow tone, a jarring harshness grated on the ear. Nevertheless we received with deep regret the intelligence of its early fracture, and have passed with feelings closely allied to melancholy under the shadow of the beautiful campanile from which it no longer resounds.

Mr. Cowper lately told the House of Commons that "he was consulting men of high scientific attainments," so that until the result of their experiments be known it will be impossible to form a definite opinion on the possibility of renewing its tone without recasting. One thing seems to have been ascertained, namely, that the hourly notes of such a stentor were very inconvenient to members, and both they and the public will be the less impatient on the subject after the first Commissioners' statement, that it has been determined to make a temporary substitute of the largest of the four quarter bells (which he tells us is as large as that of St. Paul's) for striking the hours, and leaving the remaining three for their original purpose. Should this trial of the smaller quartette prove successful, the great bell may hang a silent though not "a faultless monster," if indeed the term may be provoked by any English bell, when those in other countries, and especially Russia, are so very much larger; but the choice of situation was certainly somewhat extraordinary, for recollecting as we do a notice in the Reading room of the British Museum—"Silence is indispensably necessary in a place devoted to study"—we should have thought stillness suited to objects of deep deliberation.

The fracture of "Big Ben" is likely to be attended with ultimate advantage to science from the attention it has aroused on the subject of the amalgam for bell metal. It commonly contained four parts of copper and one of tin; six parts of copper to one of tin proves stronger; but the alloy used at Westminster was in the unusual proportion of one part of tin to three only of copper, and besides this apparent weakness of composition only was the error of making the hammer on a more than usually heavy scale.

DUNKERRON CASTLE.*

BY JOHN WINDELE, ESQ.

NEAR the head of the estuary or bay of Kenmare (Hibernice, *Ceann Mara*), in the county of Kerry, stand all that remains of this once important fortalice.

The few ancient notices which we possess, supposed to refer to this great inlet, are subjects of doubt and conjecture. By some it is believed to have been the *Inbher Sgeine* of our native writers, and either the Iernus or Iuvernia, or the *Dur* of the geographer Ptolemy. But Camden supposes that the *Dur* was the rivulet flowing into the bay of Tralee; whilst Dr. O'Conor, after Ware and the historian Smith, assigns it to the bays of Castlemain and Dingle. Dr. Graves gives it to the bay of Kenmare, at whose entrance lies the island of *Dur-sey*. Nevertheless, the opinion may be worthy of consideration which would identify the *Dur* with the *Cuan-dur*, or Glandore Harbour, in the south-west of the county of Cork. The name is certainly indicative of our early Iberian descent, and of the sunny regions watered by the Durius or Duero. . . .

Dunkerron Castle, a massive vaulted structure of the "Tudor" era, occupies the site, as its name implies, of an ancient dun or fortress, constructed ere the introduction of castellation into Ireland. It is distant about two miles from the modern town of Kenmare. In its present condition it is a greatly shattered, but not unpicturesque ruin, standing close by the shore, within a small demesne, and environed by recent plantations. Its southern side has entirely fallen, carrying with it portions of the eastern and western walls. Originally a vaulted tower or keep, it was ascended by flights of stone stairs in the thickness of the walls. Its great arch, contrary to the usual practice, instead of being placed in the upper part of the building, formed a basement compartment, at about one-third of the whole elevation from the ground. The greater portion of this vault has also been destroyed, leaving only a mere fragment of it remaining.

At a short distance from its south-east angle stands the high-pitched end wall or gable of a far more recent mansion, belonging to the Transition period, succeeding the reign of the first James. It retains its capacious fire-places and mantle-pieces, but no other feature worthy of notice. The whole structural group, although not without picturesque effect, has never yet found any published or engraved illustration, nor has it received the charitable vesture or drapery of mantling ivy, so seldom withheld from our old warrior or religious piles. No doubt, tradition and legend have been associated with its story, and reminiscences of its past days may still survive in the folk-lore of the neighbouring peasantry; for its ancient lords were of a stirring and daring race, who limited not their operations to the adjoining plains and mountains; their galleys traversed in search of adventure, glory, or traffic on the open seas which lay around, frequently visiting the ports of the Saxon and the Gall, or those further to the south, remembered as the original home of their distant forefathers; but of these recollections we have noted none, and must leave their collection for some future gleaner.

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* Read before Kilkenny Archæological Society, and published in Transactions.

The O'Sullivan More, to whom this castle and the wide-spread domains which once appertained to it belonged, was the head of a powerful "*Eoganacht*," or "Eugenian" tribe of the same royal *Heberean* race with the Mac Carthies, the common ancestor of both families being Aedh dubh, King of Munster. This prince had two sons, Finghin and Failbhe Flan, who severally succeeded him in the provincial sovereignty. From Finghin descended, in the eighth generation, Eochy, son of Moal Ughra, who received the soubriquet of *Sullivan;* whilst Failbhe was the ancestor of *Cartha*, each of whom gave the family surname to his posterity.

The derivation of his denomination of Sullivan to Eochy is the subject of a pious but, nevertheless, rather improbable legend. It happened that an Albanian Druid, named *Labhan*, in the course of a speculative tour in Ireland, visited this prince, then residing at his ancestral moat of Knockgraffon, in the present county of Tipperary. Delighted with his poetical and musical art, Eochy desired him at his departure to name the reward which he chose to receive. "Your two eyes," said the rapacious and malevolent old pagan: and Eochy, holding in special regard his own good name, and fearing, beside, the poet's satire, gave them to him. St. Ruadhan of Lothra was at that time on a visit also at the royal moat; and, justly incensed at what occurred, he prayed that the eyes of Labhan should be transferred to Eochy, instead of those he had lost. His supplication was heard, and the prince, thus "recouped," received thenceforth the name of *Suil-Labhan*, that is the "eyes of Labhan." When patronymics came to be adopted in Ireland, in the reign of that "Star of the Field," Brien of the Tributes, at the close of the tenth century, Buadhach cro, the grandson of Eochy, assumed the soubriquet of his grandsire, and transmitted same to his descendants. . . .

The Cappanacuss O'Sullivan was seated a few miles to the west of Dunkerron. His stronghold was a narrow "peel house" or castelet, most unpretentious in its architectural features. This building still braves the tempest and the breeze within the demesne of Dromore, near where the Kerry Blackwater joins the bay of Kenmare, after emerging from one of the most picturesque scenes to the south of Killarney, at Blackwater bridge. The O'Sullivan of Cappanacuss, in default of male issue to the O'Sullivan More, succeeded to his inheritance as next in seniority. It is said that the O'Sullivan of Dunloe (Tomies), was in the last century the representative of these two houses, but no authority for this appears.

The O'Sullivans, who took the name of Mac Gillicuddy, are still represented. They assumed the latter appellation in honour of their patron saint, and the family still enjoy rank and position in their native country. The present "Mac Gillicuddy of the Reeks" resides in his paternal mansion at Whitefield, at the base of Carn-tuel, near Killarney, and traces his pedigree to *Giolla Mochuda caoch*, son of Donal More O'Sullivan, of Carrigfinvoy. Connor, the son of Giolla Mochuda, is recorded by the Four Masters as having been slain by his own kinsman in 1411. . . .

The Castles of Carriganass, Dunboy, Reendeeshart, Ardea, Dunkerron, Cappanacuss, and Dunloe still survive in more or less preservation—the last alone now habitable, the others utterly ruinous—monuments, however decayed and fallen, yet attesting the former power and importance of a high and chivalrous race, whose proud boast was expressed in the well-known—

> "Nulla manus tam liberalis, et generalis atque
> Universalis quam Sullivanus."

Tradition states that, at the time of the Revolution, Dunkerron Castle was held by Mac Carthy Reagh. The late Maurice O'Connell, son of the great Tribune, has left some spirited lines on the fall of the last chieftain of the Mac Carthy race who held this structure, and who, with his nephew, was killed at Aughrim. This poem commences:—

> "On high Dunkerron's battlements the slanting sunbeam falls," etc.,

Eoghan, who died in 1687, left a son, Daniel O'Sullivan More, who married Hester O'Sullivan. He died on April 16, 1754, without issue, and his widow survived him until 1796. Both were buried in the monastery of Oirbealigh, or Irrelough (Mucross), the ancient burial-place of the race, as well as of the O'Donoghues, &c.

Until within a few years the sculptured stones, of which Mr. Du Noyer has furnished the Society with the faithful and graphic drawing appended to his article, lay in a boat-house attached to "Lansdowne Lodge," near Kenmare, during the occupancy of Mr. Pelham, a former agent of the Shelburne estates. They were subsequently removed to Dunkerron, where I saw and took rubbings of them; since then they have been placed, surrounded by mason-work, in the wall of the more recent ruin, near the original building, where they are now, it is hoped, safe from injury. They formed portions of a carved chimney-piece in the original structure, although not coeval with it. Crofton Croker has given copies of the arms and the inscription in his "Fairy Legends," and the latter was also published in "Notices of Cork and Killarney," and again in the "Transactions of this Society," the late Mr. Hitchcock in his fastidious love of minute accuracy, deeming a typographical error in the "Notices" sufficient justification for a republication!

The shield of arms suggests a few observations. The blazoning is totally different from that in use by the O'Sullivans for the last two centuries, which is, according to the heralds, "Per pale, vert and ar. on the first a buck pass. ppr. on the second, a boar pass. per pale, sa. and ppr. On a chief or, two lions, ramp. combatant, gu. supporting with the fore paws a sword entwined with a serpent. · Crest, on a ducal coronet a bird ppr.

Motto, "Lamh Foistenach an Uachtar." In Harris's "Ware," p. 164, their war-cry is given as "Fustina-Stelly-aboe," whatever that means.

To me the Dunkerron shield and its charges has a very Arkite expression, and seem quite a mythological composition. The latter appear more or less connected with the legendary lore of the family. Differing so entirely frem all the recognised rules of heraldry in the sixteenth century, we may presume that in the blazoning the artist must have taken his instructions from the hereditary Bolsaire or Seanachuidhe, full of traditional recollections of the race, or had used "emblems and devices, which had previously existed beyond the memory of man." . . .

O'Halloran tells us that at Tara the esquires of the nobility presented themselves at the door of the grand hall (Miodhchuarta) and gave in the shields and ensigns of their different masters to the deputies of the great Marshal of the Crown, and, by direction of the King-at-Arms, they were ranged according to the quality of the different owners. Dermod O'Connor, the translator of Keating, had, several years before O'Halloran wrote, published a statement somewhat similar, an interpolation on the text of his author. But neither in the poem of Eochaidh O'Flinn, descriptive of this great banqueting-hall, nor in that of Keneth O'Hartigan, who was contemporary with O'Flinn in the tenth century, and to whom Dr. Petrie refers as the sole authority from which writers have drawn their accounts of the magnificence of Tara, is there the slightest reference to armorial insignia. But we have in Keating, and it is to be found in every copy of the original manuscript of that writer which I have seen, although his translator O'Connor has altogether omitted it, a passage since published by Dr. O'Donovan, informing us that the clans carried with them into battle distinctive military ensigns of various colours and textures. These were as necessary, certainly, to them, as rallying-points, as their characteristic war-cries or shouts. The evidence of this fact is drawn from the ancient account of the battle of Magh Ryth, fought in A. D. 637, between Domhnall, King of of Ireland, and Congal Clean, King of Ulahd. Here we find the contending armies marshalled under ensigns of different colours, each king having his own standard (Meirge), "great symbol of plunder, floating from its staff," and charged with emblematic devices. Such was the banner of Congal, the King of Ulster:—

> "A yellow lion on green satin
> The insignia of the Craobh ruadh,
> Such as the noble Conchobhar bore."

Keating, referring to this statement, derives the practice of distinguishing by banners, which prevailed from the earliest times, from the example of the Israelites, in their Exodus from Egypt, when each of the Twelve Tribes bore its blazoned standard, as the Tribe of Reuben, the Mandragora, &c. Indeed, we are expressly told in Numbers, ii. 2, that the Israelites carried with them standards "with the ensigns of their fathers' house" upon them.

But although the clans were thus distinguished, we have no evidence of armorial bearings or escutcheons in the sense of modern heraldry. O'Flaherty, in "Ogygia," citing Bartholemeus Cassaneus, describes the insignia of Ireland as a golden king enthroned in majesty, holding a lily on a black field, but no date is given. Dr. O'Donovan gives positive testimony against their use by any Milesian Irish family before the reign of Elizabeth, and avers that the Irish families "first obtained the complex coats of arms which they now bear from England, retaining on the shield, in many instances, those simple badges which their ancestors had on their standards, such as the red hand of O'Neill, the cat and salmon of O'Cathain, or O'Kane, &c. &c., with such additions as the King-at-Arms thought proper to introduce, in order to complete the escutcheon after the Anglo-Norman system of heraldry, according to the rank of the family for whom the coat was manufactured."

Elsewhere (p. 350) the learned Doctor says:—

> "The armorial bearings of the old Irish families, as preserved on their tombs since the reign of Henry VIII., if carefully collected, would throw much

light on the kind of badges they had borne on their standards, previously to their adoption of the Anglo-Norman system of heraldry."

In these opinions of this justly esteemed scholar and antiquary I fully concur. The few shields of arms belonging to the Milesian race which I have seen and examined at Inis Cailtre, Roscommon, Mucross, and elsewhere, are all blazoned in this Anglo-Irish style, and evidently belong to a recent age. Indeed, it is highly probable that before the entire submission of the native Irish, temp. Elizabeth, those proud chiefs, who had so long sought to maintain their independence, refused to accept or to imitate the herald's art, as organized in the English school.

Correspondence.

THE LATE TRIAL OF MILNERS' AND PRICE'S SAFES.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR—The report of the late test of safes at Burnley in your journal of the 1st inst., copied from the *Liverpool Courier*, is so full of inaccuracies and wilful mis-statements, that I hope, as an act of justice to me, you will not only allow the following corrections to appear in your next publication, but will also, if your valuable space admits, print the evidence given on oath before the Coroner, which will, I trust, counteract the injury intended to be done me by the erroneous and partial report above referred to.

Before the tests commenced I delivered an address to the assembled crowd, from which the following is extracted :—

" In resuming the test of my improved Double Patent Fire and Burglar-proof Safes, I think I can say but little more in explanation of the cause of the postponement from the 16th to the present day, in addition to what I stated in my letter to Mr. Denbigh, and which has been published in the *Burnley Advertiser*. A short time previous to the 16th I had introduced an improvement into the construction of my 'Ne-plus-ultra' Safe Door Lock, for the purpose of making it stand *repeated* charges of gunpowder, but instead of making new safes for the *new* locks, I had the locks removed from two *old* safes that had been made before I used my patent steel nozzle keyhole, and put my improved locks on in their place; but unfortunately, the time was so short, and the week being Easter week, the two safes were finished late at night, after my manager and myself had left the works, and the consequence was that the men omitted making good the space between the nozzle and the front door-plate, so that after the small lock had taken in all the gunpowder it would contain, the further supply of gunpowder found its way, through the space before mentioned, *into the lock-chamber* when, rather than run an unfair risk, I thought it better to postpone the test till a future day. Accordingly I am here to-day for the purpose of submitting a specimen of my Case-hardened Fire and Burglar-proof Safes to the most severe tests that can be applied, whether with drills, chisels, or gunpowder, in order to prove, not only that my safes are really drill-proof and gunpowder-proof, but more particularly, that they are the only ones that are so."

With respect to the £50 challenge at the first test, as no one accepted it, a mechanic, at our request, put the powder in the lock, and it was not till after I found that there was some unaccountable error in the construction of the nozzle and nozzle hole, by the gunpowder still disappearing, and when I declined, for the reasons stated, to have the safes fired, that a word was said about the £50. That the challenge was never accepted is proved from the fact of no one having offered to deposit their £50, so that there was an end of it.

I never announced that the safe to be operated upon at the resumed test would be " a new safe made for the occasion," and the fact is, that the safe that so valiantly withstood all the extraordinary and determined efforts of Milners' representatives and assistants at the last test, was the same identical safe that was there at the first test, and which then withstood every effort to bore it with a powerful ratchet drill.

The safe of Milners' was purchased the Monday previous as a *very best* Milners' Safe, with a " powder-proof lock and *bolt-chamber*," and containing all Milners' improvements, and which is further described in their price-list as being " drill-proof."

It was Messrs. Milners' mis-statements with respect to all other makers' safes, and their advertising their safes as being " drill-proof," and as having *powder-proof bolt chambers*, that caused me to take the course I did to prove the contrary, and I can open any of Milners' quadruple Patent Safes in the same time as I opened the one at Burnley, viz., 18 minutes, thus proving them to be *neither drill-proof nor powder-proof*.

The lurry containing the other safe which Milners' people brought into our enclosure, threatening violence to the police if resistance were offered, was simply a trick to call attention from the one I was about to operate upon, and which I have since been informed had been really made on purpose only the week befere, and was constructed with a solid half-inch plate of steel at the back of the door. If the safe I opened was an old one, what in the name of reason do they call a new one? It was represented by Mr. Davis and his assistant as being one of Milners' *very best*, and which is stated to be such on the invoice. It answered to their own description, and had their " Phœnix escutcheon " over the keyhole, the very thing that Milners themselves say, in their advertisement " Renewed Caution," is the proof of such being genuine and containing *all* their improvements. The lock was one of Hobbs's made powder-proof upon Milners' double patent. No. on the lock 40,014, and on the keys 66,864, with a steel plate over the lock ; the lock-chamber had the wooden filling in, and a piece of steel (which they call the " door attachment," I suppose) let into the wooden packing over a portion of the large bolts. The certificates published in your last number will prove the truth of the above statements ; and the evidence of Mr. Roberts, from whom the old safe of my manufacture was bought, will prove that it was sold to him in Feb. 1856 ; that it was fitted with a Chubb's lock ; and that it was well known by all parties concerned not to be powder-proof.

My success was so complete—my own safe standing everything, while Milners' stood nothing—that it seemed to drive Milners' representatives to madness and desperation, or they would never have exploded *an old safe with an open lock-chamber* with such an enormous quantity of gunpowder. Before this took place, my agent, my assistants, my property, and myself had left the ground. It was entirely the affair of my opponents, and they have had to compensate the father of the poor boy that was killed, with £15 5s., and will also have to do the same to the man who was so badly hurt.—I am, Sir, your obedient humble servant,

Wolverhampton, June 11th, 1860. GEORGE PRICE.

FREE TRADE IN STONES.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR—As one of your oldest subscribers may I take the liberty of asking you if ever, in editorial phraseology, you met before with any statement relative to " *Free Trade in Stones?*" It strikes me the question would embarrass all modern free-trade reformers, even the late "Joe Hume," or " Richard Cobden " himself. I shall therefore not press it, but explain my reasons for this communication. Referring to a recent case at petty sessions in this town, wherein some parties summoned Mr. Michael O'Brien, the manager for Mr. Thomas H. Carroll, of Dublin, the proprietor of an extensive quarry here, "for having built a shed across the road to plaintiff's quarry, thereby preventing ingress and egress, and for permitting a quantity of gravel and stones to remain in the face of the quarry, thereby preventing its being worked," the editor of a local journal, the *Western Star*, thus concludes his report of the proceedings :—" It is to be hoped that the decision in this case will in future produce *free trade in stones*, an article so abundant in this neighbourhood, and by the abolition of the monopoly which has existed for some time, facilitate those who, in the present progressive state of Ballinasloe, are engaged in the erection of new buildings." Now, as regards the wilful obstruction, that is a matter with which I have nothing to do, though I may state that Mr. Carroll is known to your readers to be too respectable a man to connive at any illegitimate proceeding. But in the reference to " monopoly," as *I* am included—without mention of name—being also the owner of a large quarry in the town, I must say that I pursue my business independently of any of my neighbours; and if a man, in a fair spirit, seeks to forward his own interests and push a trade, I do not see why it should be designated " monopoly."

Trusting you will excuse my trespassing on the space of your excellently-conducted and highly popular journal, I remain yours,

Ballinasloe, June 20, 1860. FRANCIS MADDEN.

Notes of New Works.

LOCAL WORKS.

The War Department are about having some roofing works executed at the Military Stores, Montpelier Hill.

A new Church, to accommodate 300 persons, is to be built at Dollymount. The style will be Gothic. Mr. Rawson Carroll, architect.

Three villas and offices are to be built at Ovoca Avenue, Blackrock. Mr. E. Carson, architect.

Two villas are in course of erection at Leeson Park, in this city, for Messrs. Colles, and G. W. Shannon respectively. Mr. R Carroll, architect; Mr. Dwyer, builder.

A private School-house is to be built at Rathmines. Mr. D. C. Ferguson, architect.

New Turkish Baths are in course of completion at Upper Rathmines, similar in principle to those already described in this journal, but on a much smaller scale. The front towards the road is Orientally architecturized, as far as limited site would permit.

"Wave Crest" houses on Bray strand, recently enlarged by the addition of another storey, are now fit for occupation. Mr. Lyons, architect.

A mansion and offices is to be built at Earlsfort Terrace, according to plans, &c., by Messrs. Lanyon and Lynn, architects.

We understand that extensive alterations are being made in the offices of *Saunders' News-Letter*, prior to proposed new arrangements. Mr. Charles Papworth is the architect; Mr. William Hughes the builder.

The new Roman Catholic Church at Raheny is progressing, and Lord Howth has given a donation of £25.

It is proposed to enlarge Killiney Church, which is said to be "insufficient for the growing requirements of the neighbourhood."

The foundation stone of the new Molyneux Church and Asylum was laid by His Excellency the Lord Lieutenant, on the 11th ult. Particulars and illustration of these buildings may be found by reference to April number.

The city basins or reservoirs have been for some time in process of cleansing, and a quantity of alluvial deposit and noxious spongilla taken therefrom.

PROVINCIAL NOTES.

The new Church of St. Mary's, Athlone, already referred to in this journal, is in course of construction, after designs by and under the superintendence of Mr. John Bourke, architect. The contract for the plastering has been taken by Messrs. Hogan and Sons, of Dublin. All the mouldings round the arches, separating the nave from aisles and chancel, are to be in Portland cement, and the walls throughout to be lined in Ashlar courses, to imitate Portland stone. This building, when completed, will be one of the most important parochial churches in Ireland.

Sundry works connected with the supply of gas to the town of Roscommon are to be executed. Time for tenders to 7th instant.

Tenders are invited for the building of a School-room at Ballinamore, county Leitrim.

The Church of Drumcliffe, Ennis, is to be rebuilt, and the churches of Billis, county Cavan, and Drinagh, county Cork, are to be enlarged by the Ecclesiastical Commissioners. Tenders till 7th instant.

A new passenger station is to be built at Dublin bridge, Newry, for the Newry and Warrenpoint Railway Company. Mr. Richard Hassard, C.E.

A new Railway Hotel is in progress of erection at Kinsale, after designs by Mr. Conybear, C. E. It has a principal front towards the river. four storeys in height—up two of which are carried oriel windows—is in the Italian style of architecture, with main cornice and frieze, ornamented with brackets, and surmounted by a balustraded parapet. From a spacious terrace in front, access is obtained by flights of steps to ladies' and gentlemen's floating baths, and to the various wherry craft that ply upon the river. Mr. Barnard is the contractor. About 5,000 cubic yards of rocks were excavated for the foundations.

Alterations and additions are being made to Geashill Castle, near Tullamore, for Lord Digby. Mr. R. Carroll, architect; Mr. Millard, contractor.

Various works in the restoration of Ardavillage, county Longford, for Dowager Lady Fetherston, are being executed. Mr. R. Carroll, architect.

The foundation stone of the new Church at Clonea, county Waterford, was laid on the 10th ultimo. It will be in the early decorated Gothic style, consisting of chancel, nave, side chapels, aisles, sacristy, and porch, the essentials of a parochial church. The tower and spire are not for the present intended to be proceeded with. The interior of the church will be 116 feet in length by 54 in breadth; the external walls 17 feet high, and the clerestory walls standing on the pillar arches 38 feet in height; from the floor to the apex of the roof, over about 63 feet. The chancel arch will measure 43 feet to the keystone. There will be five open archways at each side, separating the aisles from the nave, and also dividing the side chapels from the chancel and aisles. The pillars, arches, jambs, arches of windows and doors, groins, weatherings, stringcourses, barges, crosses, eavecourses, &c, are to be of Bathstone; the two east and west windows containing very beautiful tracery; the windows of the clerestory and south aisle, divided into two lights, will also have tracery heads. The ceilings of chancel and lady chapels will be panelled and decorated; and the other roof ceiled between rafters. The entire woodwork throughout richly stained and varnished, and elegantly wrought crosses in stone will surmount the different gables. The sashes will be of lead, glazed with cathedral glass, and the door furniture of superior quality. Mr. J. J. M'Carthy, architect; Mr. W. Pierce, contractor. Amount of contract between £5,000 and £6,000.

The plans for effecting the required alterations, to convert the House of Industry at Clonmel into a Lunatic Asylum, as designed by W. H. Deane, Esq., C.E., have been highly approved of, and have received the sanction of the Board of Works.

The new Church of St. Bridget, at Blanchardstown, is to be completed, and contributions are being received for that purpose.

Upwards of £500 have been subscribed for the erection of a cornstore, for the accommodation of market buyers at Thurles. Viscount Jarnac will erect another at his own cost.

A station-house and goods-store are to be erected at Cootehill, county Cavan, for the Dundalk and Enniskillen Railway Company. Mr. William Murray, architect. Tenders to 4th inst.

Tenders are required for altering and enlarging Clonea House, Dungarvan, county Waterford. Mr. J. M'Curdy, architect.

Turkish Baths have been recently erected at Lismore Castle, as also at Dromona, Co. Waterford, the seat of Lord Stuart de Decies.

Alterations and additions are to be made to the County Court-House, Armagh. Time for receiving tenders limited to 2nd inst.

The Churches of Kilgarvan (Co. Kerry) and Tullylish (Co. Down) are to be re-built, and those of St. Michael's (Blackrock), Kilgariffe (Clonakilty) Co. Cork, and at Mullingar, are to be enlarged according to plans by the Ecclesiastical Commissioners Architect.

A new bridge is to be erected by the Board of Public Works across the river Lagan at Ormeau, near Belfast. Time for tenders limited to 10th inst.

The Lighthouse Commissioners have resolved on erecting a lantern on the tower at westward end of Bere Island.

A new Church is being erected at Taghadoe, early English in style with nave and chancel 100 x 26; vestry at south side, and tower and spire at north-west angle of nave, Mr. J. J. M'Carthy, architect, Mr. Beardwood, contractor. Expenditure under £2,000.

At Killorgin, county Kerry, a new Church is also to be erected, comprising nave, aisles, transept, chancel, side chapels, tower and spire at south-west end in the decorated style of Gothic. Mr. M'Carthy, architect.

New Churches, in the Gothic style, are to be erected respectively at Dingle and Fieres, Co. Kerry. Messrs. M'Carthy and O'Connell, architects.

The Marquis of Downshire is making extensive additions to his Marine residence at Dundrum, county Down.

RAILWAY MATTERS.

The Board of Public Works opposed the extension line from Kells to Oldcastle, in consequence of a level crossing being introduced at Kells. The promoters allege, that "there is no great traffic at the point, that accidents would be unlikely, the line only being a single one and every train would stop at the station," also, "that the alternative to the level crossing would be to raise the carriage road fifteen feet, at a sudden incline, which would be very inconvenient to the town," whereas the opponents believe that the proposed crossing would be attended with damage to life, and that trains approaching should come down a circuitous incline for some distance before arriving at the platform, and that there is nothing to ensure that steam would be shut off in proper time on all occasions. The committee overruled the objections, and allowed the level crossing.

The Royal assent has been given to the Newry, Warrenpoint, and Rostrevor railway bill.

The Directors of the Dublin and Wicklow Railway have acceded to the wish of the inhabitants of Sandymount for a station, and the necessary works are being proceeded with.

It is proposed to construct a single line of railway from Goold's Cross to Cashel, forming a junction with the Great Southern and Western Railway, at the former station.

Reviews.

The Temples of Arcadia. London: John Weale, High Holborn. 1860.

IT is not often that an architectural book of the very highest pretensions beams upon us. Pre-eminence of subject may be assigned to original conception, but secondary to such alone, are the faithful and artistic representations of works of classic interest, monumental importance and venerable antiquity. Great was the enjoyment recently derived from looking over the illustrations of architectural design, polychromy, constructive details, sculpture in its true accessorial form, each figure free and unrestrained in itself, yet composed with such direct reference to its destination, as to invest the *en semble* with a striking accordance and unanimity of sentiment, which Professor Cockerell's book contains.

Neither is it often that a purely artistic love will draw from his leisure, or attract from his busy avocations one with varied powers so marvellously concentrated in the President of the Institute of

Architects. Long, long may he continue to bear his blushing honors, of which some are recorded on the title page of his work, while those of greater value reside in the sentient repositories of many hearts.

The title in full is subjoined.

"The Temples of Jupiter Panhellenius at Ægina, and of Apollo Epicurius at Bassæ near Phigaleia in Arcadia, by C. R. Cockerell, Professor of Architecture in the Royal Academy; Member of the Institute of British Architects: London. Honorary Doctor of Civil Law: Oxford Member of the Dilettante Society. Associated member of the Institute of France, and Chevalier of the Legion of Honour. Member of merit of the Academy of St. Luke: Rome. Foreign member of the Academies of Munich, Copenhagen, &c., &c., to which is added a memoir of the systems of proportion employed in the original design of these structures by William Watkiss Lloyd."

Country Cottages. By John Vincent, architect. London: E. & F. N. Spon, Bucklersbury.

So few works of any merit referring to domestic architecture have as yet issued from the press—though albeit, the alleged efforts for its improvement have been very numerous—to our mind unhappily so for the cause of art and the good of the public generally—that we approach with some distrust *any* work professing such a purpose. Convinced, however, that as wide a field is open in this department as in the various others wherein standard works of unquestionable excellence have been produced, and that still an important mission remains to be fulfilled, we cast aside what some may probably denominate fastidiousness, and with an unprejudiced eye examine the newly published claimant to favour before us.

Without "judging the book by its cover," or further, without assuming that the lithographers and the printer's skill, displayed to a very meritorious degree, impart intrinsic excellence; we must, nevertheless, in those—not unimportant—departments, award a meed of praise to those concerned in their production. The author has aimed evidently at a double purpose, the pictorial and the practical, though in the former with questionable prudence, as either he or his artist have drawn somewhat *too* largely on his imagination for landscape effects, leaving inquisitive minds to meditate upon the probable merit of the "Architectural" in such localities where luxuriant foilage, gentle slopes, meandering rivulets, and other accessory natural beauties might not be present. To the designs, which are generally tasteful externally, and well-arranged internally throughout—save where W. C's. are introduced under the main roofs, a decidedly objectionable disposition even where the most effectual apparatus is within reach of the proprietor's pocket, which cannot be assumed probable in this instance—we must take one exception—viz., precise suitability in some regards to the domestic requirements and pecuniary ability of "agricultural labourers." The table of labourers' wages in twenty-nine English counties introduced into the work, shows the highest average to be 16s. 6d. (Westmoreland and part of Yorkshire), and the lowest from 8s. to 8s. 9d. per week (Berkshire, Devonshire, Dorsetshire, Essex, Gloucestershire, Herefordshire, Suffolk, and Wiltshire); but even liberally assuming the mean average earnings of the labourer throughout the kingdom to be 13s. per week, those of the wives—where such are—being placed as sets off against the support of helpless children, the portion for rent which he could afford to pay out of same would give quite an inadequate return for an investment of capital averaging £125 or £130 per house. Our knowledge of the agricultural districts of England is such, that better classes than "labourers"—small farmers, stewards, gamekeepers, &c., &c., for instance are housed—and comfortably—less commodiously, and much less architecturally than those provided for by these designs. A very trifling modification, and consequent expenditure, would convert some of them into habitable dwellings for gentry of moderate income; take as examples the alternative designs No. 1 and 2, or even No. 5, which contains an entrance porch, a living room 13 feet by 11 feet, a kitchen 11 feet 9 inches by 9 feet, a store 10 feet by 6 feet, and three bedrooms above of 13 feet by 11 feet 6 inches, 11 feet 9 inches by 8 feet, and 10 feet by 9 feet, respectively, with fire-places in each, and a pretty Gothic elevation; such accommodation appearing somewhat extensive for the household establishment of a *mere* labourer. The elevation of plate No. 7 is peculiarly noteworthy for its artistic and effective grouping, forming a pleasing range, though the ground plans are objectionable in a sanitary regard, owing to the proximity of a dust-pit, with a privy behind it, to the kitchen door—which it faces, at a distance of three feet, and close to a window from which light is obtained to a hall and staircase. Had not the author in his preface dwelt so specially on these designs as intended for "agricultural labourers," but kept the title of his work, viz., "Country Cottages" in view, we should not have been bound to impose in some regards—save such as refer to sanitary matters—these strictures; and judging the work in its integrity, we are far from desiring that a depreciating reflection as to his taste and skill should be implied. On the contrary, we would hail with much pleasure the substantial perpetuation of the designs, and recommend the work as in various regards instructively suggestive, and about the best of its class yet produced.

Black's Guide Books (Edinburgh). Dublin: W. Robertson.

These enterprising publishers have gained a celebrity—in the matter of Guide Books especially—throughout the kingdom; and Ireland has occupied a considerable share of their attention. "The picturesque Tourist in Ireland," is a most useful and instructive pocket volume, with a general travelling map, a chart "of the lakes," plans of the principal cities, particulars relative to all objects of interest, the best hotels, &c., &c. The smaller and more local editions for Dublin, Belfast, Cork, Killarney, the Shannon, &c., we can also pronounce by experience to be acquisitions, embracing much information, and neatly produced.

The Labouring Classes.—Owing to the extreme wetness of the present season, a considerable amount of distress has at times prevailed among the labouring class. Whenever the weather has permitted, the demand for labourers has been brisk, and wages high. Men have asked and obtained from 1s. 6d. to 2s. per diem: and women from 8d. to 1s. A number of applications for relief have been made during the last week at Garbally, and in every instance, whether the applicant was male or female, employment was at once offered; and this Lord Clancarty considers the best means of giving relief. The continuance of moist weather is, we understand, still severely felt by the poor.—*Western Star.*

Sleeping in Damp Rooms.—Rooms where the plastering was never well dried, either from the want of time or from being filled with frost before it had chance to dry, rooms in basements or on the north side of a house shaded by trees or other buildings, are very unwholesome for sleeping apartments. And what makes the exposure greater, and the results more serious, a cold is taken when the body is in an active state, and it is very difficult, if not impossible, to throw off such colds. Quite a number of cases of severe sickness have occurred in the experience of the writer from such exposures, and in two or three instances death has followed. No one thing is so conducive to health as large, airy, and well-lighted rooms for sleeping. This is very important where there are small children or feeble constitutions.

Rights of Inventors in America.—A number of hardware dealers were visited by a gentleman in quest of screws of a certain description, of English manufacture. In many of the houses he bought parcels of the English-made screws, paid for them, and, in the presence of the salesmen or members of the firms, tied them with red tape, and sealed the receipted bills thereto, and ordered them to be sent to the office of "Chas. M. Keller, Counsellor in patent cases," Nassau-steeet. Such a transaction excited inquiry, the result of which is as follows:—The gimlet-pointed screw is an American invention, and was patented in the United States and in England; the English patent having been disposed of to manufacturers there, whose goods are imported into this country and sold by our merchants, thus invading the rights of the owners of the American patent. It appears every package sold renders the merchant making the sale liable to the owners of the American patent, as in the great india-rubber case of Day and others, in which the Supreme Court of the United States decided in every case of violation in favour of the American patent. Present appearances indicate that an exciting suit is on the *tapis*, which is likely to involve quite a number of our largest hardware houses, who have sold screws to the gentleman.

[Advertisement.]

FINAL NOTICE.—Patients residing in the Country desirous of consulting me relative to having ARTIFICIAL TEETH adapted should, in order to avoid being detained unnecessarily in town, apprise me at least one week previous to their intended arrival. Also, please copy my address, as I purpose (having now obtained sufficient connection) to discontinue advertising from this date.

75, DAME-STREET, DUBLIN.

JOHN O'DUFFY, formerly Head Assistant for six years to the Surgeon Dentist of St. Vincent's Hospital, Stephen's-green.

TO CORRESPONDENTS.

W. S., London (will write or see). W. F., Liverpool (shall be attended to). T. L., Nottingham (thanks; explained). J. R, Sheffield (early this month; absent when received). R. E., Cork (thanks for favours). T. M. (too late; in any case, quite too lengthy). J. B. R., Derby (as requested). W. W., Banbury (with pleasure). T, F., Scoles Fold (received, and obliged).

NOTICE.

Post-office Orders and Remittances should be made payable to Mr. Peter Roe, 42, Mabbot-street, Dublin.

☞ *NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the* Dublin Builder." *All other Communications should be addressed to the "Proprietor and Editor,"* 17, Lower Gardiner Street.

The Dublin Builder.

Vol. II.—No. 20.

ENGLISH FARMERIES AND COTTAGES.

It is a pleasant thing to view the many architectural beauties dotting an agricultural district, when such beauties can be insured free from the peculiarities unprepossessing, sometimes disfiguring them. It may be, to a certain class of poetical *antiquarians*, delightful to contemplate a thatched cottage and a stray barn after sunset on a summer evening, or to blend the Gainsborough and Stanfield school, with the leaky, cold, and uncomfortable; but we may refer to the farmer or husbandman without fear of contradiction, whether his "secluded cot" is not better with a good tiled or slated roof, his homestead and his premises well arranged so as to save somewhat of his hard-earned, frugally spent capital, than dwelling most practically (?) in an old and flimsy tenement beneath a by no means genial climate. We wish we could see the whole of Ireland dotted by the comfortable and pretty habitations fast covering the agricultural south of England, which bad landlordism and other causes have contributed to prevent her as yet accomplishing, but a few years will show that her inhabitants are not insensible to her productive soil, and that they can provide for her husbandmen, who, when properly encouraged,—are not slow to perceive it, and repay such encouragement with a sincerity and earnestness, not possessed by any other nation in the world, perhaps, to an equal degree. Having passed through the troubles of famine, and political misrule, she has but to put forth her strength, and proved that her Australian and Canadian children are "chips of the old block," and the "old block" itself remains as sound as ever.

Passing through the southern and western districts of England, we are much struck with the symmetry and regularity of arrangement of many of their farm premises; we must give high farming the credit of the impetus first given. The necessity in such a system of buildings suitable for the machinery, &c., gave rise to new ones, and this being, what we may call, the revolutionary architectural Æra of 1859-60, ideas were called in to aid in producing economy and elegance, startling the cobwebs from the corners, and rousing Mr. Clodhopper from the lethargy of—we may almost say—ages! It seemed till then, to be the exclusive privilege of the farmer to pave his floors with boulders, sleep in a drafty room, and store his money away in the bed-sacking (if he had any), and as usual in such cases—grumble enough for a whole parish. But affairs have greatly altered—metropolitan bricklayers, carpenters, and masons let loose through the country, have ripped off the weather-boarding, the thatch, and bad work, and with the aid of that ever active member of society, *the architect*, raised charming little villas, well drained, well ventilated, and in all respects filled to comfort and charm, whilst their uses are manifold and various. The gothic seems most in vogue, as being that which prevails in our public edifices, likewise private villas. But we much question the desirability of such a style for the purpose. It looks well, and combines well with our climate, and geographical peculiarities, but we doubt whether it affords the same amount of convenience as the modern English style, which we may call Italian, had we not made it our own long ago. How can it be done so cheaply, except by sacrificing strength, and quality of material; leaving the extra labor entailed upon the architect out of the question, as his commission of 5 per cent. covers all this? we must look at the quantity of material sacrificed for the sake of effect externally, and the extra time consumed by unskilled hands in this style, which admits of so many varieties in disposition of design, and therefore every time is nearly new to the workman.

In small buildings of this character, the difference may not be felt, but in those for farms running from 150 to 400 acres, it must be so. Again a quantity of room is sacrificed in a gothic farmery, which may be saved in one of Anglo-Italian construction, where every particle of area covered is actually working area, and a number of angles does not interfere with an easy and ready access to all parts of the building. We do not say that there are not modifications of this, and that a gothic elevation may be arranged to an Anglo-Italian plan, but such an arrangement is difficult and uncommon, and does not harmonise when done; and however trivial a little sacrifice of harmony may appear to a country squire or the farmer, the architect cannot offend his own eye and taste by toadyism always, even to a wealthy and influential client. The artist, the author, and the sculptor have free scope for treatment of their respective themes, the architect is crippled and thwarted, and really becomes but the mere victim of £ s. d., but he must be guided to a certain extent by the experience of those who instinctively, we may say, are acquainted with the requirements of the premises, but as regards style, and site, he must be led only by his superior judgment. However, returning from this digression we must admit that to build farmeries properly requires almost an exclusive apprenticeship; to economise space, working expenses, &c., requires an acquaintance with farming generally, but to build handsomely, and substantially, and to lay out the money for that purpose to the best advantage is known only to the designer and estimator.

In the agricultural districts of Essex and Kent, where staunchions are required, iron is generally used instead of timber, and this on stone footing. Concrete is largely used, and great care taken to prevent any sinking in marshy situations, or damp arising. Tiled roofs are rapidly giving place to slated ones, but the sooner the variegated system at present in vogue for brick elevations is dispensed with, the better for the appearance of such elevations in ten or twenty years to come. Effect derivable from colours, in lieu of projection, will prove another failure and complete deception. In the homesteads and yards oak is much used, where it can be had, and altogether a better description of workmanship prevails; where oak cannot be had, elm is substituted. The old stone dwarf columns for hay and corn ricks have given place to iron ones. Weather-boarded and thatched barns are replaced by good brickwork and slates. Exceptions to good material occur where proprietors for the sake of a false economy use up the old with the new, which is no gain, for the old is soon rotten after complete exposure to the air, and being shaken in removal, this especially in cases where old timber is re-used. In gothic structures the eave-boarding is certainly ornamental, but very liable to be warped and cracked by exposure to heat and rain alternately. But in spite of these trifling objections we must admire the change that has effected so much for the agricultural districts, and in return, as it were, for the momentary distress caused by the introduction of free trade, those benefiting by the same—viz., the city artizans—by their agitation, have succeeded in obtaining healthy and convenient lodging houses, which has again extended an influence to the agricultural labouring classes in the shape of comfortable and wholesome cottage dwellings. There is a wide difference between the wealthy farmer, and the poor labourer, but the principle of health and comfort exists alike for both, and how much do they influence the morality of the husband and father! We hope the day is not far distant, we repeat, when the whole of the agricultural part of Ireland will be dotted over with pleasant-looking well-to-do families in good and good looking farmeries and cottages.

LECTURES ON GEOLOGY.

Doctor Melville, our Professor of Natural History in the Queen's University, has, during the month of July, been delivering the third annual portion of the course of lectures founded by the late Doctor Swiney, and though more immediately associated by the testator with the British Museum, they have been, with great propriety and convenience, delivered at the Geological Museum, in Jermyn-street. The two first series of twelve lectures each were devoted to the consideration of stratified rocks, and that just terminated has been chiefly confined to the phenomena and results of volcanic agency.

Doctor Melville is so thoroughly master of the subject, has so perfect a memory, and such ready flow of language, that he discourses throughout the hour appropriated to each lecture without any apparent reference to memoranda, and yet, to borrow a geological idiom, is never *at fault*, but keeps the attention of his auditory supplied by most interesting verbal details, illustrated by an extensive series of maps, sections, diagrams, views of the general scenery and surface of volcanic districts; together with numerous tabulated statements, all of great value in relation to the subject and in promoting its popular exposition.

In the course of these lectures the Professor frequently dwelt on the features of Irish geology, noting the formations, peculiarities, and products. in which the country is so rich. We feel, indeed, that as our native stores in this respect are developed and made known, the exportation of many substances of beauty and usefulness will increase, and our general prosperity be promoted.

THE PURGATORY OF THE BATH.

Long and persevering homilies from the medical profession on the virtues of water on the functions of the skin, have had the happy effect of establishing the cold bath amongst our permanent English institutions, and spreading widely the habit of employing frequent and tonic ablutions with cold water, which may be described as amongst the chief fortifiers of the British constitution, and the wonder, but not the envy, of continental nations. The cold bath is certainly better understood in England than anywhere else; but it may reasonably be doubted whether the warm bath has been studied with equal success. Our notion of warm baths includes merely a great deal of hot water, or hot vapour, and a certain proportion of soap, or medicinal tincture, according to the purposes of the bath. This was not the hot bath of the ancients; this is not the hot bath of the orientals. They employed a far more ingenious and a far more effective combination of hot air, hot vapour, hot water, and skilful frictions. Such were the baths which Hippocrates, Galen, and Celsus prescribed: such were the baths of which Homer sings the praises in the "Odyssey," and which Herodotus says that even the Scythians used in the Trojan War. These were the baths of which Justin records that the Romans taught the art to the Spaniards as early as the Second Punic War; and of which Julius Cæsar brought the secret even to these islands. Of the stately erections consecrated to the service of the bathers remains are yet widely extant—monuments of luxury and splendour. The art has long fallen into abeyance in the west, but has survived in the east. Its restoration has been amongst the consequences of the Crimean War. The luxuries of the Turkish bath were then so widely felt that the attempt to introduce it into Great Britain has met with a deserved success. The credit of this revival is greatly due to Dr. Haughton, who has energetically pressed on the construction of such baths in Ireland, where they have been in use now some time, and are effecting a revolution in bathing, which has only recently extended to London.

In these Turkish baths, soap and water are purely secondary agents; they are considered as barbarous, clumsy, and effete means of cleansing. The bather is first conducted into a room, which is practically a large oven, lighted from the top, and filled with moist air. This is very far, however, from being a vapour bath; the quantity of watery vapour is small, and does not affect transpiration of water by the skin. Of course a profuse sweating is induced, and the skin is thoroughly softened. It is a hot bath without water, or rather with the aid of very little water. From this chamber he passes to another, the calidarium, where, freely perspiring, he is rubbed with towels or goat's-hair gloves; and so great is the effect of the prior treatment that the softened cuticle rolls off in thick flakes and a new skin is found beneath of which the subject of the operation little dreamed. No one who takes a Turkish bath for the first time but must be astonished at the quantity of unnecessary cuticle which he carries about with him. Adepts tell you that "It requires great dexterity to perform this well without rubbing some places too much and others too little." Now comes a drenching with warm water and soap, which is not the most agreeable part of the bath, and may be considered partially unnecessary. Then the bather passes back to the tepidarium, where he is dried and clothed in warm towels; and after a pause, then to the frigidarium, or cool chamber, where, still clothed in warm towels, he sips coffee, smokes a narghilet, and indulges in beatific sensations which only those can know who have passed through the three purgatories of the bath. The Turkish bath is an agent of such great power in restoring the active functions of the skin, and the ordinary results of its application are so peculiarly agreeable and invigorating, that it will probably excite the attention of medical practitioners in its relations to diseases. It is a powerful agent, of which the virtues are apparent; but incautiously employed by persons liable to congestion of the head or organs of the chest, it is not free from dangers, as some unfortunate circumstances have already proved.—*Lancet.*

Public Works and Buildings.—The repairs of royal palaces cost during the year ending March, 1859, £47,238 19s. 11d., against £92,034 12s. 4d. in the preceding year. Of this outlay £18,731 19s. 8d. were for palaces in the personal occupation of the Court; £11,093 13s. 10d. for palaces partly in the occupation of the Court; and £16,413 6s. 5d. for palaces not in the occupation of the Court. Government offices and public buildings cost £118,601 13s. 11d., against £94,965 18s. 10d. in the previous year. The principal items were, works and repairs, £33,556 11s. 0d.; 22,586 17s. 9d. for rent of houses hired for public purposes, being an increase of £3,000 in two years, and the penalty we pay for neglecting to build proper public offices. The unfinished Houses of Parliament cost £87,210 10s. 9d. In this sum were included works and fittings under Sir Charles Barry, £53,528 16s. 1d., with his commission, £2,345 12s. 10d.

LAW NOTES.

Arthur Canning v. *Henry Loughran.*—This was an action for the recovery of a sum of £71 13s. 10d., for work done and materials provided, &c. The defence was that £175 was paid in full as the value of the work done and materials supplied under a special contract. The issues in substance were,—was the work done, and was £175 the value of said work, and was said sum paid, and whether the plaintiff left some of the work undone and the materials unprovided for. Several witnesses were examined as to the work done, &c.

Mr. Lyons, of Lower Gardiner-street, Engineer, the Editor of the Dublin Builder, was examined as to the value of the work.

The jury found for the plaintiff for £18 sterling, after being several hours locked up in the jury room.

Counsel for the plaintiff—Messrs. Robinson, Q C., and Morris. Counsel for the defendant—Messrs. Bourke and Buchanan.

Campbell v. *Harford.*—This was an action for goods sold and delivered. The defendant contracted as a builder with the Board of Works for the erection of a schoolhouse in Newbridge. The plaintiff is a stone-cutter, and contracted to supply the defendant with stone for the work. The defendant lodged £5 in court, and pleaded fulfilment of the contract.

The verdict was for the plaintiff. £57 2s. 1d.

Counsel for plaintiff—Messrs. Curran and Byrne. For the defendant—Mr. Ball, Q.C., and Mr. Kelly.

Browne v. *Shillington and Others.*—Action by a builder, on foot of a contract with the defendants for the erection of a Wesleyan Methodist Church in Portadown, county Armagh. £3000 had been already paid to the plaintiff, who now claimed £600 in addition. Defendants pleaded that the contract had not been complied with by the plaintiff and his late partner, and also, as a set off, the amount of certain penalties alleged to have been incurred by the plaintiff for delay, &c., in the completion of the work. There was a cross-action instituted by the defendants in this case to recover the amount of those penalties.

After the plaintiff had been partly examined, the parties agreed to refer all matters in dispute, both in this and the cross-action to the arbitration of three of the special jurors.

Counsel for plaintiff—Messrs. Joy, Q.C., Ferguson, Q.C., and Falkiner. Counsel for defendants—Messrs. Miller, Q.C., and Harrison.

William Singleton v. *Henry Green.*—Action brought by a road contractor against the contractor for the construction of the Newry and Armagh Railway, for work, labour, and materials supplied by the plaintiff for the defendant's use, and money paid for the repairs of certain roads adjoining Markethill, used and injured by the defendant's carts, waggons, &c., during the execution of the works. It was arrranged that the plaintiff should be nonsuited, with leave reserved to turn same into a verdict for him for a sum of £25, if the Court above should be of opinion that under the circumstances any contract was implied by law on the part of the defendant with the plaintiff.

Counsel for plaintiff—Messrs. Joy, Q.C., Law, Q.C., and Kaye; Attorney, Mr. Barker. Counsel for defendant—Messrs. Miller, Q.C., and Harrison; Attorney, Mr. Edward Greer.

Duggan v. *Lord Dunraven.*—Action at Limerick assizes, before Judge Hayes, by a builder against the noble lord of Adare Manor, for balance for work and labour, including about £450 for extra works, which the defendant disputed as excessive. Several professional witnesses were examined on both sides.

Dismissal of the County Surveyor for Tipperary.—At the late assizes an application was made to Judge O'Brien on the part of Mr. Deane, the County Surveyor, to have counsel heard on his behalf and against his dismissal. He (Judge O'Brien) found that the right to dismiss rested exclusively in the grand jury; but where the consequences were of so very serious a nature and affected so much the prospects for life of a professional man, it would be but common justice to allow the merits of the case to be discussed before them by counsel. If the matter rested with him he would feel bound to give the County Surveyor an opportunity of being fully heard. This was but the ordinary justice which every man in this country was entitled to expect; and it would be more satisfactory to the grand jury themselves and to the public to rest their final decision, whatever it might be, upon an investigation in which their officer could be represented by counsel. The foreman intimated that they would act upon the suggestion of his lordship.

Improvement of Farm Buildings.—Lord Talbot de Malahide has offered a challenge cup for promoting the erection of "substantial houses and offices" on farms ranging from 50 to 100 statute acres The offer is a graceful and appropriate substitute for the drainage cup of the society which the noble lord has won; and is entitled to the thanks of all who are desirous of promoting the cause of Irish agricultural improvement.

A WORD ABOUT IRISH ANTIQUITIES.

We alluded last month to the close of the Architectural Session; but the annual pause in literary contributions, meetings of learned bodies and occurrence of polished *conversazioni* simply releases the votaries and pioneers of civilization from intensified mental action, to afford a season of leisure, which cannot be more worthily occupied than in intercourse with the order, grandeur, and loveliness of nature, and in a renewed study of the monuments of human intelligence.

To those in the ranks of our profession who have the opportunity, therefore, we would most urgently commend the practice of sketching and of noting the more prominent and interesting features of some tract or district to which they can command access, whether its attractions lie in the general scenery, geological demonstrations, architectural remains, historic associations, or in any of those paths of study so invitingly open to the rambler in Ireland.

> "Afar from thee sojourning,
> Whether I sigh or smile,
> I call thee still, 'mavourneen,'
> My own green isle!
>
> Fair as the glittering waters
> Thy emerald banks that lave,
> To me thy graceful daughters,
> Thy generous sons as brave.
> Oh! there are hearts within thee
> Which know not shame nor guile,
> And such proud homage win thee,
> My own green isle!" BARTON.

We think, indeed, with the poet, that there are minds of the proper mark amongst us; but it is necessary to awaken the dormant energy of native students, to show the large field of illustration before them, and upon which the eyes of more distant artists are turned with an interest it would be well for those at home to emulate.

That our architectural antiquities have been subject to most continuous, most extensive, most wanton, and most lamentable spoliation will be painfully impressed upon the minds of all who contemplate the great edifices of this metropolis, or the relics of past ages scattered over the country at large. As to our Duns and Raths, our Cahirs and Crannoges, our Celtic Hill-forts and Lake-castles, we devote them, with their associated stone implements and other vestiges of very distant times, to the students of history and the pencil of the antiquary; but we have abundant materials of more tangible and practical character, illustrative of the arts and customs of our direct ancestral race, to which the architectural artist may well apply himself. What valuable objects for delineation and study does the wide range of ecclesiastical and secular buildings, our cathedrals, churches, monastic edifices, our castles and fortified gates afford! How much interest attaches to our round towers, and what veneration to our sculptured crosses!

It is not at all surprising that such historic and artistic treasures should even at a distance be held in the highest esteem, but it is a matter of the deepest regret that no individual or associated body has hitherto taken up the work of illustration in an adequate and systematic way.

When Mr. Godwin,* for instance, first beheld the venerable group at Monasterboice, he tells us, that he had never been more deeply impressed by any architectural scene whatever. Of the same class we may mention Clonmacnoise, in King's County; Glendalough, in Wicklow; and Foure, in Westmeath.

Mr. Blake, in describing Kilconnel Abbey, said, that among the numerous tourists and archæologists who run round the country every year, there are but few who know that the west of Ireland, the county of Galway in particular, abounds with remains of the most important character as exemplars of Ireland's only perfect style of mediæval church building, and of its peculiarity as compared with the contemporary styles in England. From among such remains he chose Kilconnell for admeasurement, in consequence of its comparatively good style of preservation, and as displaying peculiarities in mass and detail.

It has been thought, that from certain assimilation to the broad character of Southern Europe, and to the flamboyant lines of the Continent, that some Spanish or Flemish element may have been introduced, either through the employment of foreign artists, or the study of foreign models. But, while thanking Mr. Blake for the good service he performed, and which it is hardly too much to hope the Institute will at no distant day render available to the public, we by no means award the position of highest importance to the Abbey of Kilconnell.

Mr. Donaldson found much to observe at Kilmallock, which he measured, not perhaps in the same painstaking way as the foregoing, but in a manner sufficient for general reference and comparison; and there are many others that would equally repay the consideration of qualified visitors in this class of buildings alone. When called on business to this country some five years ago, the gentleman we have just named employed the intervals of special duties in the eager inspection and study of our leading memorials—the professor thus setting a laudable and valuable example to the student. A stride takes him from the winding Liffey to the Boyne—from Dublin to Drogheda—where he finds ample food for admiration in the grandeur of the railway viaduct, the stupendous elevation of its roadway, and the long perspective of its lofty piers. He looks not only at this grand work, but from it, tracing on the one hand the richly wooded banks of the river as it approaches the sea, and on the other allowing the eye to wander over a rich expanse of inland scenery. In a town of such antiquity there are many items of mediæval origin, of which the bold majestic mass of St. Laurence's Gate, and the ecclesiastical ruin of Saunders' Gate, with its noble arch and certain peculiarities, formed the chief objects of attention. Of the latter he says, a great knowledge of constructive skill is evinced in the present position of this tower, which stands firm on the dilapidated piers, without any buttresses at the angles or from the masses beneath to contribute to its stability. It is a striking fragment of bye-gone times, and speaks of a noble church that once covered the area, perhaps with monastic buildings attached, and the residence of a religious fraternity. There are, he adds, several other remains in Drogheda mixed up with commercial warehouses which would doubtless yield much fruit to careful investigation.

We again notice our traveller at Belfast—the Liverpool of Ireland—the cheerful, busy appearance of which, and its wide, clean, and well-paved streets, could not fail to attract attention. He speaks commendingly of the roads in the neighbourhood, but deplores the absence of monuments of art; in fact, in the North of Ireland, where Scotland has sent her sons as settlers, so that the descendants outnumber the original inhabitants, the Presbyterian and utilistic element has produced nothing of a monumental or architectural class. Among men, simple, unpretending, thrifty, and devoted to utilitarian objects, the art element has found no response in this part of Ireland. Even in Londonderry itself, says our visitor, I did not find a single object worthy my pencil; and it was not till we got to Enniskillen that Irish antiquity and mediæval art began to indicate themselves. The object of this northern excursion, however, being the contemplation of the basaltic wonders of the Giants' Causeway, which more than compensate for any monuments of man's hand, we take leave of him in the admiration of those majestic columnar groupings and rocky precipices, which, he says, "made us feel that we stood in the centre of one of the most glorious temples of the Almighty's own creation."

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* The Editor of our London contemporary, *The Builder*.

We must close this paper with a renewed invocation to our native students, begging them to go forth and reap the rich harvest which lies ready for the sickle; but, although much good may thus be done, we feel that a society, having for its objects the conservation and representation of Irish antiquities, would be the most effectual agency for its accomplishment. And we are sure that it would deserve a grateful recognition, not merely in this country, but throughout the British empire, and among the enlightened circles of Europe.

TOPOGRAPHICAL ILLUSTRATIONS OF THE SOUTHERN AND WESTERN SUBURBS OF KILKENNY.[*]

BY MR. JOHN HOGAN.

THE western side of the city of Kilkenny is situate along the eastern slope of a ridge which projects from the south, and is bounded on the east and north by the stream of the Bregach, and on the east by the river Nore. This district, denuded of its thoroughfares and its domiciles, of its piles of masonry, its mansions and its court-yards, would present to an observer on the opposite bank of the river the aspect of an elevated promontory sloping towards the north, and from unequal altitudes, declining to the banks of the streams which wash the irregular curves of its base. At its western extremity, this ridge attains its greatest elevation, and under the name of "Robert's Hill," abruptly descends to the bank of the Bregach. The environs of the ancient parish church of St. Patrick (including the entire district outside the south wall of the town) and the locality known by the *soubriquet* of "Shradh na buddagh," from the southern suburbs of Kilkenny. These localities preserve to our own times many of their original peculiarities. Their traditionary lore and primitive observances shed around them a degree of romantic interest which the stérn utilitarianism of modern times would despise or ignore. Social changes, resulting from various causes, have all but obliterated the primæval features worn by those quaint neighbourhoods. Each locality is rapidly changing its character; every year tends to efface some one of its surviving vestiges. To gather up a few of the time-honoured traditions, and to preserve from total oblivion the still recoverable traces of the early topography of Kilkenny, are the end and aim of this humble essay.

The town walls were erected by Robert Talbot, "a worthie gentleman," about the year 1400, portions of them are still standing, and the entire was nearly perfect a hundred years ago, at the period of Rocque's survey. This fortification consisted of three faces, which formed the northern, southern, and western boundaries of the "Hightown," and, with the river as eastern line, enclosed an oblong area, about 2600 feet from north to south, by 1000 from east to west. The south wall extended from near the south tower of the castle to the tower still standing in the National Model School grounds. The west wall formed nearly a right angle with the former, and ran in a northern line from this tower to near the bank of the Bregach River, where it turned to the east, formed a re-entrant angle, and, having reached the Bregach, thence followed the course of the stream till it terminated in "Evans' Turret," at the junction of the Bregach with the Nore. The north wall was furnished with two gates, viz., the "Gray Frerren Gate," and the "Hightown Gate." The south wall had two gates, "Castle Gate," and "St. Patrick's Gate," and the western wall was provided with three gates, namely, "Walkin's Gate," "St. James's Gate," and the "Black Frerren Gate." We will now ramble along the site of this old rampart: we shall stop at each of the principal parts, and enqnire whence led the ancient road which must have existed at the time of the erection of the gate; and as one of the most interesting localities in the suburbs, "Walkin's Gate," is now being denuded of the last traces of its primeval simplicity, so that probably in a very few years the name of even the locality will be erased from our suburban geography, and superseded by a more modern title, namely, "The Fair Green," we will, in consequence, commence our inquiry with—

Walkin's Gate.—This gate stood over the street of the same name, about the site of the present Poor Relief Office. Part of the foundation may still be seen at the opposite side of the street, at the entrance to a starch-yard. In 1628, David Rothe occupied the rooms over this gate, for which he paid the Corporation the annual rent of 8d. The gate was still standing in the year 1757, and was probably taken down to afford a more commodious approach of the Cork road into the city, about the year 1788, as the lease of the houses built on its south side, and running thence into the Sconce, bears this date, and is signed "William Davis, of Kilkenny, Gentleman."

Sixty years ago, the site of the gate at the south side was occupied by a small cottage, in which John Ayrés, one of the old Protestant *Freemen* of the town, resided. This house was subsequently taken down by the late Sir John Blunden, Bart., and the large dwelling erected now used as the Relief Office. Down to the year 1775 no house bad been built on the north side of the street, from this gate to the corner of Flood-street. A dead wall separated the road or street from the Nursery Garden, the principal entrance into which was then close by Walkin's Gate opposite the Poor Relief Office. The open space further west, since known as "Walkin's Lough," was then called "Walkin's Green." The range of cabins now partially concealed behind the grave-yard was then recognised as the "Closh," and here terminated our western suburbs one hundred years ago.

St Rioch's Churchyard.—St. Rioch's, or as it is vulgarly called, St. Rock's Churchyard, is situated at the southmost angle of Walkin's Green. A range of cabins formerly separated it from the road, and were only removed within the last forty years. In front of each of these houses a cesspool was sunk for the manufacture of manure, and I have been informed by those who saw them, that from the ends and sides of these pools, human skeletons projected out, proving that at one period the churchyard extended under the line of the present road, and, as we shall now see, it also extended down under the lough towards the centre of the Green. The tradition respecting the origin of St. Rioch's, preserved in the folk-lore of the last generation in this neighbourhood, is not without interest in our present enquiry. According to it, the bed of the lough was originally an isolated valley surrounded by woods; a spring well rippled from one of its slopes, and meandered as a rivulet at its bottom. Within the shelter of this secluded vale St. Rioch built his cell, wherein he lived for a time in solitude and prayer; he was subsequently joined by a numerous body of disciples whom the fame of his sanctity attracted to his retirement; here he died and was buried, and over his grave his followers erected a church, and dedicated it to his memory. Subsequent events converted the locality into a ruin; the channel through which the water escaped became choked up, and henceforth the beautiful valley of St. Rioch served only as a basin or pond to contain the waters from the surrounding elevations.

Whatever importance or value may be attached to this tale, it is quite certain that a "holy well" formerly existed here, and it was so generally believed by the old inhabitants sixty years ago. In the summer season, when the waters had evaporated, the custom bad long prevailed amongst the people of the locality to evacuate the deposits of the lough, and remove them for manure. About the year 1812, one Timothy Kelly, by trade a breeches-maker, but at the time of this narrative a retailer of punch and porter in the house in High-street lately taken down to erect the new grocery establishment of Mr. John Coyne, determined to carry on this operation on a monster scale. On a July morning he employed forty labourers to extract the mud from the bed of the basin; they ranged themselves in a line north from the grave-yard, and speedily opened a ravine in the accumulated *debris* carried down by the streams for probably some hundreds of years. In the course of this operation, a man named Michael Murphy, a native of this district, came on a range of stones rudely placed so as to form so many steps, about midway between the grave-yard and the centre of the green, or somewhere very close to the present Gaol-road, when he exclaimed in a tone of triumph—"*I have the well.*" He continued to remove the slimy material, and found the stones to lead to an enclosure of irregularly shaped stones, apparently placed by design; further investigations were here intercepted by the lord of the soil, Mr. Mulhallen (father of Edward Mulhallen, Esq., of Seville Lodge), who prohibited the removal of the manure by Kelly, but permitted the excavators to carry it off for their own use. I have this narrative from an eye-witness who is still living, and was standing in the grave-yard as a spectator; he heard Murphy cry out he had found the well, and he was able to recognise the stone steps at the bottom of the pit; they were not so deep as the height of a man under the level road. Much interest, but no surprise, was evinced on the occasion, as then and previously no doubt was entertained that "St. Rock's Well" was covered over by the waters of the lough. The next fall of rain restored the place to its usual appearance, and the whole transaction was soon out of mind. At that period the grave-yard was not enclosed by walls; it was inundated by water in the winter, and a desecrated common in the summer; it was, nevertheless, a place of annual pilgrimage, which continued down to our own times.

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[*] Read before Kilkenny Archæological Society, and published in Transactions.

Dr. Petrie assures us that the primitive ecclesiastical establishments in Ireland were founded by the saints whose names they still respectively retain. Hence the relationship claimed for Rioch with Patrick and Mel, taken in connexion with the interesting topographical coincidence just noticed, reflects a new ray of light on our primitive ecclesiology, and exhibits the National Apostle and his two nephews founding here three missionary stations, which with a fourth subsequently opened by St. Kenny, ultimately grew up into so many parochial establishments, modified in name and locality to suit the altered circumstances of the times, but still retaining in the sites of the primitive churches the names of the respective founders, and the evidence that from the beginning the ecclesiastical districts or parishes of what we now call Kilkenny were numerically the same as at the present day.

It may now be difficult, if not impossible, to determine with certainty the precise period of the partition of St. Rioch's parish, or the suppression of his church, but the probable era may be arrived at from collateral and ascertained circumstances. There can be little doubt that the present ecclesiastical divisions of Kilkenny were constructed subsequent to the establishment of the cathedral here, and consequent on the foundation of St. Mary's Church and parish in the "Hightown." The Bishops of Ossory, after the Conquest, being of English extraction, naturally fostered the growth of the English colony here. Ware, in the "Life of Hugh Rufus," goes so far as to say that that prelate granted a portion of Kilkenny to William Earl Marshal; and Stanihurst records "that 'the High-town' was builded by the English after the Conquest, and had a parcel of the 'Irishtown' thereto united by the Bishop his grant made unto the founders thereof upon their earnest request." From this liberality in temporals, we may form an idea of the Bishop's munificence in spirituals; and whilst the Earl at one end of the settlement was investing his ville with political franchises and civic exemptions, the Bishop, from the opposite extremity, was endowing it with ecclesiastical immunities and parochial dignities; and hence the establishment of St. Mary's Church and parish, from which we may date the first encroachment on the ancient territory of St. Rioch.

Though it is not recorded in the "Charter," there can be little doubt that the Earl retained for his own new church beyond the bridge that portion of the parish of St. John which still lies at the south-west side of the River Nore, which includes the Castle grounds and part of the "Duke's Meadows," and which must have previously formed part of St. Patrick's parish. The annexation of this important tract to St. John's, and of the townland now known as "Archer's-street Lot," to St. Canice's, so encroached on the ancient parish of St. Patrick, that it was necessary to indemnify the representative of the "National Apostle," and accordingly the western and largest portion of St. Rioch is annexed to his parish as an equivalent. If these views be well founded, it will follow that the abolition of St. Rioch's parish was accomplished during the episcopacy of Hugh Rufus, "the first English Bishop of Ossory."

When St. Mary's Church passed out of the hands of the Roman Catholics, they soon after erected a chapel outside of the town wall. To this modern fane they carried the discipline and traditional observance of the older church, and amongst them I can trace a special honour for St. Rioch. This was manifested by a full-sized oil painting of this saint, which was preserved in "James's-street Chapel" (as it is named in Rocque's map) down to the year 1804; those who remember it, and are still living, thus describe it:—"The saint was represented seated on a rock, in the midst of a forest, clothed in a loose scarlet robe, with a dog fawning at and apparently engaged in licking the sores and bruises on his feet." Of the original history of this picture I can discover nothing. Whether, with other things that have come down to our times, it may have been transferred here from St. Mary's Church, is now impossible to ascertain. From time immemorial it was suspended at the "Epistle side" of the altar, until, in Bishop Lanigan's time, it was superseded by another painting of the same saint of more artistic pretentions. When the altar had been erected which still stands in the old chapel, the Bishop wrote to a gentleman. a friend of his, then in Portugal, to order three pictures to be painted for its decoration. These were the "Crucifixion;" the "Assumption of the Virgin," to whom the church was dedicated; and a full-length portrait of St. Rioch, the patron of the ancient parish: so that down to that period no doubt can be entertained that the privileges claimed for St. Rioch in this paper were then partially recognised. This painting still exists, and represents the saint in the garb of a pilgrim, with a flowing scarlet tunic over the habit of a religieuse, to which is attached the scallop shell, and a girdle round his waist. He stands erect in a forest; his left foot rests on a rock; he holds in his left hand a pilgrim's staff, from a hook near the top of which a travelling wallet is suspended, and to which he appears emphatically to point attention with the fourth finger of his right hand. The great peculiarity of the painting is the Irishism of the countenance, the expression of which is homely and familiar. The three pictures bear each the following inscription:—

"Eques Foschini, Ulissiponensis, Inv. et Pinxit, A.D. 1807."

The Langtons, Comerfords, Maddens, Shees, and many of the other families of Kilkenny, were the principal benefactors of the old chapel; its clergy were also natives af Kilkenny, and, in consequence, the ecclesiastical traditions of the town were more directly transmitted and more faithfully preserved then than since. If during this period the clients of Rioch assembled annually to hold his festival day on the site of his old church; if during the same period a special spot was set apart for his picture in the chapel of the "Hightown;" and if under improved circumstances, and by special design, a painting more worthy of the respect entertained for him be ordered from the Continent to fill the niche reserved for it in the new chapel, it is not evident that this veneration is but the vestige of a more ancient and extensive practice, and we may not safely infer that the Bishop who abolished his parish, and suppressed his church (to use the sarcasm of Ledwich), "to appease the tutelar saint, and to atone for the sacrilege, founded an altar or chapel" in Saint Mary's Church, "and dedicated it to him," where his memory was perpetuated and honoured, whence both were subsequently transferred to St. Mary's Chapel, where, unfortunately, they now no longer exist?*

IRISH TRAMWAYS.

THE Marquis of Clanricarde moved in the house of Lords on 19th ult., the second reading of this bill, which he said had received the support of men of all parties in Ireland. Last year a measure on the same subject passed the Lower House without opposition, and stood for a second reading in their lordships' house on the 14th of April. Parliament, however, having been prorogued a few days afterwards, the bill necessarily dropped. It had been objected to the bill that these tramways would be so good and so cheap that they would compete with the established railway; but there was a clause in the bill which amply provided against any such consequence. He was informed upon good authority that in America 34,000,000 persons had been carried with only twelve cases of bodily injury, and he defied comparison in safety between tramways and any other kind of conveyance.

The Earl of Lucan entertained the strongest possible objection to the bill, and denounced it as a cheat, a railway bill in disguise. The "horse" tramway might be turned into the "locomotive."

After a brief passage at arms between the "noble Marquis" and "the noble Earl," Lord Lifford said there was no fear that inferior lines of tramway would run across the country, because as much care was taken to select good lines as in the case of railways. The lines must be approved by the Irish Boards of Works, and afterwards by the Lord Lieutenant, and then ultimately they must come before Parliament for approval, the only difference being that the Lord Lieutenant would take charge of each bill, and that the promoters would be saved the expense of a private bill. He trusted that their lordships would read the bill a second time.

The Earl of Mayo came down with the intention of opposing this bill, believing that there was an ultimate design of turning these tramways into railways. After hearing the speeches of the noble lords who advocated the bill, he had, however, altered his opinion, and should support the second reading.

The Marquis of Clanricarde implored the house not to throw out the bill, it being a measure of a most benificial and practical character.

The motion for the second reading was then agreed to.

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* Since this paper was written, the picture of St. Rioch has been purchased by the Rev. M. Birch, P.P., for the parish chapel of Muckalee, so that his memory has perished where it was designed to be preserved.

RAILWAY COMPANIES COURTESIES TO EDITORS.

We desire to make special mention of a circumstance connected with our Editorial mission, which it would be ungracious to withhold, as the least return that the recipient of a favour can make therefor is to *acknowledge* it. Our allusion refers to the courteous readiness with which the Great Southern and Western, and Midland Great Western Railway Companies of Ireland, respectively, have placed their lines at our service when the interests of our journal rendered "a trip" desirable. To the former company, therefore, our readers are indebted for the particulars of the progress of "Cork," personally collected—and the accompanying illustration as given in our July No.—and to the latter for references which appear in current No. to those towns in the province of Connaught. The favour thus accorded is by no means slightly gratifying to us; it makes us feel that our mission, which is exclusively of a scientific, artistic, and industrial character, is appreciated, and it somewhat flatters our vanity at having been so fortunate as to pursue it satisfactorily so far. Independent of the compliment to ourselves personally, the public—at least that section of it to whom the Dublin Builder finds its way, and which we are happy to state is with each succeediug month extending considerably, both within and without the pale of the profession—are, to a certain extent, Dr. to the donors; and with that view, therefore, we adopt this mode of public acknowledgment.

THE VACANT SURVEYORSHIP.

We learn that the offices of County Surveyor, rendered vacant at Londonderry by the death of Mr. S. Gordon, and for the South Riding of Tipperary by the dismissal of Mr. Deane, are about being filled by the appointment of Mr. Worrall, C.E., to the former, and the nomination of Mr. Bower, C.E., to the latter. As both gentlemen are favourably known to the profession and the public, we have no doubt but that the selection will give general satisfaction. In the latter case it is probable that the appointment may not be officially made until the pending appeal of Mr. Deane for wrongful dismissal shall have been heard, and the opinion of the public should therefore be suspended.

SANDFORD CHURCH.

The works now in progress at this church consist of an addition to the western end in the Italio-gothic style, and the removal of the plaster ceiling internally, the present roof timbers being exposed to view, the under side of the rafters sheeted with deal, the roof trusses wrought and rendered ornamental by certain additions, and the whole stained and varnished. The addition is calculated to give some architectural pretension to the present very unprepossessing structure, and affords internally three porches with entrances, stairs to gallery, and an organ loft. In the front elevation is the principal entrance, a deeply recessed semicircular arch, springing from four columns with sculptured capitals, and divided within into a double doorway over which is a tympanum filled with decorative perforations. Above, the face of the building is divided into three bays by pilasters, terminating in an inclined corbel course under the cornice,the central bay is filled with a handsome rose window. The gable follows the slope of the present flat roof, and is surmounted by a deep cornice. There is a bell turret with an open belfry stage and pyramidal stone roof on the southern side. Certain portions of the work are intended to be commemorative of the late Archdeacon Irwin, and to bear suitable inscriptions. Messrs. Lanyon, Lynn & Lanyon, of 64, Upper Sackville-street, are the architects; Mr. Butler, contractor. The first stone of the addition was laid on the 25th ult., by the Archdeacon of Kildare.

Under the same architects, there is in course of erection near Naas, in the county Kildare, an extensive mansion for Richard Moore, Esq. Style, a modern adaptation of Elizabethan. Messrs. Cockburn & Sons are the contractors. Mr. Drew is acting as clerk of works.

CASTLEBAR.

A retrograde movement is painfully palpable in this, the Metropolis of Mayo, and the word progress seems to be absent from the vocabulary of every class, commercial and otherwise, throughout. This fact is greatly attributable to the depopulation of the rural district by famine, consequent fever and emigration. The town numbers some 4,000 inhabitants, not one-third of whom would seem to be even in moderately comfortable circumstances; filth and misery are everywhere prevalent, and the neglect of the authorities in sanitary respects is superlatively reprehensible. Yet withal the elementary faculties tending to comfort and prosperity, are, to our mind, present, however blind the inhabitants may be to the fact. Westport bay is within 7 miles, Ballina and Swinford respectively distant some 16 and 10 Irish miles; assizes are held twice a-year, at which large numbers congregate; and with a noble country in the immediate vicinity of the town itself, the centre of an important agricultural district, and other advantages of which more prosperous towns cannot boast, the backward condition of Castlebar is unpardonable, and suggests the supposition that the fault must lie in the indolence of its inhabitants. At the termination of the main street—which is much narrower than in other towns, and with shops and dwellings of paltry character at either side—is a large green with spreading trees comprising about one acre, and affording a spacious promenade for the inhabitants. At one side of this square is the Court House, originally designed by the late Mr. Papworth, and having a hexastyle Grecian Doric portico of iron, and plain wings one story high with compo'd front; but recently considerable additions and alterations have been made thereto, the wings elevated to two storeys, and finished with pediments of chiselled limestone, under the directions of Mr. Wilkinson, architect; Mr. Cooley, a local builder, being the contractor. The internal arrangements comprise a central hall with a long flight of stairs leading to upper storey. the Record Court being at one side, and the Crown Court at the other, with judges', barristers' apartments, &c. Referring to the new works, Judge Christian at last assizes remarked "that however the Court House was improved in other respects, it certainly was not in point of hearing." The other public buildings are the County Infirmary, an antiquated structure in the Green, a magnificent barracks for 1,000 men, but untenanted, and the grass growing in the square—a significant sign of the peace of the country—the Protestant Church with square embattled tower, erected by the Board of First Fruits, and with a monument externally to the late Major-General O'Malley; the workhouse, a very extensive block of buildings; the new county Gaol, in the castellated style, designed by Mr. Darley, and erected in 1834 at a cost of £23,000; a large poorhouse, and a repetition of the old barn model for a Roman Catholic Chapel. The Earl of Lucan has a farm close to the town, with an extensive farmstead, and sawing machinery; but the dwelling-house has closed windows—the type of absenteeism—and the general aspect of "the Lawn" is by no means of *a model* character. In Castlebar the builder's occupation is completely gone, for the present, but we anticipate some reaction when the new Lunatic Asylum, for which we learn the grand jury have directed Mr. Wilkinson to prepare plans, is about being erected. This town is associated in historic memory with the expedition of the French to Ireland in 1789, and a sharp battle which resulted in the rout of the latter, took place on an elevated site in the immediate suburbs.

BRITISH LABOUR.

The *Architects' and Mechanics' Journal*, of the 7th ult., says, that "In England, Scotland, and Ireland labour is in a very unsettled state, and much suffering is anticipated amoug the working classes. In London a strike for the nine hours movement is contemplated among the building operatives. In Cork the masons are on a strike, and much suffering is the consequence." In some respects we will not question the accuracy of the above; but, as regards the unsettled state of labour in *this* part of the British Isles, we must remind our contemporary that, far from that being the truth, the supply is by no means commensurate with the demand for skilled able-bodied labourers; also, that the strike of the masons in Cork was but of very temporary duration, and the best feeling has been secured between master and workman.

STATUE OF SIR CHARLES BARRY.

Lord Palmerston was waited upon the other day by a deputation of the Institute of Architects for the purpose of submitting a proposal in reference to such a mark of honor to the deceased architect of the Palace of Parliament. His lordship is understood to have expressed his personal acquiescence in the erection, by the Government, of a statue of Sir Charles in the raised extension of Westminster Hall, between St. Stephen's lobby and the immediate access to the "Houses." A better site could hardly have been chosen.

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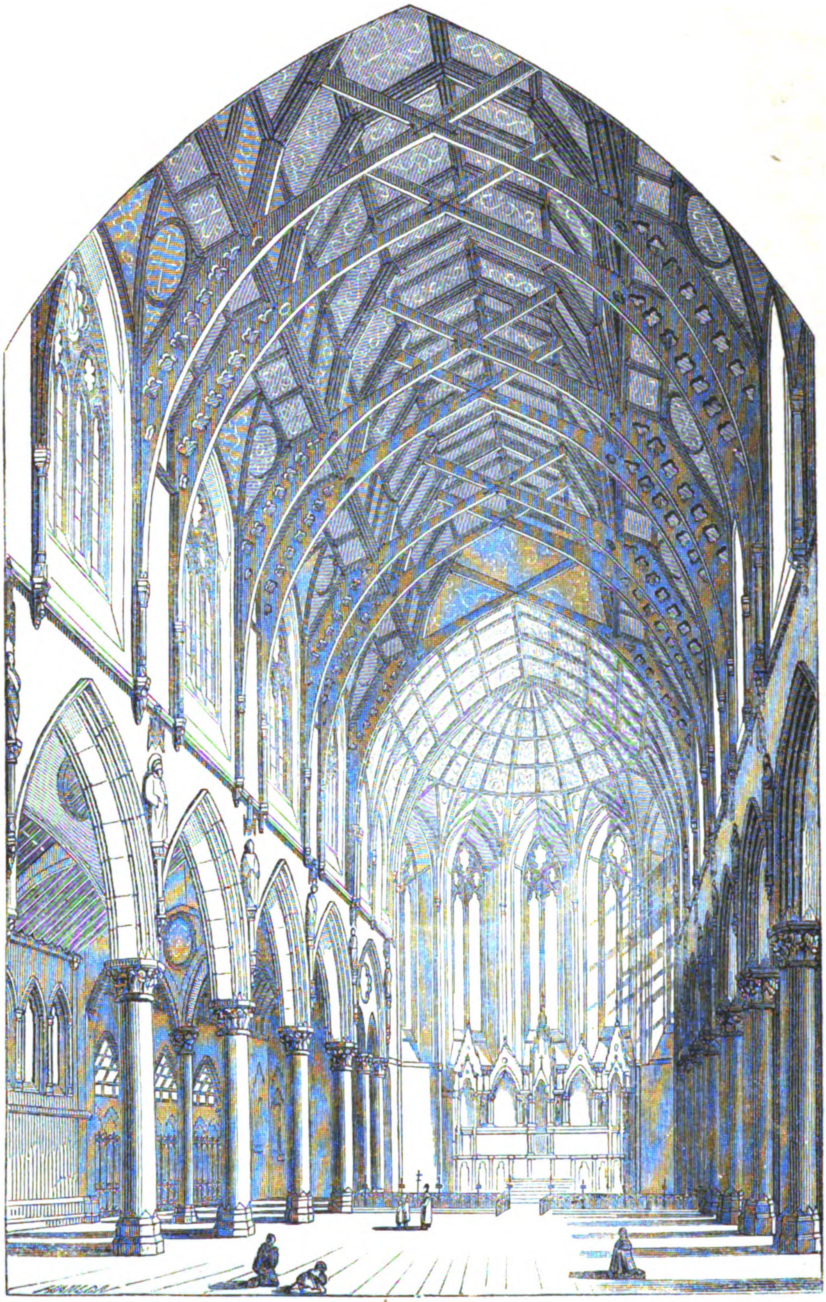

INTERIOR OF NEW CHURCH OF SS. PETER AND PAUL, CORK—Messrs. Pugin and Ashlin, Architects.

NEW CHURCH OF SS. PETER AND PAUL, CORK.

A brief notice of this building with particulars collected during a recent personal visit, was given in the July No. of this journal, and we now present our readers with a view of the interior looking towards the chancel, and engraved by Mr. Hanlon from a photograph furnished to us by the architects, Messrs. Pugin & Ashlin. As already stated, the site for the church is by no means favourable to the display of its beautiful features, and must not a little interfere with the pardonable vanity of the architects, who, as a matter of course, would have preferred to have had its parts displayed to the best advantage, and not with its "light hid under a bushel," as unhappily is the result of the site chosen, let who may be to blame. Even to obviate this difficulty in a degree hereafter, an expenditure will be necessitated, which, if our information as to financial matters be correct, will prove quite impracticable; it is, therefore, a subject for regret by all concerned with the undertaking and by the citizens, that this truly handsome architectural work on which an important sum is being expended, should be so completely obscured that a stranger shall have to seek for it, and experience a difficulty in discovering what should be a prominent and conspicuous feature amongst the monuments of the city. The length of the church—which is cruciform on plan, and comprises nave, aisles, transepts, chancel, &c.,—is in the clear 145 feet by 80 feet, the nave being 35 feet in width, and the height to apex of roof 87 feet 9 inches. The construction of the roof presents some noteworthy features, and the proportions of the arcades separating nave from aisles are graceful and lofty. Five two-light windows with plate tracery heads, light the chancel, which is semi-dodecagon in form, and measures 35 feet by 17 feet 6 inches in clear. A handsome tower 27 feet 3 inches square at the base tapering to 25 feet 3 inches, and surmounted by a beautiful spire attaining an altitude of 232 ft., is to be placed at the western end. The materials employed throughout are Glanmire red stone for walling, limestone for the dressings of doors and windows, quoins, &c., and Portland for the tracery. The shafts of the arcade piers are of marble, with polished limestone bases and caps; those in the chancel are of Connemara green, and the ornamental portions of Caen stone. The cost, exclusive of tower and spire, will be about £11,000; the builder is Mr. Barry M'Mullen, and the clerk of works, Mr. Langford.

THE *DUBLIN BUILDER* AND THE WORKS AT ST. PATRICK'S CATHEDRAL.

We are taken to task by the *Evening Mail*, which somewhat erroneously entitles this journal the *Irish* Builder, for a correspondent's letter that appeared in July No. with reference to the works now in progress at St. Patrick's Cathedral, and a polite intimation of surprise is conveyed "that any Irish journal would allow itself to be the medium of so paltry and transparent a manifestation of ill-feeling." Assuredly our contemporary misconceives greatly the principles on which our journal is being conducted, if for a moment it supposes that we would willingly allow its pages to be perverted into a conveyance of either private pique or professional jealousy; and, moreover, it could not have arrived at such a sweeping conclusion if the critic for our contemperary had read our *Editorial* remarks on the same subject at page 274, June No. We are not disposed to take up the cudgels for our *incognito* correspondent in substantiating his statements as to the precise nature of the works in progress, or in justifying his suggestions; but we confess that we are unable to trace throughout his remarks that "manifestation of ill-feeling" discovered by the *Evening Mail.* To prevent misunderstanding, however, as to *our* position in this matter, we may mention, that on being apprized of Mr. Guinness' handsome gift, we desired to place the earliest and most authentic intelligence before our readers and the public, and for that purpose we wrote in an editorial capacity both to the Dean of St. Patrick's and to Mr. Guinness himself, requesting to be favoured with particulars, for publication, as to the nature of the proposed works, but *neither of those communications were answered.* Our subsequent reference *to the fact* of Mr. Guinness not having called in professional supervision for such an important work, is one which *on principle* we felt ourselves in duty called on to make, and to which we still faithfully adhere; but our contemporary will please to bear in mind that it was conveyed without reflecting on the laudable intentions of the donor, or any party concerned, and *without* "any display of professional spleen or disappointment." We would also remind the *Evening Mail* that the Dublin Builder, as a professional and class organ, is not singular in its strictures, as *The (London) Builder* of similar mission—which probably may get more credit for disinterestedness than *we* do—of the 21st ult., has the following correspondence and editorial remarks on the same matter:—

"*The Cathedral of St. Patrick, Dublin.*—Sir,—It has been frequently stated, and as often denied, that the extensive works here are being proceeded with without efficient professional superintendence, if any. Can any one throw any light on the subject? Or, if the Dean and Chapter and Mr. Guinness have been unjustly accused, can any one name the gentleman or gentlemen to whom has been entrusted the delicate task of renovating and restoring the most perfect remnant of mediæval glory in this country.—Delta."

"We have every reason to believe that there is not any architect superintending the works at St. Patrick's Cathedral, although the donation of Mr. Benjamin Lee Guinness for its restoration is £20,000; and it is understood that if that amount be insufficient, more funds will be forthcoming from the same quarter. The builder (Mr. Timothy Murphy) appears to be proceeding partly on plans made some time ago. The sooner a proper architect be appointed the better, or Mr. Guinness, instead of doing the good he desires, and gaining the credit his liberality deserves, may find himself justly reprobated or ridiculed for his share in an injurious vandalism."

Memorials to the late distinguished architects, A. Welby Pugin and Sir Charles Barry, R. A., are proposed; the former consisting of a statue, to be placed in the Palace of Westminster, and the latter a travelling fund for the education of young architects.

A new free public library is now building in Worcester, Mass. It will front 60 feet on Elm-street, and is 75 feet deep. Its exterior will be of the best pressed brick, with freestone trimmings. It is two stories high, with the exception of the south-east corner, which is one story of 21 feet in height, that it may be lighted from the roof. The front is plain, with a French roof and portico at the entrance.

THE AGRICULTURAL SHOW AT CORK.

The preparations which for a lengthened period have been making in this city to ensure a creditable display at the exhibition of agricultural produce and implements, of cattle, poultry, &c., have proved most signally successful; and the result may be pronounced as one of immense National, as well as local importance. The Corn Exchange building was dressed in its gayest attire, and a quantity of new work executed in adapting and adding to the interior for the reception both of the biped and quadruped visitors. An additional impetus was given to the well-known energetic faculties of the Southern Metropolitans in providing a fitting reception for the Lord Lieutenant, who, with his usual anxiety for industrial advancement, considerately lent the prestige of his presence—no small trifling element of success—to the occasion. Irrespective of the temporary new Cattle sheds, which we may remark *en passant*, were of appropriate construction, and tastefully decorated with many-coloured striped calicoes, a spacious and permanent supper room, 90 feet in length by 30 feet in width, was also added. We likewise noticed what the readers of the Dublin Builder must admit we have both by precept and illustration sought ardently to introduce more extensively into this country, viz., an abundant supply through drinking fountains of the *aqua pura.* Two large troughs for animals were erected in the promenades, at either sides of which were ranged the cattle, &c., stalls; and two in the implement yards, besides which we should not omit to mention a jet supplied with a liquid more fragrant than useful, viz., *Eau de Cologne*, before his Excellency's table. We must reluctantly, but in deference to *our* province, pass over in this notice many matters interesting to the general reader, and confine ourselves to such departments only as have a relation thereto. The prize cups and piece of plate are very beautiful specimens of art, two of the former being respectively entitled the "Peter Purcell," and "The Waterford," value 100 sovereigns each, and two others "The Croker," and "The Irish Farmers' Gazette," value 50 sovereigns each. The names of the general exhibitors in the implement and other apparatus department are familiar to our readers, and amongst them we notice Messrs. Garrett & Sons, of Suffolk, Smith & Ashby, of Stamford, Richmond & Chandler, Manchester, Ransomes & Sims, Ipswich, Barrett, Exall & Andrewes, Reading; Musgrave, brothers, Belfast; Perrott, Cork; Murphy, Cork; Shekleton, Dundalk; Kennan & Son, Toole & Co., William Daniel, Dublin, and numerous others.

DIOCESAN SEMINARY OF THE HOLY CROSS, CLONLIFFE.

This intended building, the erection of which will be immediately commenced, will be 260 feet in length, and five storeys in height; the basement storey will be half sunk and 14 feet in height; it will contain refectory, 71 feet by 28 feet, stores, kitchen offices, servants' rooms, corridor, bath rooms, &c.; the principal storey will be approached by a very wide flight of stone steps, and through a rustic stone portico, supported by rectangular pillars, and will contain entrance hall 23 feet by 15, reception rooms 23 feet by 15, study hall 41 feet by 30, library 23 feet by 30, chapel 23 feet by 40, corridor 12 feet wide, and a suite of four classrooms, varying in size from 28 feet by 30, to 10 feet by 23 feet. The upper storeys will have central corridors, with suites of sleeping apartments—70 in number—on each side, together with eight professors' rooms, and four sitting rooms each 17 feet by 30 feet. The exterior will be of a plain and massive character, cornices and string courses of granite will mark the separation of the storeys, a large central projection and deep projections on the wings will divide the façade into three portions, on the central portion only the windows will have heavy stone dressings, and with the exception of granite quoins, the entire surface will be plain. Mr. John Bourke is the architect.

Proposed Exhibition of 1861 at Dublin.—A meeting of artists, manufacturers, and others interested in the proposed Exhibition of 1861, met at the Royal Dublin Society House, on the 26th ultimo, and the preliminaries for an exhibition in 1861 were arranged.

THE CATHEDRAL OF ST. MEL, LONGFORD.

DURING a recent visit to this town, we had an opportunity of inspecting the Cathedral, now partially completed; and it is, without doubt, a noble pile of building; perhaps, indeed, the most so of any Ecclesiastical structure in progress in this country. When fully completed we have no doubt but that it will reflect high credit on the architect's (Mr. John Bourke) skill. We subjoin a few descriptive particulars.

The Cathedral of St. Mel's was originally designed by Mr. Keane, architect, but at the accession of the present bishop the works were entrusted to Mr. John Bourke, architect, who modified and altered considerably the design for the interior, and added two additional columns to complete the cella and support an organ gallery. The building is cruciform on plan (containing three great vestibules, over the central one of which will be erected the campanile) nave with apsidal termination, aisles, transepts, sacristies, libraries, confraternity rooms, &c., the extreme length including portico being 240 feet, and the breadth in clear of nave and aisles 87 feet, and across transepts 130 feet. The nave is separated from aisles, and the aisles from transepts by Ionic columns of native limestone, with arches springing directly from the capitals, and at the intersections of the arch mouldings are half length figures of demi-colossal size in various attitudes of devotion. Above all, a heavy entablature is continued, and the ceiling of nave is semi-cylindrical divided into double recessed coffers by *arcs doubleaux*, the lower portion being pierced by Dioclesian windows lighting the nave. The aisles and transepts are ceiled with deeply-recessed coffers, and have heavy dentil cornices. The erection of the campanile is about being commenced after an altered design by Mr. Bourke, and will be in three compartments, the first octagonal, deeply-recessed on four faces, and containing niches for figures of the four Evangelists, together with a pedestal for the statue of St. Mel; the second to be a couple columned temple, containing a belfry and having pediments, inverted trusses, &c.; the upper, or third, will be a drum, crowned by a dome and pierced with circular and rectangular opens, the whole surrounded by an open lantern and gilt bronze cross at a height of 166 feet from the ground. The erection of the great portico, 96 feet in length, has been delayed owing to the difficulty of transporting blocks of native limestone of sufficient size, which probably may cause the adoption of Portland stone instead, which can be brought into town by direct water carriage.

INTERNATIONAL STATISTICAL CONGRESS.

"IT is no common period," says Mr. Morris in "A House for the Suburbs," "when the highest in rank pride themselves more on their absolute usefulness than on barren titles." An observation which has been illustrated in a remarkable manner by the Congress on International Statistics assembled in London, and attended by many whose names stand high in the social and scientific ranks of Europe. The Prince Consort delivered an inaugural address, on the 16th ult., in which he with great modesty welcomed the delegates to this country, and in referring to the origin and object of the assemblage, alluded to it as one of the results of the Exhibition of 1851, as well as to the recent place assumed by statistical knowledge among the sciences; and to its importance, not only to governments as an enlightened basis of taxation, but to general commercial and individual enterprise, enabling the economist to deduce from the facts of the past the probabilities of the future. The necessity for extreme accuracy, and the most exact definition of terms employed in statistical reports was also pointed out in the "able, well-reasoned, and most useful address of His Royal Highness."

After some remarks from Lord Brougham, and an address by the Brazilian Minister, delivered in French and replied to by the Prince in that language, the Congress was declared to be open for the transaction of business, and we have no doubt that to its deliberations very important social results to this, and other countries, will be attributable.

An important auction of timber will be held on 7th inst. by Messrs. John Martin & Son, in the Custom House Dock. (For particulars see advertisement.)

The new organ built by Messrs. White, of this city, for the church of St. Paul, Arran-quay, is to be opened on this day. It is a magnificent instrument both as regards power, tone, and finish.

The adoption of the Towns Improvement Act in Tullamore has been carried by a majority of 20; the voting being, for the bill 57, against it 37.

The import of Canadian timber this season to the United Kingdom will considerably exceed that of former years. The price of labour at Quebec has reached an exorbitant pitch.

BALLINA.

THIS town possesses all the elements which, if properly applied, would constitute it one of the most important in Ireland, and it is peculiarly favoured by its proximity to the Atlantic on the one hand, and in being surrounded by a beautiful country of rare agricultural excellence on the other. The population is about 5,500 inhabitants, and has been numerically increasing steadily since the famine of 1847. Every Monday there is a market held, and a large amount of business transacted, chiefly comprising exports of corn, eggs, and butter; four fairs are likewise held during the year. The town has macadamized streets, and paved pathways; and ground in the principal streets, viz., Knox-street, a spacious thoroughfare, is subject to one guinea per foot, and in some instances a higher rent. In 1846 a considerable improvement was effected in this street by the removal of a block of barrack buildings immediately opposite the Royal Hotel, and by the substitution of a new range after plans by Sir John Benson, architect, ensuring an increased and uniform width, but during recent years there has been very little building work of a commercial character executed. The Poorhouse is the most extensive building in this town—as unhappily it is in nearly every town in Ireland—and, excepting the Roman Catholic Church to which a beautiful tower and spire about 185 feet high was built a few years since by Mr. Canning, a local builder, after designs by Mr. J. J. M'Carthy, architect, may be regarded as the only public building with any architectural pretensions. In 1798 the French landed at Kilcummin, near Killala, and marching to Ballina they took possession of it without resistance. The river Moy which runs through this town is navigable at high tides within a mile and a half of the main street, for ships of 200 tons burden, and an eminent engineer, Mr. Ball, estimated that an outlay of £80,000 would render it capable of accommodating vessels of much larger burden by means of a canal on the Mayo side having a lock constructed about a quarter of a mile distant, and a floating basin from thence to Ballina bridge. There is excellent salmon and trout fishing in this river and its tributaries, and the water power for mills and factories is unlimited, though unfortunately, like many other resources at the command of our countrymen, not taken advantage of. The rural districts are thinly populated and chiefly devoted to grazing purposes, the character of the land being pasture of the best quality. Moreover there are building materials in abundance, an excellent limestone, brick clay—though the process of manufacture is by no means good—lime, sand, gravel, &c. Timber is imported chiefly from Quebec and St. John's in sufficient quantity, but the cargoes of the vessels have to be lightened, and the logs floated up the river. There would seem to be an advantageous open for an enterprising capitalist in building materials to start a depot in this town, and establish sawing machinery now so extensively in vogue in other districts. Gas works have been comparatively recently introduced here, and erected by Messrs. Donald, Wilson & Co., of Paisley, on their own speculation, with a guarantee from the Town Commissioners of £200 per annum for the public lights, the quality of the gas being equal, at least, to that of the Metropolis, but supplied to the inhabitants at the high figure of 8s. per 1000 cubic feet, irrespective of metre rent. We hear that two new banks are to be built immediately, one by the National Banking Company and another by the Provincial, both having at present branches in the town, but unsuited in their capacity for its growing requirements. We trust that we may be enabled soon to chronicle additional exertions on the part of the Town Commissioners who, to do them justice, seem to make the best use at present of limited means in sewerage and cleansing operations.

At Crossmolina a new Roman Catholic Church is in progress of construction after plans by Mr. Canning, of Ballina, Mr. John M'Gurrin, builder. The dimensions are 115 feet by 90 feet, with transepts and chancel; style, Gothic. Differences having arisen between the architect and builder relative to constructional questions, they have been submitted to the arbitration of Mr. J. J. Lyons, of Dublin, architect, whose decision is final.

GOVERNMENT GRANTS TO SCIENTIFIC AND ARTISTIC INSTITUTIONS.—Amongst the items of grants voted for Irish establishments of this character we find included for the Geological Survey of Great Britain and Ireland £10,318; for the Royal Dublin Society, including the Botanic and Zoological Gardens, £6,000; the Museum of Irish Industry, including provincial lectures, £4,996; and the Royal Hibernian Academy, £300.

KILLYNON MANSION HOUSE.—This magnificent dwelling-house, which, with a spacious suite of offices, was erected after designs by the late Mr. Joseph Nash, architect, and 600 acres of a demesne delightfully and advantageously circumstanced, are for sale by private contract.

THE PIER AND BREAKWATER AT GALWAY.

A deputation consisting of several members of the Harbour Board, waited on the 24th ult., upon the County Grand Jury, to receive from them a renewal of their declaration to guarantee a tax of one penny in the pound for the interest on the money required in the erection of a pier and breakwater, graving docks, &c., at Galway.

The Chairman of the board said that matters connected with this project looked better, and in order to give accommodation to their increased shipping, and to passengers and traffic, they would require a pier and breakwater. It was intended by the Commissioners to procure the consent of the ratepayers at the special sessions also. The ratepayers of the county would be represented at the board by three of the grand jury, who would look after their interests.

Sir T. N. Redington moved the following resolution:—"That the Grand Jury of the County of Galway deeply deplores the rejection by the House of Lords of the provisions in the Galway Harbour Bill (1860), by which the guarantee of this county for securing the necessary funds for the improvement of the port and harbour of Galway were proposed to be legalised, and that we hereby declare our readiness to give the said guarantee of one penny in the pound on the valuation of this county, for securing the sums required for the improvement of the harbeur and port of Galway, by the formation of a pier and breakwater, and graving and other docks; and we trust that in a future session such a proposition may receive the sanction of the Legislature."

Mr. Bodkin seconded the resolution, which was passed unanimously, and the deputation withdrew.

OBITUARY.

We regret to have to announce the death of Stewart Gordon, Esq., C.E., County Surveyor for Londonderry, an appointment which he held for many years with much credit, and enjoying the esteem of a wide circle of friends and others with whom in the course of his professional avocations he came in connection.

REMOVAL OF CITY CHURCHES, LONDON.

By a Report lately made to the Home Secretary, it appears that the Rev. Charles Hume proposes to remove the churches, but to leave the cemeteries, while the inspectors incline to the removal of their contents also to fitting places of sepulture; and it is contemplated that by the removal of the churches least used, a fund would be raised sufficient to provide for the religious instruction of many thousand people with perhaps thirty new schools.

Among the characteristics of the sister capital must be classed its wonderful regenerative faculty. Not only has much of the city of Queen Anne's time been rebuilt, but the very lines of street have been greatly altered; the approaches to the new London Bridge, including the noble thoroughfare of Cannon-street, are notable examples, and Farringdon-street, which opens up the town from north to south, is another great instance of the same kind. Still the thoroughfares are choked, and new arteries of traffic are in process of formation. The fine Post-Office, erected by Sir Robert Smirke, is notoriously too small for the augmented affairs, and it may possibly be found in a few years converted into a warehouse for Manchester goods.

A century and a-half has scarcely passed since Wren left many churches in a state of pristine completion, and the consecrating prayers were breathed over each little cemetery, devoting it to what then appeared an immutable destination. But how changed are men's views, objects, and interests in the same place at the latter half of the nineteenth from those which swayed them in the beginning of the eighteenth century? It is perhaps well that it should be so—the change is of wholesome savour; for albeit churches which might have endured for ages must be demolished, and the venerated bones of London worthies must be disturbed, it is proper for us to see to the living and to admit the necessity of change.

The new portion of the city of 1710, fresh from the hands of the architect, was no doubt an attractive place, and its merchants were satisfied to pass their leisure, to pay their tribute of religious observance, and to take their long, long sleep in the place where their daily pursuits had been followed, their daily bread had been gained. They had indeed little choice—they were simply the creatures of their time, as we are of ours; there was little security beyond the precincts of the town, and comparatively little correspondence with the extramural world. The change of habit but keeps pace with the workings of science, the development of commerce, and the influence they exercise on the mental calibre.

The intervening period has been prolific in mechanical inventions, opening out many channels of labour, and thus drawing into habits of industry thousands that would otherwise have pestered society in every form of vagrancy and destitution. Education has been growing in favor with the people. Schools bearing on the wants and opportunities of every class have been established; the mode of teaching has itself become a science; friendless and deserted children of the poor are trained to habits of usefulness, and the asperities of the criminal code have been softened into measures of reform.

As safety enlarged its boundaries on the one hand, and commerce extended its demands on the other, the principal merchants withdrew to the suburbs; and this example has been so continuously and extensively followed, that the city is at this time devoted almost exclusively to business and depopulated as soon as its daily objects are completed, and the busy swarm found on 'Change at three o'clock are dispersed by six in every direction accessible by railway, boat, or road. Verifying the remark, that "The pursuits of the city and vocations of the town are about to be exercised by a tidal race, whose daily ebb and flow will be as regular and decided as those of Father Thames himself. The doom of intramural sepulture has become the signal for extramural life, and the very altars, from which the holy incense of praise and prayer have ceased to rise, are about to follow in this remarkable exodus."

LIVERPOOL DOCKS.

STANLEY AND WAPPING WAREHOUSES.

A century ago, across the Irish Channel, Liverpool, a small and unimportant town, with few pretensions to be called a seaport, began to interest commercial men, and since the period of the American Declaration of Independence has rapidly arisen to size and affluence. A constant stream of trade continually running through between Manchester and the Western and Midland districts with the United States, Canada, as well as Australian emigration, increases the demand for mercantile marine accommodation, so docks multiply, and she can now number upwards of thirty docks, and two hundred acres of water area. To run through a brief description of the mode in which these are constructed, will but serve to initiate the reader into a knowledge of those in progress, and in prospect of erection. With foundations in rough-hewn granite, fourteen feet below the datum of Old Dock Cill, laid on beech or elm piles, in lengths of from twenty to forty feet, they are carried up battering, in most cases; but in those recently constructed only about twelve or fourteen feet above bottom of footings, and from thence plumb to coping, being faced with dressed granite, arranged so as to key each other, Upon the coping are built warehouses upon Wapping and Stanley Docks, as also upon Albert Dock, that being the first instance, on such an extensive scale, of the kind in this kingdom. The immense strength required in walls having upon them such a mass of material is evidently attained.

The warehouses of Stanley and Wapping Docks are constructed throughout so as to afford the greatest possible accommodation for dry goods, and are therefore fire-proof; this latter being attained by floors laid with rag-stone, upon arches springing from column caps. The whole building is tied from east to west sides by tie rods 1¼ inches in diameter.

To commence with the vaulting, the floor of which is 11 feet below the level of coping of dock wall, the brick piers are built up around cast iron cores, continued to springing of the brick arches which carry the floor. The iron columns supporting the four floors above are all cast on end, with the view of obtaining soundness, and their strength ensured by testing pieces added, which may be detached and placed on proportionate bearings, in the usual manner. The front columns, set back from the wall coping about 2 feet 9 inches (to centre of column), support the front part of the structure, which above them is of brick-work. These are 4 feet in diameter at base, and about 15 feet high. The inner rows of columns are 7 in number, and are one-third the diameter. The thickness of walls at basement are 4 bricks thick, decreasing half a brick on each floor. The total length of warehouses is 630 feet, width 90 feet, and height upwards of 70 feet. Every floor is arched in brick, laid with rag-flagging, iron door-frames and windows are also used, as well as iron doors throughout. Jiggers raise the goods; cranes and hoists are provided, as also hatchways below. The whole is surrounded by a high granite wall, with gothic gate piers at end, and gates on wheel-runners, which renders them easy of motion. Mortar composed of best Halkin limestone is used throughout, with two-thirds of cinders and sand. A brick parapet with panelling surmounts the whole, and a clock with gong, beneath a petticoated canopy is provided The total cost of the Wapping warehouses was £43,000 and upwards. The rapidity with which goods may be discharged and stored may be taken from the fact, that the ship "Leopard," bound from Canton, discharged in Albert Dock (built on the same principle, and with similar accommodation to the Stanley and Wapping Docks,) 6,500 boxes of tea, and 12 packages, from 12. 30 P.M. on a Saturday, to 2. 0 P.M. on Monday (excluding Sunday)—*i.e.*, in 8 hours, upon a calculation made some time ago. These warehouses are all accommodated with hydrants placed in convenient positions, to be used in case of fire.

This brief description will serve to give some idea of those immense storehouses of traffic, which Liverpool within the last few years can boast of. All relating to this extensive port must interest our Irish readers, between whom and it such intercourse exists. We therefore propose to treat of the intended Liverpool and Birkenhead new dock accommodation, in a future Dublin Builder—works that cannot be rivalled for extent and durablity by any of a similar nature in the four quarters of the globe.

HALICARNASSUS.

It is wholesome and agreeable to turn occasionally from the immediate objects of the day to those which actuated some older race—from the track of daily footsteps to scenes of distant interest—from the marvels of modern civilization to the ancient wonders of the world: to waft ourselves in fancy from our land of chequered skies and green pastures to the adust plains of Asia Minor; from the Bay of Dublin to that of Bedroun. The orthography of this word puzzles us exceedingly, and if the Civil Service Commissioners would settle it, we should deem it a civil service indeed, for now it is indiscriminately rendered Bodroum, Boudroum, Budroom, Boodroom, to say nothing of the sliding accentuation sometimes also employed.

In that early period when Carthage, Athens and Rome, stood in contemporary splendour, when the remote shores of our native "Iernis" were frequented chiefly by the Phœnician Spaniards, who have left their stamp on our name and our traditions, Mausolus the handsome son of Hecatomnus reigned in Caria.

On the shore of the beautiful bay where now exist the narrow and dirty streets, with the wretched bazaars of a small Turkish seaport, rose the capital of a polished Ionian nation, the birthplace of Herodotus and of Dyonisius. The castle built in the fifteenth century by the Knights of Rhodes, marks the site of the Royal Palace, while the remains of a large theatre, stone-houses and architectural fragments, exquisite sculptures and antique relics, with which the cultivated gardens and fields are interspersed, bear unmistakeable testimony to the former importance of the place from whence might have been echoed the Homeric strains of Chios, and the beacon light of the Rhodian Apollo may have been discerned from its towers.

We have heard of the revolting ancient practice by which the nearest relative inhaled the breath of a departing spirit, and the devotion of Edward's Spanish Queen has embalmed her memory in the Briton's love, but when Mausolus died, the inconsolable Artemisia, in the extragavance of her grief, drank up the funeral pyre, and spent the remainder of her life in raising to her husband's name a monument of love and honor. It was sumptuous beyond precedent, and ranked among the wonders of the world, so that to every tomb of unusual grandeur the term mausoleum is applied to this day. Artemisia followed the custom of her time in adorning the sides of the tomb with historical subjects, in bold relief, and went still further in gradually surmounting her work with a pyramidal pedestal crowned with the figure of the king in a quadriga or car with four horses. A separate artist was appointed for each side, and a fifth for the statue, just as in Mr. Railton's Nelson Column, the sculptors Bailey, Carew, Ternouth, Watson and Woodington, to whom may now be added Landseer and Marochetti, had their respective tasks assigned.

We cannot, however, pursue this subject further than to state that after the vicissitudes of Natolia, during two thousand and two hundred years under Persian, Macedonian, Roman and Mahommedan rulers, an interest is again felt in its olden glories, and its long buried treasures of art are again the subject of admiration.

An expedition of research was dispatched a few years since under the guidance of Mr. Newton, formerly British Consul at Mytilene, to whose exertions considerable discoveries are due. A cargo of fragments has been received at the British Museum, and are being prepared for exhibition, in extension of the Egyptian, Assyrian, Greek and Xanthian series, already in that great national depository.

Mr. Tite noticed in a paper read recently at the Institute, that the fragments of sculpture represent the favorite subject of an Amazonomachia, and comments on its want of connexion with the history of Mausolus; but if we recollect that a former Artemisia of Caria had assisted Xerxes, with so much ardour as to draw forth the remark that the men fought like women, and the women like men, the circumstance may no longer appear irrelevent.

FALL OF A CORNICE, AND FATAL RESULTS.

Happily accidents resulting from incompetency or negligence in building operations, and attended with fatal consequences, are of very rare occurrence in this city, and when such *do* unfortunately happen, they consequently engross an amount of public attention which is not bestowed on them elsewhere, where they are from their frequency regarded as matters of course. For a lengthened period no accident that has taken place here, has enlisted such an amount of general sympathy, and presented a topic for such universal comment as has that of the fall of the cornice and scaffolding at No. 2, Lower Baggot-street, on the 24th ult., whereby three poor workmen, Michael M'Dermott, —— Dooley, and —— Duggan, were in the midst of life, health and happiness, hurled into eternity.

The coroner, previous to holding an inquest on the body of M'Dermott, on the 25th ult., informed the jury the inquiry would be of a more important character than usual, as it would embrace the question *whether or not there was any negligence or want of skill on the part of the persons who were charged with the responsibility of the building operations* at the house No. 2, Lower Baggot-street; and the following is the substance of what took place during the investigation. The builder, Mr. Brady, of 46, Camden-street, was represented by counsel and attorney, viz., Mr. Frazer and Mr. Charles Fitzgerald, but the wife of the deceased—though likewise as we learn desirous to obtain professional assistance—appears to have been unable to procure it. We are, however, very slow to believe that there is a member of the fraternity who, under the circumstances, would refuse to give his services gratuitously if necessary. At request of the jury, the inquest was adjourned to enable an inspection of the premises to be made, and on their return with the coroner the examination of witnesses was proceeded with. The wife of the deceased testified to her late husband being 32 years of age, and a plasterer by trade, and to his having left home at 5 o'clock on the morning of the accident, from which hour she did not see him until he was a corpse in the hospital that evening; she further stated that she had *three* children and expected a *fourth*.

Michael Glynn deposed to his being foreman to Mr. Brady, and present when the accident occurred. M'Dermott was with other men plastering on the scaffold in front of the house, about 38 feet from the street below; and witness was *on the scaffold about a minute before the accident occurred*. The scaffold was erected about 30 days ago under his superintendence, and was frequently on it, as was also Mr. Brady; believed the scaffold was erected in a proper workmanlike manner; never heard the men complain of it; was inside the house on the top floor when the cornice gave way and carried the men, boards, and everything else with it; the deceased was plastering the cornice when it fell; the cornice was about five feet above the scaffold; the cornice was built of the best materials in proper workmanlike manner; the cornice of Roman cement was formed on a thirteen-inch Carlow flag which projected four inches; the courses of bricks were laid on the flag and cemented over in the usual way, and on the top was a flag of 18 inches wide; the Carlow flag projected in front 9 inches, and the courses of bricks were laid properly, and with due regard to the proper weights and pressures; cannot imagine what caused the cornice to fall, its construction was so good; it struck him that the workmen might have been leaning on it coming up to two o'clock; they do not guage cement about that time, because it would be set before they came from work; we build the cornice strictly according to the plan; the blocking course was sufficient to keep the cornice in its course; the blocking consisted of five courses of brick.

A by-stander, named Benjamin Bradley, who built for himself and the government, cross-examined the witness. He stated that he appeared, in the absence of an attorney for the next of kin, and he cross-examined the witness as to the construction of the cornice, and made allegations to the effect that the cornice was improperly constructed and overhung too much. He produced a large block of the cement work of the cornice.

The coroner said he was glad that there were on the jury several practical builders, who would fully understand the evidence given as to the construction of the cornice.

Thomas Leary, a builder, saw the premises where the accident took place, and the scaffolding several times within the last fortnight; judging from the plan, should say that if it were faithfully carried out, the work should be quite safe.

Mr. Glynn—It *was* carried out faithfully.

The witness pointed out on a diagram the manner in which the cornice was secured, the portions of it that projected, and the portions which remained imbedded in the work, stating that if the cornice was placed as deposed by Mr. Glynn it should have been able to keep its equilibrium, even without the weight placed on the portion which did not project? Would not hesitate to put up such a cornice; never put up the same as this, but did some very similar.

Mr. Bradley—Would you go by that plan after what has happened?

Witness—I should do so.

A Juror—Would you do so?

Witness—I would do so; I would not hesitate to do so if I got directions from the architect, provided the materials were equally good.

Another Juror—Was it not from the work being too top-heavy that it fell down?

Witness—My impression is that it was not; I cannot rationally account for how it fell down.

At the conclusion of his examination, the Coroner stated that the witness had given very intelligent and important testimony.

Denis Byrne, one of the workmen engaged on the buildilngs, said in his opinion, as a working journeyman, that the cornice was properly constructed; could not find any fault with the materials used in its construction; really could not say what was the cause of the occurrence.

Mr. Bradley—And the work was only finished on the previous evening?

Witness—Yes, but not that portion under the cornice; I would not hesitate to go on that scaffolding or go to any height in it; I cannot say what caused the cornice to fall; if the report which I heard is true that the men hacked the flags and broke the bond of union there would be nothing in the world to keep the cornice up; once the cement is broken there is no hold whatever; I have put up heavier cornices than this; during my experience of twenty-one years as a working journeyman for foremen and superintendents, I never saw a more careful man than Mr. Brady's foreman, Mr. Glynn, over scaffolding, and not only over it, but in giving directions to the men as to the manner in which they should lay their stuff on it; I never saw a more cautious superintendent of works than he.

Laurence Geoghegan, a bricklayer in the employment of Mr. Brady, said he was not present when the accident took place; did not know to what to ascribe the falling of the cornice; but saw the deceased about half-past ten o'clock in the morning, before there was much cement on the cornice, hacking at the flag, with a hammer and chisel.

To Mr. Bradley—The hacking occurred at half-past ten o'clock, and the cornice fell after one o'clock.

The Coroner said that this was the most important evidence yet given.

John Lynam, a workman, swore that he was on the scaffolding about half-past ten o'clock on Tuesday morning; Mr. Dooley, who is now dead, called me up to alter the moulds; he was the foreman plasterer; he said—"this man always leaves his work for me to put something to, or take from it;" a portion of the brickwork of the cornice was not sufficiently brought out, so that it required six inches of cement to be laid over it, instead of an inch and a half; the fault of the cornice was that the brickwork did not come out far enough, and Glynn was to blame for this; the workmanship and materials were good enough.

Mr. Bradley—Do you believe that the blocking at the back of nine inches, was sufficient to counterpoise the weight of this mass of cement work which projected forward?

Witness—It would, if the brickwork was built out far enough; I did not see any hacking of the cornice, and if there had been any, I believe I would have seen the chips falling down, as I was working in the drawingroom about half-past ten o'clock fixing the sashes.

It was suggested by the mother-in-law of the deceased, that the wounded man, Johnson, who was on the scaffold at the time, ought to be examined, as he could state whether the cornice fell from its having been chipped—the state of the man, however, would not admit of such.

Mr. Leary was re-called, and stated, that he did not attach much importance to the five inches of cement being on the brickwork, as the weight of it would be about the same as that of the brick if made of the latter; there might be a little difference, perhaps, to give a downward tendency.

J. Carroll, a plasterer—Examined the scaffolding to-day, there is no fault in it; the fault lay in the cornice, it was not properly constructed; there was too much cement in it; it is not usual to put five inches of cement in a cornice; attributes the fall of the cornice to its being too heavy for the blocking; if a person hacked the flag with a hammer it might loosen the bend and cause the fall, but does not see that there was any necessity for hacking the flag in this case. To a Juror—Believed according to the evidence here, that the cornice was not built according to the plan. To Mr. Bradley—Does not think that it was right to put such a mass of cement on a brick wall built the night before.

The previous witness Glynn, said the wall and cornice were built according to the best skill and ability of the workmen. The witness, Carroll, said the skill and ability proved itself, for the cornice fell.

Mr. Frazer said this was a partizan answer. Did the witness mean to say that no accident in a building occurred except through the fault of the work?

Witness did not, and denied that he was a partizan.

Mr. J. F. Rogers, resident pupil of the hospital, deposed to the nature of the injuries sustained by the deceased.

Dr. Kirwan (the Coroner,) said: the evidence having now concluded he was bound to say that he might not have gone into the building question at all; his duty was simply to ascertain the cause of death. But he thought it right, in the interest of the lives of the people, to allow the extensive inquiry just completed to be prosecuted in the manner in which the building operations in question were carried out. Upon that question they had very clear evidence on two or three material points, particularly from Mr. Leary, whose testimony was most important, and he (Dr. Kirwan) felt very much gratified that there were several competent builders on the jury. He left the case entirely in their hands, suggesting merely on the score of humanity—for it formed no part of his duty—that it would be fitting to recommend Mr. Brady to give some protection to the widow and children of the unfortunate deceased, who confessedly, lost his life in the employment of Mr. Brady.

The jury intimated that they intended to commend the widow to the care of Mr. Brady.

The jury, after debating for nearly three hours, and receiving explanations as to the manner in which the cornice was erected from certain of the witnesses connected with the building trade; unanimously agreed to the following verdict:—"We find that the deceased Michael M'Dermott met his death from injuries received by the accidental falling of the cornice of the house 2, Lower Baggot-st., on the 24th July, between twelve and one o'clock, said cornice being then erected, and at the time of the occurrence undergoing plastering by the deceased and other workmen. In reference to the question whether the cornice was properly constructed or not, the jury can come to no satisfactory conclusion, the evidence on the point being contradictory; and the jury desire to recommend the widow and children of the deceased to the humane consideration of Mr. Brady, in whose employment the deceased was at the time he met his death."

At the inquest on the bodies of Dooley and Duggan, the evidence was substantially to the above effect, except that Glynn admitted that he considered the projection of the cornice, nearly 14 inches, was unsafe; and knew that there was a change in the mould but not to what extent. It was also proved that the mould had been altered by one of the deceased.

After a painful investigation the jury found the following verdict:—"We find that the deceased came by his death in consequence of the falling of parts of the house, cornice, and scaffolding of the house 2, Lower Baggot-street, in the course of erection, and we find that the authorities having control, should not permit a thoroughfare under exclusive works of this kind, and we are further of opinion that the deceased might have escaped, if such precautions had been taken."

The Coroner said as to the latter part of the finding he knew that the building operations at Pim's were carried on the whole time with a scaffold over the thoroughfare.

Second finding—"We find that the deceased, John Dooley, came by his death by the giving way of the scaffold caused by the falling of the cornice which he was constructing at No. 2, Lower Baggot-street, and that said accident was caused by the alteration of the original mould, thereby greatly increasing the projection and weight of said cornice, which alteration was made entirely on the responsibility of the deceased, and that all other persons concerned in the building are not in any manner to blame; and further, that we consider the scaffolding to have been perfectly safe.

The jury were then discharged.

[*We believe this case to be one for the special and humane consideration of our readers*, as in their own ordinary occupations they know not how soon a similar occurrence might deprive them of life, and plunge their families into the same anguish of mind under which the poor widows and helpless children of the unfortunate deceased are at present labouring; and we therefore invite, respectfully, their attention to the appeal in their behalf, to be found in another column.]

The Connorree Mining Company.—In the last report of this company's operations we find that the management has been transferred to Dublin, that new machinery has been purchased, that when the railway is open from Wicklow to Gorey a large saving will be effected in the carriage of ores, &c., &c. Mr. John Petherick has reported on the proposed extension of operations, and advised that the expenditure should be confined to the measures necessary for exploring the lode at the pump shaft. The accounts show a balance of £1,394 in the Company's favour, considered satisfactory under the circumstances of the unfavourable season; and a dividend at the rate of 5 per cent., free of income tax, was declared.

Correspondence.

ARCHITECTURE AT THE ROYAL HIBERNIAN ACADEMY EXHIBITION.

Sir,—May I beg to draw your attention to the following paragraph, which appears in the *Freeman's Journal* of the 24th inst.:—

"The architectural drawings are numerous. Some of them are elaborate and highly attractive. Many of them are deficient in that great essential—practical adaptation to their proposed uses as 'working drawings.' This fault does not apply to No. 498, 'A Mansion House Façade,' by our talented young countryman, Mr. O. T. Healy. It is easy to perceive that this gentleman well understood what he was about. Whilst he has produced a beautiful design for a mansion, he has shown that he has kept utility as well as ornament in his mind's eye. The drawing is what may be termed a truly practical one, and does the highest credit to the artist. It would be well if other young aspirants in this department would adopt the example which Mr. Healy has here given. In a future notice we will refer to the architectural and other pictures in the inner room."

Comparing this with your critique (p. 265, June number) on this department of the Exhibition, there is an amount of contradiction impossible to reconcile, a wide difference of opinion on *architectural* merit between the *Freeman's Journal* and the Dublin Builder. What does the reviewer in the *Freeman* mean by saying "the architectural drawings are numerous?" Where are they? Has his lynx eye discovered what neither you, the public, the Academy, or your humble servant could? Again, is it usual to send "working drawings" to an Exhibition? If so, I am enlightened; for I thought they were, as their title proclaims, for "working" purposes only. Again, who is this "talented young countryman", this *rara avis*, on whom—unknown to all but the *Freeman's Journal*—the mantle of Michael Angelo has fallen? I might, perhaps, be deemed impertinently inquisitive if I were to enquire further as to "the beautiful design," which "does the highest credit to the artist;" but I will conclude by saying that there is some truth in the proverb, "*if ignorance is bliss, 'tis folly to be wise.*"

A Reader.

COLLEGE-STREET—THE COLLEGE WALL.

TO THOMAS MOORE, ESQ., COLLEGE-STREET.

Sir—I read your letter in *Saunders* of yesterday morning, on the subject of the contemplated improvements in your neighbourhood, with much satisfaction; and I trust that any opinion or suggestion coming from so eminent a person will have great weight with your fellow-countrymen, especially with the authorities of Trinity College, where you were in your youth a distinguished ornament. You will, I am sure, be glad to hear, and I have much pleasure in stating, that your wishes are likely to be very soon carried out, for the Provost did me the honour to write to me, in my corporate capacity, expressing an anxious desire to co-operate with the Corporation in this most desirable work; and accordingly the city engineer, Mr. Neville, and Mr. M'Curdy, are in consultation as to the best mode of effecting it. College-street will then become one of the most beautiful spots in the city, instead of being, as it is at present, the very reverse, for the directors of the Provincial Bank propose to erect a very handsome building opposite the College wall. I would be extremely sorry to propose anything that could be detrimental to the great University of our city, but I trust that we will ere long see some modification of the "railing in front," which would afford great public accommodation, without being at all injurious to that noble institution. The citizens of Dublin highly appreciated the improvement of Nassau-street, and were grateful for it; those which are now under consideration will be equally valued. I have to apologise for troubling you with such a long letter, and have only to express my satisfaction that our municipal affairs are under such good guardianship.—I am, sir, your obedient servant,

George Roe.

Nutley, 13th July, 1860.

Notes of New Works.

The new station at Sandymount, on the Dublin and Wicklow Railway, has been completed and opened.

The Committee of Prospect Cemetery, Glasnevin, are about having sundry building improvements effected, according to plans by Mr. Patrick Byrne, Architect.

It is proposed to erect a commodious schoolhouse in the suburbs of Dublin for the daughters of the Irish clergy, and as a memorial to Mrs. Whately, wife of the Archbishop of Dublin.

The Corporation for Improving, &c., the Port of Dublin, are about erecting timber beacons on the north side of the river Liffey Channel. Time for tenders limited to 2nd inst.

The Church of St. Jude's at Richmond is at present undergoing great improvements to make it suitable for Divine worship. A new organ has been erected.

The War Department have issued advertisements for the following works in Ireland, viz.: for the erection of an engineer's office at Royal Barracks in this city (time limited to 6th inst.); for plumbing and slating work at Royal Infirmary, Phœnix Park (13th inst.); for slating and bricklayer's work at Old Barracks, Fermoy (same date); for renewing eight embrasures at Charles Fort, Cork District (same date); and for building a magazine and shafting-room at Sandycove battery, Dublin Bay, up to 16th inst.

The foundation stone of the new Presbyterian Church at Rathgar was laid on the 19th ult. by the Rev. Dr. Cooke, of Belfast.

The fittings and furniture of the Council Chamber, City Hall, are open to competition for upholsterers until the 2nd inst.

The Board of Guardians of the South Dublin Union invite tenders from Builders, &c., for new internal fittings, and for rebuilding a portion of the workhouse wall. Tenders to 1st inst. Mr. William Murray, Architect.

Large additions are about to be erected at the Dominican Convent of St. Catherine's, Sion Hill. In the community department will be a new wing containing refectory, corridor, and kitchen offices on the ground storey; in the second storey will be infirmary, noviciate, pharmacy, &c. The two upper floors will contain twenty cells, with corridors, &c. In the boarders' department will be erected a large wing containing schools on ground floor, class-rooms, infirmary, infirmary room, &c. on second storey; and on the third storey large dormitories, dressing-rooms, &c. A transept will also be added to chapel, separated by ornamental columns; under the transept will be the day school for extern pupils. A poor school will also be erected. Mr. Bourke, architect.

Two pair of semi-detached villas, with seven apartments—irrespective of culinary and other offices—in each, and in an elevated position, commanding an expansive view of the bay, "the island," Bray, Shanganagh, the Wicklow mountains, &c., &c., are about being erected at Vico Road, adjoining Sorrento Terrace, Dalkey. Mr. Henry Gonne, proprietor; Mr. J. J. Lyons, architect. The same proprietor has lately completed a large dwelling-house on same property, and now known as Hanna Mount, and some most desirable building sites are available

The Ecclesiastical Commissioners of Ireland are about having the church of Tynan, Co. Armagh, fitted internally, and a vestry-room erected thereat (tenders to 4th inst.); also sundry works executed at the churches of Drumcliffe, Co. Sligo, and Tarmonbarry, Co. Roscommon (tenders to 2nd inst.).

Certain works are to be executed at the churches of Annaduff, Co. Leitrim, Pallasgreen, Co. Limerick, Corclone, Queen's Co., Ballintemple (Dundrum) Co. Tipperary (tenders till 7th inst.), according to plans, &c., by the Architects to the Ecclesiastical Commissioners.

A new parish Church has been erected at Upper Cumber, Derry, in accordance with the plans of the late Mr. Welland. It has nave, aisles, porch, spire, belfry, stained and varnished open roof, and contains sittings for 400 persons. Cost £3000, of which £700 were subscribed by the congregation. Messrs. M'Elwee, Contractors.

The first stone of the new parochial church of SS. Maria and Laurence at Ballytore, Co. Kildare, will be laid on the 5th inst.

A new Protestant church is to be built at Kilmalchedar, Co. Kerry, and the foundation stone has been laid. The site selected is said to be picturesque. Mr. George M'Donnell is the builder.

Forthcoming Italian Operas.—We are informed that the company which is to appear in our National Theatre, on the 10th proximo, will comprise Mesdames Grisi, Viardot, and Gassier, together with Signori Mario, Graziani, Ciampi, and others; names whose mere mention preclude the necessity for comment on the treat in store.

Queen's Royal Theatre.—Miss Emily Wyndham, directress of the St. James's Theatre, London, Miss Lydia Thompson, and Mr. Young, have been attracting crowded audiences during the past month at the Queen's. Any one of the three is "a host," but the combination enhanced the degree of attraction considerably.

The Goldsmith Dramatic Society.—The members of this Amateur Theatrical Corps gave a benefit at the Rotunda in aid of the starving poor of Erris, on the 24th ult., on which occasion the drama of Don Cæsar de Bazan, the farce of Round the Corner, and the comic drama of the Jacobite, were performed.

NOTICE.

We are sorry to receive complaints of the late period at which the Dublin Builder reaches London, and we may say several provincial towns, respecting which, we have instituted some inquiry, and shall be glad of information in any future instance of delay.

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KENNY'S PATENT.

The undersigned beg to call the attention of Engineers and the Public to the above description of Opening Bridge, as now being constructed for the entrance to the St. George's Dock, Custom-house Quay, Dublin, for the Board of Works, which will be found superior to the ordinary Swivel Bridge, both in point of simplicity of Construction and Cost.

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TESTIMONIALS.

[Copy.] Five Ways, Birmingham, March, 15, 1860.

MR. BARHAM.—SIR—After several trials in various ways, both inside and out, of your cement, I can confidently certify for all you state as to its quality.

I have both papered and painted on the same immediately, and find neither color or paint in the least affected. I am, Sir, yours truly,
(Signed) J. CRESSWELL.

Copy.] Decorative Painting, Gilding, and Paper-hanging Establishment, 119, Duke-st., & 18, Parr-st., Liverpool. Jan. 17, 1860.

SIR—I have much pleasure in bearing my testimony to the good qualities of your "Rendering" Cement. I find that paint will stand well upon this Cement, after being allowed only three or four days to dry.

In another case a wet piece of this Cement was papered with a delicate Pink Glazed Paper, and I find that neither color nor glaze has sustained injury.

Yours truly,
(Signed) p pro ALEXANDER WHITE.
RICHARD S. WHITE.

[Copy.) Bridgnorth, Oct. 25, 1859.

DEAR SIR—We have tried your sample of "Rendering," and find it more than justifies our anticipations. We have tried it raw as a Cement for external work in a very exposed position in a Church Tower, to fix in some Iron Cramps in lieu of lead, and find it answer perfectly; also for cornices; also mixed with hair mortar as gauged stuff for forcing work; and in several other ways. When anything stirs, we will apply to you for some more, as we find it better and cheaper for gauged work than any we have ever had.—With respects, Sir, we remain yours very truly, (Signed) JOHN PICKARD & SON.

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LONDON—A. J. TATHAM, 14, South-wharf, Paddington Basin, W., and Purfleet-street, Earl-wharf, Blackfriars, E.C.

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MOST DESIRABLE BUILDING GROUND TO BE LET.—This Estate, containing 150 Acres, situated within half a mile of the Dundrum Railway Station, has been laid out in Lots for Building. The position is admitted to be the most beautiful in the environs of Dublin, and is particularly well circumstanced in every respect, commanding views of Killiney Hill, overlooking Mount Merrion, City and Bay of Dublin, &c.

A railway station in the centre of the estate is in contemplation, bringing it within ten minutes' drive per rail of Harcourt-street.

A map of the lands, showing them laid out in building lots, can be seen, and every information obtained, at the offices of Edward Henry Carson, C.E., Architect, &c., 25, Harcourt-street.

THE NEW BUILDING GROUND at RATHGAR, to be called KENSINGTON-SQUARE, is now ready for setting. Lease, 900 years. Several lots are already let. Plan and particulars at
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N.B.—A few lots for Cottages in KENILWORTH-AVENUE, adjoining the above.

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TO BE LET for BUILDING, the Ground round Wellington-square and in Hatch-street, the Maps and particulars of which may be seen at the Offices of JOHN LOUCH, Esq., Architect, &c., 15, Molesworth-street, Dublin.

TO BUILDERS.—TO BE LET, in RATHGAR, on the Roundtown-road, about 500 Feet of BUILDING GROUND, 260 feet from front to rere, at 4s. per foot. Also, in Rathgar-avenue and Beauchamp-avenue, 2,000 feet, at 3s. per foot. Lease 999 years. The situation is unquestionably the best in the suburbs of Dublin. Apply to Dr. BEAUCHAMP, 115, BAGGOT-STREET; or to F. ARMSTRONG, Builder, BAGGOT-STREET.

The Dublin Builder.

Vol. II.—No. 21.

PASSING REMARKS ON LONDON BRIDGES.

WHAT a lecture on science might be read from the bridges of London; and to the simply observant and reflective how much do they suggest that is noteworthy. The means of crossing deep rivers must have been resorted to in very early times, and mention is made of a kind of draw-bridge over the Euphrates at Babylon, which was closed at night to prevent the marauding forays of the turbulent Assyrians; but bridge-building in its full masonic form must have commenced with the Romans after the invention of the arch. The structure thrown across the Danube by Trajan, and figured on his column at Rome, consisted of stone piers with a wooden superstructure of segmental ribs supporting the roadway. The Tiber was crossed by eight bridges in and about the capital at a very early day. England may not now possess a Roman example, but there can be no doubt that our early conquerors introduced their own forms and modes of construction; some abutment piers supposed to be of their age were discovered in preparing for the new bridge over the Ouse at Stony Stratford. Dion Cassius says the Gauls, about A.D. 44 passed a bridge on the Thames, but we should incline to think it must have been at some point above London. Snorro Sturlesoni mentions a bridge in 1008, and Stowe says the monks of St. Mary Overies were the first builders. In 1176 Peter, the curate of Colechurch, commenced the great work, which after a labour of thirty-three years was opened for public use in 1209. It was 926 feet long, had pointed arches of stone, a central drawbridge and a chapel in which the remains of its architect were afterwards interred. There was a fortified gateway at either end. It was originally only 20 feet wide, but in those days the traffic was chiefly, if not wholly, confined to foot passengers and horses,—the porter drays, the coal waggons, the highly-piled loads of hops and general merchandise which mingle with the fashionable chariots of our day, were all unknown. The throng of passengers generally attracted the cupidity of the citizens, and upon the starlings were erected shops and other buildings, leaving but here and there free parapets from which a sight of the river could be obtained. These habitations were lightly constructed, and when in 1213 a fire took place, the flames spread so rapidly as to enclose a vast assembled throng, and so overwhelming was the danger and panic, that three thousand people are said to have been destroyed.

Let us, however, say no more about bridges as they were, but proceed to take them as they are, for which purpose we may most conveniently commence with Battersea, and follow the stream in its downward course. The rusticity of Battersea-bridge—a wooden expedient of some dark though, it may be feared, not distant age, and whose reminiscences may be classed into accidents on the river and high tolls on the road—together with the primitive appearance, might lead the casual observer to suppose it the one passed by the aforesaid Gauls in the first century.

Next in our course is the Suspension bridge at Chelsea, erected by the Government from Mr. Page's design. It is the lightest and most ornate work of the kind, perforated panels of cast iron being extensively used in the unstrained surfaces. There is something of Moslem character in the design, and every part seen from the very surface of the water being of iron or painted in a similar way to the parts which are of that material. The general effect is one of airy prettiness. It was commenced in 1850 and finished in 1857, giving access to the newly-formed suburban park from a point near the hospital of the military veterans.

At a few hundred feet lower down the stream is the railway bridge just on the eve of completion, for carrying to the new Victoria station at Pimlico the lines of the Brighton Companies' Crystal Palace and West End branches. The energy displayed in British commercial undertakings is well seen in the rapidity with which this work—commenced only last year—has been brought to maturity. It may be termed a plate-iron bridge of four arches, with open spandrils on piers of stone, and there are two land bays without arches carrying a platform over the public roads on each side of the river. Having said that this bridge has four arches, it follows that like the great Britannia tube across the Menai—its central pier is in the midstream; but in neither of these cases has the omission of a void where the current is necessarily most active and powerful been a matter of caprice, for in the great work of Robert Stephenson Nature settled the question by the little rock on which the pier was raised, and at Chelsea the governing cause is almost as apparent. The engineer of the suspension bridge divided the total span into four parts and placed the piers at points equi-distant from the centre and the respective banks, then as the railway passes at so short a distance lower down it was necessary to keep the piers opposite to those of the neighbouring work, and to introduce the requisite additional support in the middle.

Vauxhall Bridge, erected by James Walker between 1811 and 1816, is an unpretending, business-like, and well-built structure, in which the designer seems to have kept in mind the great object of a return for the capital employed rather than a display of his own powers; yet the work is an evidence of very great ability, comprising nine equal arches of 78 feet span, composed of cast-iron ribs on stone supports, showing a great improvement in point of lightness, and affording the advantage of a nearly level roadway.

It is impossible to proceed without a momentary notice from this spot of the vast Reformatory Prison or Penitentiary at Milbank, on the Middlesex shore, for prisoners undergoing commuted sentences. It was erected by Sir Robert Smirke, upon the so-called Panopticon principle, giving to the central station the visual command of every corridor and court. Its multangular plan, and the conical roofs to the numerous turrets, give to the exterior a peculiar and somewhat foreign expression. In the distance rises the noble Victoria Tower, Westminster Abbey, and the Church of St. John, while on the right bank of the stream stands the venerable Palace of the Archbishops of Canterbury at Lambeth. From the quay in front of this palace the most perfect view of the Parliamentary edifice is to be obtained, and at just such an angle as to embrace the river front and south return together, with the higher portions of the Abbey, while the smooth level surface of the water lends repose and imparts height, which with regard to the object under notice is of special value.

Although sanctioned by the custom of a thousand years, it was, perhaps, a mistake to pay too much attention to the old Westminster levels, and the new building cannot be seen without a great sacrifice of dignity from any position but the one just named. It was most injuriously viewed from Old Westminster Bridge, and if that building were included in the prospect, its great rise and curved parapet acted most prejudicially. Any bridge in such close proximity must have this effect to some extent, or be itself spoilt, and the convenience of the navigation be invaded.

Labeyle's Bridge, erected between 1738 and 1747, has after little more than a century been superseded by the one now in progress and in part opened, from the design of Mr. Page. It is in seven arches of cycloidal curvature, diminishing from 120 feet in the centre to 94½ feet in the extremes. They are constructed with fifteen ribs of cast and wrought iron on piers of somewhat novel contrivance, but ostensibly of stone, and the work is expected to exemplify in a marked degree the progress of economy in such undertakings.

The name of Brunel now engages our attention in the Hungerford suspension foot bridge, which like all his works shows great skill in design, and that constructive lightness to which his attention was so largely and beneficially directed. The principle of suspension is, however, unsuited for heavy traffic, owing to the great degree of motion to which the parts are subject, and the effect of wind in increasing that motion to an inconvenient and occasionally dangerous extent. This is quite a modern bridge, but innovation is already close upon it: pile drivers are at work about its piers, iron cylinders are sinking gradually into the earth, and the diver in his casing of mail, more formidable in appearance than the armour of the battle field, is seen at times to emerge, and testify somewhat of the means by which these subaqueous works for the Charing Cross Railway are carried on.*

The man who took the boldest grasp of the public mind in the subject to which this paper relates was John Rennie, a native of Phantassie, in East Lothian, who settled in London in 1783. After giving evidence of talent as millwright and in other engagements, he was employed on Waterloo Bridge commenced 1809 and finished in 1817; the length being 1242 feet is greater than any neighbouring example, and is taken up by nine elliptic arches and their dividing piers. These latter are decorated with coupled columns as had been previously done at Blackfriars, but the original mind of the contriver was grandly shown in the arrangement of the approaches. Taking the Strand for a datum level he extended the bridge by a series of land arches, crossing at a considerable elevation the old Belvedere road on the Surrey bank. The bridge is of granite, and so noble and striking in effect that Canova, the sculptor, pronounced it to be worth a visit from the remotest corner of the earth.

We now approach, and let it be with due respect—for though not first in size at least in age he stands the pontine father of the Thames — Blackfriars. It was designed by Robert Mylne, an architect of celebrity in the last century, who studied at Rome. It is a very handsome form presenting the earliest approach to the flattened or elliptic arch, and is altogether an ornament to the noble water it bestrides. This was built between 1760 and 1771 for a body of subscribers who had the privilege of a toll for only nineteen years. There are nine arches, and the central span is 100 feet. Portland stone was employed, but the piers have since been cased with granite. The road was judiciously extended for some distance at the ends, but not over any cross street, a sort of recess or square being formed through which the elevated causeway passes.

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* The suspension chains and roadway of Hungerford Bridge have been purchased for £5,000 by the Clifton Bridge Company, subject to the further cost of taking down and removal. The appropriation is one than which nothing could under the circumstances have been happier, as the destruction of one of Brunel's designs is thus made subservient to the completion of another.

While Rennie was conducting the works at Waterloo he was also employed from 1814 to 1819 on the Southwark bridge, and a very noble specimen of his genius it presents. He was beyond question the leading engineer of his day, albeit of a pre-tubular and box-girder age, ere the requirements of the railway system had developed our present exact and intimate acquaintance with the properties and management of malleable iron. Southwark bridge being only 708 feet long, is the shortest of its class, has stone piers and three magnificent arches of which the centre spans no less than 240 feet. They are segmental, and formed of a series of eight ribs, which were prepared at the works of Mr. Walker, a gentleman whose name was long familiarized by its constant appearance on those humble but useful implements of the laundry—flat irons. Great attention was given, as in the Waterloo example, to the ascents of this bridge, which are adjusted by long inclines to the adjacent levels. It was erected for a company of proprietors, but from its situation at a short distance from two open bridges, and the absence of any great artery of traffic to act as a direct feeder, it has not proved successful.

The great fund of experience which Rennie has acquired in the works just noticed and in others of the first magnitude, such as Ramsgate Harbour, Plymouth Breakwater, and the Bellrock Lighthouse, was brought to bear upon the new London Bridge, the very chef-d'œuvre not only of the man but in its way of the nation itself. The design is eminently characteristic and expressive, severely simple yet not barren, stable yet not heavy. It proclaims the beauty of an exact symmetry, and we recognise in it a masterpiece of skill. What an extraordinary advance upon the previous occupant of the spot—an advance which represents six centuries indeed, but still how great the onward stride. Instead of that which was hardly more to be regarded as a bridge for crossing the stream than as a dam for impeding the free current, causing falls and eddies, destructive to the inexperienced navigator and dangerous to the skilful, we have that nice apportionment of void and solid which causes no abrupt check to the flood, yet imparts the quality of repose to the superstructure.

The idea that would seem to have been ever present in Rennie's mind concerning level roadways and extended approaches was carried out in its amplest form in this instance, especially on the City side, where the old level of Thames-street forms a sub-way under the land approaches, while the bridge falls into the superior levels of King William and Cannon streets. This noble granite bridge is 928 feet in length, is 58 feet wide, and has five elliptic arches, giving a span to the centre of 152 feet, to the two adjoining arches 140 feet each, and to the extreme openings 130 feet each. The cost may be roundly stated at two millions, but a vast outlay has been also incurred during the subsequent period in remodelling and adjusting the more important thoroughfares and avenues of communication.

It is, perhaps, the last bridge of the purely masonic and monumental character of which London is likely to be the scene, but it will be long, we trust very long, before any antipodal wanderer shall behold it in a shattered and crumbling form, yet how soon might a single oversight have caused its destruction to follow the triumph of its pristine perfection. Inconceivable as it may appear, a course was pursued in removing the mere means employed in the erection of this stupendous edifice—in comparison with which the worth of every foot of timber used should have been weighed as nought—that for a while threatened the stability of the vast fabric. The withdrawal from the subsoil of the river of the piles used for the coffer-dams, which ought to have been cut off and not extracted from the river bed, caused a derangement of the foundations, which after giving rise to intense alarm and originating settlements in every pier of from six to ten inches, fortunately ceased, and we hope for ever.

A work more singular in its nature, more difficult in execution, and calling forth in an unexampled manner the faculties of invention, of energetic resolve, and untiring perseverance, is that monument of Sir Mark Isambert Brunel—the Thames Tunnel at Rotherhithe; but it is hardly within the scope of this paper, which has already exceeded our intended limit.

Within little more than a century a sum approaching to eight millions sterling has been expended in securing access between the two sides of the great metropolitan stream, great talent has unquestionably been fostered and called forth, but in some instances there has been an absence of those reasonable deductions which come under the name of ordinary foresight or common sense. Nor is it to be denied that, with the numerous bridges just passed under review, London and its suburbs are in a state bordering on destitution with regard to really available objects of the kind. Down to the middle of the last century no other than Old London Bridge existed within several miles, although at this period such a want must appear to have been intolerable. In 1788 Parliament made a grant for the bridge at Westminster; that at Blackfriars, built as we have seen at private expense and rendered public at the end of nineteen years, was thus acquired in 1770, since which period no augmentation to the number of free bridges has been made, if we except the one at Chelsea where the toll for foot passengers is not charged on Sundays. In this state of things, therefore, the poor, the wayfarers, and children are denied the means of passing, and are frequently found awaiting the aid of some considerate hand. London Bridge is most densely thronged with traffic of every kind, and but for the recent admirable classification which separates the heavy and slow from the light and rapid, it must have proved altogether inadequate, and a widening was at one time mooted. It would indeed be most difficult to effect any serviceable modification without incurring a great outlay and as great disfigurement; but the proximity of Southwark Bridge points to the propriety of laying that structure open as a public auxiliary, with a suitable widening of the way to it from Cheapside. In fact, all the bridges are wanted, as may be inferred from their having, to so great an extent, originated in the very conviction of their necessity; but their usefulness is counteracted by a toll, which, as far as the railways on the south side are concerned, will be to a great degree obviated by their extension to Pimlico and Charingcross. The Thames Tunnel, again, though too costly to be profitable, would, if thrown open, afford a vast boon to the public, and we regret to hear a rumour of its appropriation to railway purposes, as being a degradation of this noble work to meaner uses. The public who contributed to its completion ought to have a priority as purchasers, and we further think that a subaqueous way for trains might be effected on the tubular principle, sunk by dredging to the necessary depth, at a cost not to be compared with that of the original, and with certain advantages in respect of locality and general convenience.

Beneficial Effects of Ventilation.—There is no disguising the fact that among the many deficiencies of the present time none stand out more conspicuous than the neglect of ventilation. It would be unnecessary to refer to the fearful results arising from the apathy displayed, were it not that evils once past are too often forgotten until reminded when too late by their return. It becomes every one who seeks to add something to the general good, and desirous of adding to the duties of life, not to lightly pass any means to secure its comforts and health. Such are daily made known in the means provided. The system is not only efficacious, but simple in construction; in no way preventing the adoption in sitting-rooms, bed-rooms, or any other part where a free circulation of air is required. Was it only in theory such matters were made public, much objection might be raised; but having been proved a positive reality in effects produced, it requires but little recommendation to add to its necessity in all cases where health is sought to be promoted and personal comfort enhanced. The ventilators which are considered the most effective, and to be obtained at the smallest cost, are those of Mr. Moore, in Fleet-street, London.—*Morning Herald.*

Carlow Cathedral Church.—The decorations of the porch of the principal entrance to this beautiful edifice has just been completed by Mr. P. Lalor, of this town, and we feel great pleasure in saying that on his taste and artistic skill the work reflects the greatest credit. The groined ceiling is wrought in French white; moulding ornamented with ultramarine and gold roseats, the panels having a small stile round, with an ivy scroll midway on either; the bosses are picked in white and gold, and the terminals in suitable colours. The walls are decorated in light pea green, representing tapestry, with fawn colour borders in each corner, having ornaments of a darker shade around the arches in a shamrock scroll. The lower portions of the walls, measuring 6 feet from the ground, are formed into panels, each curved at the top, over which runs a pointed fretwork, hanging over it, also, another border of *fleur de lis*, through which shamrocks are entwined. The decorations of the whole pleasingly harmonise with those of the interior of the church, and are, as we have already said, executed in the highest style of art.—*Carlow Post.*

Art in the Arctic Regions.—The American Protographical Society, at its last meeting, made arrangements to send a photographer with the expedition of Dr. Hayes, which sailed for the Arctic regions at the end of June. The project must meet with favour from all concerned, and, if carried out liberally, will be productive of a great deal of good. If good photographic views are brought back, we shall be able to study Arctic geology, natural history, and even the climate, all by our cheerful firesides. A photographic view always shows more than any pencil sketch, and we are sure it tells "the truth, and nothing but the truth." The camera takes in *everything* before it; and it may be that the Arctic photographs will enable us here to discover important facts which would escape the attention of the traveller chilled with cold, however zealous he might be.

THE DEVELOPMENT OF OUR RESOURCES IN GRANITE, SERPENTINE, AND MARBLE.

THE brief notice given at page 303 of the lectures delivered at the Museum of Practical Geology in London, by Dr. Melville of the Queen's University, may call two circumstances to mind—viz., that Ireland contains minerals of great beauty and applicability for building purposes, and that there exists in the sister metropolis a public institution in which the products of our quarries are already, to some extent, exhibited, and where they may be hereafter displayed in a much more adequate and general way, their varied properties and qualities be laid open to the public eye, and brought into that fair range of competition which it will be the constant object of this journal to advocate and secure for every useful product of this country coming in any reasonable way within its scope and province. When the granite of China, brought as ballast in the holds of vessels, becomes an object of commerce on the Royal Exchange, it is difficult to conceive why the granites of Ireland should remain unemployed for any and every use of which they are directly susceptible.

The "Guide to the Museum," a very serviceable little work, informs us that "the most extensive granite district in Ireland stretches south from Dublin, through the counties of Wicklow and Carlow, into Kilkenny; it occurs on the south-eastern coast of Down and around Newry; the range of the Mourne Mountains is granite, which again appears in small and isolated protrusions in Derry and Tyrone, and in Cavan. In the western portion of Donegal there is a large extent of this rock, which here partakes of a gneissose character; and again, in the west of Galway, granite covers a considerable area. The granite of the Wicklow range is the most extensively used. It varies in its quality, that near Kingstown being coarse and hard, while that from Ballyknocker or Golden Hill is much finer, and therefore fitted for ornamental work. The granite of Down is of a darker colour, and finely crystallized. It is extensively quarried at Newry, and sent by water to the north of Ireland. The Galway granite is of a reddish colour, containing large crystals of flesh red felspar. That of Mayo is of a dark bluish grey colour, while that of Tyrone is reddish.

"The Irish granite averages 170 lbs. per cubic foot, its extreme weights being 143 lbs. and 176 lbs. After 88 hours' immersion in water it was found that a cubic foot of the granite of Newry and Kingstown absorbed about a quarter of pound, that of Carlow nearly 2 lbs., and the granite of Donegal 4 lbs. of that fluid."

The variety afforded by this island, therefore, takes a range, as to hardness, permeability, texture, and colour, that may meet very opposite demands.

The growing attention to colour in architectural works seems favourable to the use of Irish serpentine, some specimens of which are found at the museum, and "the Guide" observes, that "under the head of marbles we find the serpentine rocks frequently included. These, however, differ widely from the limestone rocks, being compounds of silica and magnesia, with adventitious admixtures of alumina, iron, and other substances. The west of Mayo and Galway are remarkable for their serpentine rocks, which afford the beautiful variegated green and white specimens exhibited in the screen, pilaster, and columns.

"This green Connemara marble, as it is usually called, is obtained at Ballinahinch, in Galway; the most valuable quarries are situated near Clifden, from which this fine material is largely exported.

"It is a common error to comprehend every stone which will polish under the name of marble, and several varieties of syenitec rocks produced in Ireland are commonly so called. Syenite much resembles granite—the former, however, consisting of felspar, hornblende, and quartz, and the latter of felspar, quartz, and mica; they pass from one into the other by almost insensible degrees."

With regard to basaltic rock, attention may be called to its applicability, by the process of fusion, to many ornamental purposes. "Messrs. Chance, Brothers, of Birmingham, have adopted the process of melting the Rowley rag, a basaltic rock, forming the plateau of the Rowley Hills, near Dudley, South Staffordshire, and then casting it into moulds for architectural ornaments, tiles for pavements, &c. Not only the Rowley rag, but basalt, greenstone, whinstone, or any similar mineral may be used. The material is melted in a reverberatory furnace, and when in a sufficiently fluid state, is poured into moulds of sand, encased in iron boxes, these moulds having been previously raised to a red heat in ovens suitable for the purpose. The object to be obtained by heating the moulds previous to their reception of the liquid material, is to retard the rate of cooling; as the result of slow cooling is a hard, strong, and stony substance, closely resembling the natural stone, while the result of rapid cooling is a dark brittle glass."

Of proper marble or limestone, the work to which we are indebted for our extracts says—"Ireland is rich in marbles. Her limestone formations extend over a central plain, 120 miles east and west from Dublin to Galway Bay, and about the same distance north and south, their greatest elevation being about 300 feet. The more valuable quarries are in the counties of Kilkenny, Carlow, Galway, and Mayo. From these several varieties of marble are raised, especially the black marble, next to which in importance are the dove, mottled grey, and white marbles. The Galway marbles are well known, but the beds in the quarries are usually thin, and there are but few of them which are fit for working; still fine blocks can be raised. It is quarried principally at Menlo, on the banks of Lough Corrib, the cost of obtaining it being greatly increased from the difficulty of getting rid of the water which flows into the quarries from the lake, the beds being near the surface level. White marble is obtained in Connemara and in Donegal; the limestone of the former district is hard and fine, and is the strongest which has been found, while that of the latter is so exceedingly coarse, that it cannot be used for fine work. The white Connemara marble cannot, however, be procured in large blocks free from streaks, which pass through the blocks parallel with the beds. These counties also produce the bluish white and pink tinted marbles.

"The principal quarries are the following:—

Black Marble,	Kilkenny, Galway.
White Marble,	Churchtown, Doneraile, Kerry, Tipperary, Connemara, Donegal, Churchtown, Kerry.

Coloured Marbles,	These are scattered over all the districts in which the limestones occur.

"In chemical composition these marbles may be regarded as carbonates of lime, containing, in addition to carbonic acid and lime, magnesia, silica, and alumina, in small but varying proportions. The colouring agents are generally salts of iron; but organic matter exists in large quantities in many of the marbles, determining, at the same time, the colour and the general characteristics."

It is gratifying to know that a public depository is thus open to the owners of mineral wealth, but we would presume to offer a word of exhortation to more active efforts for developing the resources of native industry, and we point suggestively, therefore, to the organization of an export agency, on a scale commensurate with the importance of its purpose, and requiring the combination of many interests.

We would, moreover, point to the substantive character the international exhibition of 1862 is beginning to assume, and to the opening that may be thus given for the display of natural products, and especially to specimens so wrought upon as to display their qualities and peculiar adaptation.

It is gratifying to add to the foregoing, that the new museum at Oxford owes its design to the architects of our museum here in Dublin, Messrs. Deane and Woodward, and that the granites, limestones, serpentines, and marbles of this island are constructively displayed at Oxford in columns, capitals, corbels, and such-like features.

THE PRÆRAFFAELLITE MOVEMENT.

In suggesting this as a suitable topic for discussion by the members of the Ecclesiological Society, the president (A. J. B. Beresford Hope, Esq.,) remarked that, "it would take a long time if he were to discuss what was the origin of the Præraffaellite movement; but he held in his hand a periodical, which appeared about 1850, and in the first instance bore the name of the "Germ," but afterwards took the less precise title of "Art and Poetry." His attention was first drawn to it by Mr. Dyce, who asked him if he had seen a book by the young men who called themselves the Præraffaellite brethren. He said that he had not, but soon afterwards became possessed of the volume. At this period Mr. Millais' picture of the House at Nazareth was exhibited, and was the first published challenge of the new school, and was followed in subsequent years by several well-known successors. Præraffaellitism, from its first starting, had two distinct principles at work: one was a sort of mysticism, half-hieratic, half-theological, and withal chivalrous; but the other phase of the movement was a most strong and determined realism—a determination to paint nature absolutely, as naturally, or more naturally, than nature itself. When he said so, he meant that nature as seen by man was a compromise; nature must appear to every man in a different aspect. The very keen, sharp-sighted man saw a quantity of objects, whereas the short-sighted man was obliged to sum up and take general results; the minuter features did not present themselves to him. He saw just the facts of form and colour, but the details to him were unknown. So the various atmospheric effects of the same scenes were seen by different persons in different aspects. Painting accordingly best fulfilled its duty to nature by embodying the sum total of this compromise. Again: no representation could be representative of nature which did not deal with that chiaro-oscuro which was a principal element in all nature. The Præraffaellites were determined to sum up every detail, and from the accumulation of these details they expected to form a natural result. Mr. Holman Hunt's last painting, "Our Lord discussing with the Doctors," was looked upon by the Præraffaellites as the triumph of their art. All who had seen it had been struck with the perfection with which the details were worked up. It was wonderful for its minuteness; but then, was it so grouped that the Saviour of the world was made the central figure? Was it not a conglomeration of wonderfully studied models? Where was there in it the glorification of one figure? There were painters of old, in Holland and elsewhere,—Van der Helst, and others,—who knew how to combine that attention to minutest details, which was the boast of Præraffaellitism, with a perfect handling of chiaro-oscuro, and mastery of grouping. To be sure, they sometimes exercised their powers, as Gerard Dow was fond of doing, upon a battered brass pitcher. But upon Præraffaellite principles no one ought to object to the most careful treatment of a battered brass pitcher. For his own part he had no wish to depreciate them. Mr. Hunt's "Awakened Conscience" was a picture deserving of the highest praise. But as a fact the mystic aspect of the school had yielded to the realistic. Assuming then that intense realism is the present Præraffaellitism, is that peculiar style of painting the natural correlative of the Gothic movement? He humbly contended that it was not. He admitted it had done a great deal of good by the resistance which it had opposed to the slovenly and swaggering styles previously in vogue: but it was one thing to do good as a protest against what was wrong in academic painting, and quite another thing to be that which was absolutely good. He thought that Præraffaellitism had done good, but Præraffaellitism in itself surely was not the highest aim of art, and most especially not the highest aim of that religious art whose handmaid Gothic architecture was. Surely the very essence of Gothic architecture was the imaginative scale which it created—the production of the idea of infinity within limited space: while in Classical architecture finite and measured dimensions were the artist's aim. How then could the minute realism of Præraffaellitism accord with that architecture which was essentially imaginative and spiritual? A controversy had some time since been carried on between distinguished professors of Pointed architecture as to whether the representation of foliage should be naturalistic or conventional, and he thought he had the right to claim those who supported the latter doctrine (without himself pronouncing an opinion on the question) as agreeing with him in his view of Præraffaellitism. But in another aspect of the matter, in reference to the direct connection between architecture and the graphic arts in the representation of the human form as a compromise, as all nature was, they surely should seek to embody ideal beauty; they should particularly, in representing figures of sacred personages, aim at that ideal beauty in which the Greeks were so successful, although imperfectly successful. In mediæval art on the other hand the beauty of purity and religious expression was present, although the technical grace of antique models might be absent. Accordingly he called on the art of the present to combine these excellencies. The imperfect beauty of the female figures which Præraffaellitism offered was accordingly a defect in its practice against which he protested. He had been always puzzled at the strange facial lines which that school was in the habit of employing, but in looking at a dialogue on art in "Nature and Art" he had discovered that it has from the first and purposely endeavoured to "break the facial line of the Greeks." He protested against this principle. The Præraffaellites were very fond of subjects from Arthurian legends, and rightly so, but if they would paint Guenevere he called on them to represent her like Helen and not with a face which they might see on the first passer-by in Conduit Street. Still they were under a great debt of gratitude to Præraffaellitism for knocking on the head many academic traditions of rather a stale character. But as a believer in the spiritualism of Gothic art he looked for that school of painting which was a true correlative of that movement not in Præraffaellitism, but among painters like Dyce and Herbert in England, and on the continent in Overbeck, and among painters known as the Dusseldorf school in Germany.

Mr. Burges said it struck him that the Præraffaellites had tried to do in painting all that the Cambridge Camden Society did in architecture. They went back to the first elements just in the same manner that architects were referred to the old churches; they kept to nature as the chairman wished architects to keep to old churches. The movement of the Præraffaellites began much later than that of the gothicists, Architects have by this time learned to design, but painters are yet in their tutelage. We should accordingly now discourage panel-painting, and encourage wall-painting. In the mean time their best artists were going on as well as possible. Rossetti, Hunt, and Millais, still adhered to nature, and were improving: he expected that the world would be delivered by their labours from the conventionalism under which it had been bound. He hoped that the Præraffaellites would break the facial line of Greek face which the president so much admired, and thought that if the Venus were turned into flesh and blood, she would not be such a creature as any one here would admire.

Mr. Seddon remarked that it seemed to him they often made a great mistake as to what the Præraffaellites intended, and what their tenets were, viz., a protest against what was termed "slop." He thought the Præraffaellites, when they started their movement, meant to say that they were entering a protest against the system of the painters in existence at that period; they determined to paint well whatever they did paint, and they said they would go to nature for their types. He thought that what the Præraffaellites meant as regarded the old painters whom they professed to follow was, not that they thought the works of Giotto and others perfect, and that they should be copied in all respects, but they thought that there was more of art in them than in the works of Michael Angelo and his followers; they did not mean to say that they would not adopt the greater knowledge of other men.

Mr. Gambier Parry thought that Præraffaellitism should be called Pre-Reynoldism, because it was a return to the pure system of colouring. What was meant by originality? It was going back to nature. Præraffaellitism had done that. It had gone back to a pure system of colouring and to nature. Study was the basis of all art. And in working out the principles of painting as well as of architecture, he did not see why they should not work out a new style by going back to true principles.

Mr. Street wished to join his word in favour of the school of Præraffaellitism. He thought the chairman had a little misrepresented the real result of Præraffaellite art. The main object of the school was to do everything in the most natural manner. He could not admit that there was any incongruity in defending conventional foliage in architecture, and yet upholding the connection between the Gothic and Præraffaellite movements. He defended Mr. Boyce and Mr. Brett among Præraffaellite artists from the charge of over minute copying. After referring in terms of praise to the landscapes of Rossetti, Hunt, Millais, and other painters of the same school, Mr. Street said he thought the Præraffaellite school had been developed in precisely the same way as they had developed the Gothic movement. Such a man as Pugin (though he might not be admired in all things) taught them to think of nothing but truth in their art, and that they should do in architecture what was true and natural; and that was what seemed to be the object of the Præraffaellites. The work of the Præraffaellites seemed to have been the natural accompaniment of the Gothic movement. The Præraffaellites had a most enthusiastic love of Gothic architecture, and that surely ought to be a consideration in their favour. The only artistic memorial in favour of Mr. Scott's design for the Government Offices proceeded from a body of Præraffaellites. He expressed his own distaste for the Dusseldorf school, as being a mere dead reproduction of an old form of art. The Præraffaellites were decried for minute details; but if the walls of cathedrals and public buildings were given up to them, they would soon lay aside this fault. Instead of paying two guineas a foot for painted windows, patrons of art should encourage the Præraffaellites by commissioning them to paint their walls. The enthusiasts of the school had shown the determination to succeed in their art, by painting, gratuitously, the walls of the Oxford Union.

The Rev. W. Scott remarked that as to the matter of chiaroscuro, and to the last work of Mr. Holman Hunt, one of the most striking things was that on visiting tropical climates the atmospheric effect in perspective did not exist. The objects presented themselves in a much flatter way than was the case in this country, and that might account for the want of atmospheric effect in Mr. Hunt's first picture, as well as in his Scapegoat. In a very warm latitude things presented themselves in very flat plane. But it might be a mistake to introduce that kind of treatment in an English picture. Again the Præraffaellites had been very neglectful in one branch of nature, viz., drawing after the nude. He believed the Præraffaellites had a great dislike to the study of that noblest form of nature, the nude human figure. Now he thought there was a great deal of cant in that matter, and that if they were to turn their attention to that branch of nature, and do in it as much, and in as reverential and proper a spirit as in other matters, they would do well.

The Rev. George Williams coincided with what Mr. Scott had said about the absence of atmospheric effects in Palestine, and which accounted for their non-appearance in the last great work of Mr. Holman Hunt. After complimenting the view of Jerusalem by the late Mr. Seddon, he said he thought the Præraffaellite painters deserved well of the Gothicists, and that they should congratule themselves and art on the effect produced by the operations of Præraffaellites. Præraffaellites might have committed mistakes, but he thought they owed them a very large debt of gratitude; and there was a great deal which they might do in the decoration of works of eminent architects now engaged in the production of structures, not only in this country, but even at the antipodes.

Mr. Street begged to correct Mr. Scott as to the abandonment of the study of the nude by the Præraffaellites.

Mr. Seddon mentioned other instances besides the Union Rooms, Oxford, in which certain Præraffaellite artists had attempted works on a large scale; in particular, a reredos by Mr. Jones, for S. Paul's, Brighton; and an altar-piece for Llandaff Cathedral, by Mr. Rossetti.

The President in reply congratulated the meeting both upon the great good-humour shown and upon the substantial agreement of the speakers. He ventured to say this, for there was no one however laudatory who did not acknowledge more or less that the school had fallen into peculiarities, and as soon as they were given up Præraffaellitism would come to a natural end, and its professors would simply be able and careful painters. There were certain broad distinctions of form and construction which distinguished Gothic and Classical architecture, but there was no such tangible demarcation between Præraffaellite and other painting. Personally he spoke without favour or prejudice, as the only Præraffaellite artist he had ever been acquainted with was the late Mr. Seddon, of whom none could speak without regret and admiration. In conclusion he drew the attention of the meeting to some ivories and to a handsome jewelled cross, which were sent to the meeting by Mr. Gambier Parry; to a frontal, worked by the Ladies' Ecclesiastical Embroidery Society, for Little Cawthorpe Church, Lincolnshire; and to numerous specimens of church plate, exhibited by Mr. John Keith, silversmith to the Society, 41, Westmorland Place, City Road.

THE LATE AUGUSTUS WELBY PUGIN.

A movement is on foot for raising a monument to the memory of the late Augustus Welby Pugin; and we are glad to hear that it is taking so practicable and useful a form, as to enable many to join in it who would perhaps, not feel bound to help, if the object were only a stained-glass window or a statue to the memory of one, who though singularly gifted, enthusiastic, and energetic, nevertheless failed to leave behind him any work, which can fairly be pronounced a great work of Art for all time. Pugin died young; but the deed for which he really deserves credit is the stimulus his writings,—even more than his buildings,—gave to the revived study of mediæval architecture, sculpture, and painting. It is right, therefore, that any scheme, the object of which is to preserve and do honour to his memory before men, should take a form such as that which the proposition now assumes,—namely, a Travelling Studentship (to which it is proposed to add a Medal), generally analogous to those of the Royal Academy, but tenable only for travels in the United Kingdom, and for drawing its mediæval antiquities. This is the thing above all others to which young students of architecture ought to give their attention, and, as far as we are able to judge from architectural exhibitions, just at the point to which they seldom do attend. If there were a more earnest study of ancient architecture, we should have fewer blunders and fewer absurdities than now; and unless men study the old examples when they are young, it is notorious that they never do so at all. Such a memorial as that proposed, Pugin himself, we cannot doubt, would most approve; for he was ever earnest and willing to assist others in life, and could not but rejoice that his memory should also be serviceable to men, in aiding the study he most delighted in. It is one, moreover, that may be joined in by all lovers of our ancient architecture, however diverse may be the degrees of their estimates of the works of Pugin himself.

The Committee consists of upwards of seventy noblemen and gentlemen, the Chairman being Mr. Beresford-Hope, who is also joint Treasurer with Mr. G. G. Scott. The Honorary Secretaries are Mr. Joseph Clarke, of 13, Stratford-place, and Mr. Talbot Bury, of 48, Welbeck-street, London.

The following words of Pugin himself, at page 20 of his *Apology for the Revival of Christian Architecture in England*, confirm in a peculiar manner the original opinion of the Committee that the form of memorial proposed is the most appropriate:—

"God grant me the means and I would soon place architectural studies on such a footing that the glory of these latter days should be even greater than that of the former. I would also have travelling students, but I would circumscribe their limits: Durham the destination of some; Lincolnshire's steepled fens for others; Northampton's spires, and Yorkshire's venerable piles; Suffolk and Norfolk's coasts; Oxford, Devonshire, and Warwick, each county should be indeed a school—for each is a school—where those who run may read, and where volumes of ancient art lie open for all inquirers."

THE NEW ROYAL MAIL VANS.—As those excellently and appropriately-designed vehicles—forming a marked contrast to the cumbersome "old times" vans hitherto in use—are the subject for much admiring comment in this city at present, *we* must also congratulate the builders, the Messrs. Anthony and Henry O'Neill, of the North Strand, on the manner in which they have turned them out, which is certainly a credit to our manufacture in that branch.

THE OPERA.—On the 10th instant a galaxy of musical talent, comprising the well-known artistes, Grisi, Viardot, Orvil, Sedlatzek, Rita, and Gassier; Mario, Luise, Graziani, Fellar, Kinni, Chierci, Forsi, and Ciampi, will appear at the "Royal" for a short series of Italian operas. The lessee reminds the public that this will be the *only* engagement of the kind this season.

GLASS, AND ITS USES.

On the evening of the 20th nlt., a highly-interesting lecture was delivered in the Rotundo by Mr. Frederick S. Barff, M.A., Cambridge (who is favourably known in the artistic world for his church decorations), of which the following is the substance:—

The lecturer, after observing that however simple the subject of his discourse might appear, it had much more in it than was apparent, proceeded to give the various derivations from which the word "glass" is supposed to come. He next brought under the notice of the audience the antiquity of glass. The Egyptians were the first known manufacturers of glass. Small figures of Egyptian deities, composed of vitrified material—turquoise coloured—were found in unrotting mummies now in the royal museums of France and England. And there was evidence existing to show that the Egyptians were acquainted with both the component parts of glass and the method of working it in several ways. It was asserted that the Israelites discovered how to make glass in the wilderness; others held that it was the Phœnicians who discovered the process through the action of their fires on the sands of the river Belas, near which they had encamped after shipwreck. In iron manufacture the substance of glass was necessarily produced, and if Tubal Cain, who was the first artificer in iron, smelted the substance, he certainly must have made glass. In the burned city of Nineveh, Mr. Layard, who conducted the excavations there, found lenses of glass such as are used in telescopes and opera glasses. The celebrated Portland vase, of date 230 years before Christ, was composed of blue glass transparent, and in the city of Thebes, of antiquity of 3,000 years ago, glass articles were used. In the Christian era St. Jerome mentions the use of glass, and in the eleventh century the article was in general use for domestic purposes in these countries. Glass was, however, before that period known and used in France, where the patents for its manufacture were given only to noblemen and gentry, whose sons actually worked as artificers of glass. About this time Venice took a decided lead in the manufacture of the article, excelling all other countries in the value of the material, the beauty of the colour, and perfection of translucency. The first mirrors were made of Venetian glass. In 1665 plate glass was manufactured at Tour le Ville, near Cherbourg, under the patronage of the Minister Colbert, who invited to France Venetian artificers. Flint glass was introduced into England in 1557. From that time it had gradually improved in quality, and at the present time British flint glass was equal to any manufactured in the world. The purest and best glass was made out of white sand. In the North of Ireland were two mountains supplying white sand of unequalled quality for glass, but he regretted to say that the owners of these mountains were not yet liberal enough to allow the sand to be carted away by some enterprising parties who would manufacture it into Irish glass of unrivalled superiority. The lecturer described the various kinds of plain and coloured glass now in general use, and the different processes of manufacture, dwelling specially upon the manufacture of glass invented and carried out by Mr. Hartly, of Sunderland. He then proceeded with the second part of his discourse, which treated of glass painting. There were three styles of this art, the first commencing in the year 1230, the second in 1380, and the third in 1530. The first style was the Mosaic, the second the enamel Mosaic, and the third of enamel altogether. There really was no mystery about the art of painting glass, however certain parties might try to make people believe there was. The colour might be put on glass as any other substance, and when burned in, or fused, the work was permanent. The great object of painting glass for churches was to preserve harmony of colouring and secure the dim religious light. This pleasing and solemn effect was admirably produced by the artists in the first period of the art, in the second not so well, and in the third, least successfully of all, owing to the introduction of figures. Painting on glass and painting on walls were entirely different things; and he regretted that the distinction was not as well observed as it ought to be in the present period of the art of glass staining. There should be no attempt at perspective in glass painting for churches; every figure and ornament should be set in plain and level, as it were, taking care that the harmony of the colours should be preserved. This was the practice of our forefathers, and it ought to be followed now. Ireland possessed few remains of ancient stained glass, nearly all were destroyed, as in England, by Cromwell. Beautiful specimens, however, were in the cathedrals of Canterbury and York Minster—the colours rich and flowing, and in perfect harmony, producing a magnificent effect. The lecturer criticised with some severity the present style of art followed in glass painting for churches, particularly in reference to the attempts at perspective, and the introduction and drawing of figures. He held that there was no reason why we should follow the grotesque drawing and drapery of the figures in the ancient style, and that it would be well that artists would depict things as they really are. The lecturer gave a brief sketch of opaque painted glass, mentioning the fine specimens that existed in the roofs of St. Peter's church at Rome, and St. Mark's at Venice. He concluded by expressing a hope that Ireland, which possessed in such abundance the materials for the manufacture of the best glass, would yet be distinguished for the produce of that article, and that Irish artists might be found to adorn churches with stained windows, exemplifying the true principles of art, and consequently becoming worthy of the religious purposes to which they would be applied.

OPENING OF THE STREET TRAMWAYS AT BIRKENHEAD.

On Thursday, the 30th ult., the new street railway, connecting Woodside Ferry with the Park at Birkenhead, was opened, and the event inaugurated by a magnificent banquet, at which some 400 persons were present. Mr. George Francis Train, the proprietor and patentee, occupied the chair, and amongst the company were, Mr. John Laird, the eminent ship-builder; Mr. William Dargan, Aldermen Kinahan and Mackey, Mr. Frith, C.E., and Mr. Bower, C.E., from Dublin. The English press was represented by numerous gentlemen, and the Irish likewise by Dr. Maunsell, of the *Evening Mail;* Mr. J. J. Lyons, proprietor and editor of the Dublin Builder; some gentlemen from the *Freeman*, *Morning News*, &c. The Editor of the *Melbourne Argus* also attended, and acknowledged briefly, but suitably, the toast of "the Press." During a period of six hours—viz., from 2 p.m. to 8 p.m.—a very animated discussion upon certain interesting and substantial topics, in which "the glorious vintage of champagne" occupied not the least important position, took place, and a few excellent speeches were delivered, amongst which the truly brilliant oration of Mr. Train shone refulgent. Some 5,000 passengers travelled in the cars over the route, and the greatest enthusiasm prevailed. During the short period of 60 days this road, about 2 miles in length, has been completed, and the cars are commodiously and suitably constructed. We shall revert to the details of the principle fully in next number.

CHARLESTOWN CHURCH, MAYO.

A new church has sprung up with a new town, entitled Charlestown, in a wild part of the county of Mayo, thanks to the energy and liberality of Charles Strickland, Esq., of Lough Glyn; and recently passing through this locality we were not a little astonished to find an edifice of such correct ecclesiastical character in so remote a district. The building is a spacious one, capable of accommodating a very large congregation, and is planned on the usual arrangement of nave, aisles, chancel, sacristy, and porch. Its total internal length is 103 feet by a width of 53 feet. The nave is divided from the aisles by arcades of arches, five on either hand carried on simple chamfered masses of masonry, with a square base in front, such as we find in ancient examples of Irish ecclesiastical architecture, *e.g.*, the old cathedral at Limerick. A lofty arch opens into the chancel, which has an eastern window of four lights, with simple "plate tracery." The clerestory is composed of cinque foiled circles, and the aisles are lit by coupled lights, all of the simplest description. A triplet of lancets under an enclosing arch forms the composition of the western gable, which is crowned by a bell gable—a prominent object for many miles. The chancel window is filled with stained glass representing the Blessed Virgin, St. Patrick, St. Bridget, and St. Charles Borromeo, the patron saint of the Church. The total cost of the building was under £2,000, the work having been constructed in the most solid and substantial manner. The architects were Messrs. Hadfield and Goldie, of Sheffield and Westminster; the builder Mr. Wm. Doolin. We also understand an identical structure has been built at some few miles distance in same county.

Ardgillan Castle, the residence of Colonel Taylor, M.P., has been lighted with gas by Messrs. Edmundson of this city.

The *Art Journal* directs attention to the frescoes of the Houses of Parliament, and says, that some of those beautiful works are completely destroyed, and *all* partially injured, their total destruction being only a matter of time.

An organ has been constructed at Vienna for the Sultan, which is the great wonder of the day. It cost fourteen thousand florins, and is a complete orchestra of fifty musicians, equal to the same in power and expression.

It appears from the account of the police valuator, handed in on the 1st August, that 198 new houses have been occupied for the first time since 1st January last in the town of Belfast.

The cornice of the Turkish baths, now being erected in Donegal-street, Belfast, fell last week, fortunately in the absence of the workmen, carrying with it the scaffolding.

CEMENT AS A SUBSTITUTE FOR STONE.

The "days of yore" were excellent in many ways; each age has its beauties and imperfections, and certainly we may enumerate amongst the former the strength of will and perseverance displayed in their still strong and permanent structures, though they may have used a superabundance of material. They intended to build for posterity, and they did so. The artist, poet, sculptor—all worshipped at the same shrine, and emulated each other in the production of works of art, which may be fitting ornaments to the buildings containing the altar of their religion. On the other hand, the domestic dwellings were lamentably deficient. In a state of vassallage, the lower classes were cared for, housed, clothed, fed; and the wealthier citizens had not arrived at that position wherein necessity calls loudly for new ideas and rules as regards health, convenience, and economy. The rude tenement, besides, had more charm for their hardy natures than ours, built to satisfy our commercial requirements. On those buildings, however, to which they attached the greatest importance they lavished money and time, and our modern architects are proud to copy them. Their style is copied by us, many of their ideas have been improved upon, but the excellence and finish of their execution has never yet been attained by us. And as regards their substantiality, we are warned to notice one evil which has been rapidly invading our architectural efforts—the extensive use of cement, and even now it is a matter of investigation how much further its use may be carried for *heavy* projections, with a lining as a substitute for brickwork. We daily see columns under porticoes made up of bad brickwork and plastered over with cement, Carton-pierre used immoderately in the way of decoration, whole house-fronts nothing but cement, which, with a hot sun and bad work behind, will tell fearful tales in a very short space of time, and this is the opinion of architects who use it. Our noblest mansions are now generally reared in this flimsy manner, with less expense, of course, but what will a short-lived economy be worth when they will have been fairly tried by rain, frost, heat, &c., and those peculiarities of climate to which we are subject? A dread of the *striking* qualities of masons (which, we believe, first suggested the use of cement at all for facing houses) may act upon the prejudices in its favour; but we prefer the brick, for what after all looks so well as good, level, nicely-pointed brickwork, with a polychromatic arrangement, no staining, no colouring, but a natural colour from the kiln.

This is an age of card-houses, wicker-castles, and penny-peep-show-palaces! We are gradually lessening our building expenses till we shall perhaps arrive at a parallel consummation with that attained by the individual who trained his horse to live upon nothing, and was disappointed one morning to find him dead! We shall learn to cut it so fine as to find our houses tumbling about our ears. We should be sorry also to say that building had become a mere trick of trade, and a specification, which was at one time a mere code of instruction, is now a sort of man-trap, constructed on the most scientific principle, and forced by existing circumstances! Since then our interiors are flimsy, we cannot expect much else in our exteriors, and this system altogether has created a class of builders who live by the flaws of specifications, and substitution of bad for good material. This may be digressive, but having a connection with the general principle which we condemn, we could not avoid an allusion.

To return to cement-facing. Is it because we are used to stone columns, for instance, that we must use brick and cement? Why should we not have brick? In rows of houses the moulded bricks, pointing, &c., could be done at as little expense as left rough and cemented. Columns of red brick ranged here and there with blue or yellow, with stone or iron caps and bases, would not interfere with the orders, as they are of proportion, not colour. Pilasters, plinths, cornices, parapets, look well in brick, which we would strongly advocate in preference to cement—the sheeps' clothing of modernized architecture. Rome, in all her greatness, considered her pottery and tile-making not the least of her achievements; we should be proud of our brickwork, and never strive to deface it by a mad imitation of stone, and which (excepting it be of the very best description) is bad indeed.

We have thus inconsistencies of a remarkable nature. On the one hand, the society of antiquaries stripping plaster off our old church walls; on the other, architects running up edifices, smothering them in cement and Carton-pierre, and whilst they declaim against all which may savour of the *untruthful* in architecture, erect it daily as evidence of their inconsistency. If there is to be an acknowledged and universal principle, let it be carried out, for they who write "Essays on Taste" command our admiration, which is received in *word* and denied in *deed*, and whilst disciples avoid actual inconsistencies pointed out to them, commit others twice as extravagant.

As regards the use of cement generally, it would no doubt be found enormously expensive to erect mansions, warehouses, and public buildings, facing them entirely with stone: but the use of brickwork, with stone used discriminately here and there, would look far better than cement, and cost no more, and be far more likely to preserve for us a pretension to national style. R.

ST. PATRICK'S CATHEDRAL.

(COMMUNICATED.*)

For many years past the ruinous condition of the venerable Cathedral Church of St. Patrick, in this city, has been a subject of continually increasing anxiety and regret. Originally well built, though not with the best materials, it has yielded very slowly to the destructive influences of time and climate; nor could it be doubted that, if ordinary attention had been paid to the necessary repairs, it might yet for many centuries be preserved as a monument at once of architectural skill and national piety. The Dean and Chapter have very inadequate resources for this purpose, and it is, perhaps, fortunate that they did not possess larger funds applicable to building and repairs, for to this circumstance we are indebted for the preservation of much that is really antique. Had the Economy Fund been large, it would, no doubt, have been expended liberally; but if we may judge from what has been hitherto done in that way, the result would only have been the irreparable disfigurement of the church with carpenter's Gothic and other tasteless incongruities. The deficiency of funds, if it has acted injuriously in one direction, has had a conservative influence in another, and has obviated many difficulties in the task of a successful restoration. It is now well known that in our respected fellow-citizen, Benjamin Lee Guinness, the church has found a benefactor, whose munificence has no parallel in this country since the age in which its cathedrals were built, when the animating sentiment alike of princes and people was to give the Lord the honor due unto His name—worship the Lord with holy worship. But it should be equally well known that the church will be still more indebted to Mr. Guinness for the good judgment and correct taste with which he directs the expenditure of his £20,000 on the works of reparation. His principle is to replace whatever is decayed, adhering exactly to the ancient patterns, and making no other alteration than the substitution of a better material. The plan is to restore, but not to innovate. In all previous repairs this principle was neglected, except only in the single instance of one buttress and pinnacle on the north side of the choir, which was truly restored by the present Dean soon after his appointment, but with the judicious alteration of using a good durable limestone in place of the soft sandstone previously employed, which, from its readily yielding to the action of the atmosphere and rain, is quite unfit for the exterior of a building. Mr. Guinness is ably seconded by his builders, the Messrs. Murphy, of Amiens-street, who have engaged in the work with much diligence and constructive skill as leaves nothing to be desired. The progress already made, within the brief period of about five months, is sufficient to enable us to estimate the general character of this great undertaking; but previous to giving any details, it is necessary to advert to the early history and recent condition of the church. Archbishop Usher says that it is uncertain when this Church of St. Patrick was first founded, but he states that it was enlarged by King John, and was first made præbendal by Archbishop Comyn, in the year 1191, with the approval of Pope Celestine III., and that by his successor in the see of Dublin, Henry de Loundres, it was raised to be a cathedral, after the model of the Church of Salisbury. The foundation of the present church is, however, distinctly ascribed by historians to Archbishop Comyn, and was consecrated in the year 1191. The ground plan, like that of most cathedrals, was cruciform, the church, when completed, consisting of nave, choir, and transepts, all these parts having aisles. In or about the year 1270 an eastern chapel was added, and dedicated to the Blessed Virgin Mary, or, according to some accounts, to St. Stephen; and the choir aisles were extended eastward, so as to partly include this chapel between them. About the year 1370 the great square tower was erected at the north-western extremity of the nave, where it stands engaged in the exterior wall of the north aisle. On this tower a granite spire was erected in the year 1750. The prevailing style of the entire church was the simplest and most severe of the Gothic, or, as it is now the fashion to say, the early English; but some diversity of style was gradually introduced, if not during the progress of the original building, at least in the extensive repairs of subsequent centuries. To the latter part of the fourteenth century we may refer the window with flowing tracery at the west end of the north aisle of the nave, and to the same period probably belong also the four western arches on that side, which, as well as the clerestory windows for the same extent, exhibit sufficient differences from the remainder of the body of the church to mark a later period. The simple lancet-lights of the aisles in both choir and nave were at same time replaced by larger mullioned windows belonging to the decorated style; one only of the original windows remaining in the north aisle of the nave, next the tower, where it may still be observed; but until some alterations had been made a few years ago, the arches of the original opes could be seen plainly in the exterior masonry of the aisle walls. The great west window in the perpendicular style is obviously an interpolation of even later date. The clerestory of the choir was supported on the outside by flying buttresses—four on the north and four on the south side. We cannot determine whether these were part of the original plan, or additions as ornamental as they were useful, made at a later period to resist the outward pressure of the stone vaulting of the lofty choir. The shafts of the pinnacles were square in the horizontal section, were decorated with tracery, and surmounted with caps which were either conical or octagonal pyramids; but being constructed of a soft stone had yielded so much to the weather that their true figure cannot now be precisely ascertained; but there is no doubt whatever as to the shafts and ornamentation of those pinnacles. There were no pinnacles on any other portion of the building, and it is to be regretted that one flying buttress has been completely removed on the north side, and two others at the north-eastern and south-eastern angles rebuilt with their pinnacle shafts of an octagonal form, and over-capped so much that when viewed in profile against the clear sky they resemble nothing so much as a mould candle with an extinguisher. The north transept, which has long been used as the parish church of St. Nicholas, was permitted to become a ruin towards the end of the last century, and was completely demolished about forty years ago. It has been rebuilt with better stone, but with very little attention to the style of the cathedral, and is still used as a parish church. The eastern chapel, which for many years had been used by a congregation of French refugees who conformed to the Established Church, and afterwards as a chapter house, was entirely taken down about ten years ago, although quite susceptible of repair, and has been rebuilt on the original, but with this fault among many others, that the soft sandstone imported from Caen has been again used in most exposed situations—in quoins, angles, and weathering of buttresses, where it is already going to decay and disfigured by cryptogamic vegetation. The south transept and south wall of the nave had long been in a precarious or dangerous condition. Either at the beginning of the eighteenth or the close of the seventeenth century, two clumsy but effective flying buttresses had been erected for their support. These will be remembered as one on the south side of the nave, the other on the west side of the south transept. Both were surrounded by stone balls, such as usually decorate gate piers, and were incongruous though useful. Their utility would not have been less had they been modelled after those of the choir. But the stability of the nave had been seriously impaired by cutting into the pillars for the insertion of monuments, most of which were in the worst taste, and all inappropriate to the style. A further injury was done in Archbishop Magee's time by the erection of two huge galleries in the nave, by which, when occupied, a great additional weight was thrown on the piers already weakened. The triforium of the nave was sacrificed to those hideous constructions. The equilibrium was so disturbed by those conjoined causes that about fourteen or fifteen years ago an attempt was made to strengthen the nave piers by removing their exterior and replacing it by a thin casing of cut stone. This gave but little, if any, additional support, and it was then found necessary to prop up two arches by strong timber frames and centering. In this state the church fortunately attracted the attention of Mr. Guinness. He saw at once that but one remedy could be applied. The ruinous portions, extensive as they were, should be entirely removed, and replaced by a new structure, retaining the form and appearance of the original, but far surpassing it in strength of construction and quality of material. He has engaged simultaneously in several distinct parts of his great enterprise, of which we may with truth say that it was with him a labour of love. The south wall of the nave has been taken down, after the monuments had been first carefully removed for re-erection in more suitable positions. The house of God should not resemble a sculptor's gallery or a museum of curious objects. The rebuilding has already commenced in the nave. Three of the pillars, which are to support the great arches and their superstructure, have reached their full height. They are built from the foundation on the same site as their predecessors held, but instead of rubble masonry they are constructed of solid granite of Cyclopean strength and proportions. Exterior to this core, which is 3 feet 10 inches in diameter, will be a casing of Caen stone, in which the engaged columns ("the shafted stalks," as Scott calls them) are formed. Of this exterior casing there are portions already in position; and from even these specimens we can judge how fine will be the effect of the entire when completed. It is not too much to say that it could not be surpassed by Pugin in his best efforts. The draining of the church, which hitherto has been most ineffectually attempted, although the vicinity of a running stream offered great facilities, has received due attention, and may now be considered as accomplished. While these works were proceeding in the nave the reparation of the exterior of the choir has also been commenced. Every one that has viewed the church from the south must have remarked the crumbling jambs and arch mouldings of the clerestory windows, and the dangerously ruinous state of the pinnacles of the original flying buttresses. These pinnacles are now nearly down to the spring of the arches; they have been strengthened from below, and will be exactly rebuilt of the former pattern. The two most easterly of the choir clerestory windows on the south side have had their decaying stone work removed, and replaced with exactly similar jambs and mouldings cut in the best Irish limestone. The fidelity of the restoration can be proved by a comparison while there is opportunity with the adjoining windows not yet touched. The works throughout will be equally honest, an honor to the donor, and all under his direction. But we would wish to see photography employed to preserve accurately the form of every part that is to be removed. The greater part of the south transept, both within and on the exterior, demands this precaution. Its eastern wall is on the interior aspect very beautiful, and has some ornamental features which distinguish it from the western. The western extremity of the south aisle of the nave is to the extent of two arches occupied by an ancient crypt of great age, perhaps a remnant of the earlier church, possibly the original seat of the University of Dublin in the early part of the fourteenth century, and certainly that of the school in which Archbishop Usher, who was born and reared in Nicholas-street, received his early education. We hope that it may be decided to preserve this interesting remnant of antiquity, which is capable of being rendered a very appropriate church porch. The only reason we have heard for proposing its removal is, that it prevents the formation of a large decorated window corresponding to that of the opposite aisle; but that window of the north aisle, though undoubtedly beautiful, is itself an innovation, and it is by no means necessary that there should be an exact symmetry of the two opposite sides. If there were such a principle in the Gothic, it would follow that another tower should be erected at the south-western angle to match the present steeple. Cathedrals such as Exeter, which have two towers, usually have them somewhat different in style and finish of their details. To the completion of St. Patrick's stained-glass windows would be essential, but this would entail an amount of expense which should not be allowed to fall on Mr. Guinness. In the eastern window there was an appropriate ornament, the Star of the Order of St. Patrick, which, in some recent attempts at improvement, was swept away. Should not something better have been first provided? In the same spirit of innovation was destroyed the altar-piece, a fine picture of the sun rising, in allusion either to the "Dayspring from on high," or to our Lord, "The Sun of Righteousness." For this a plain glass sash window, or glazed screen, has been substituted. With the better system of improvement that is now in progress, we may hope that all these incongruities will disappear, and that the state of the church may in future be such that the harassed student who attends Divine Service on the Lord's Day, may be able to sympathize with the great English poet, when in his better days he sung—

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* This article is *quoted* from a local contemporary.

> "But let my due feet never fail
> To walk the studious cloysters pale,
> And love the high embowed roof,
> With antique pillars massy proof,
> And storied windows richly dight,
> Casting a dim religious light.
> There let the pealing organ blow,
> To the full-voiced quire below,
> In service high, and anthems clear,
> As may with sweetness, through mine ear,
> Dissolve me into extasies,
> And bring all Heaven before mine eyes."

If this should ever be realized in our time-worn and ruinous cathedral, it will be owing to the princely generosity and correct taste of Benjamin Lee Guinness.

Fortifications of Waterford Harbour.--The additions and alterations at Duncannon Fort are now completed. Capt. Synge, commanding Royal Engineers at the Curragh Camp, together with Lieutenant Price, R.E., from Kilkenny, inspected the works, and were much pleased at the manner in which they were carried out by Mr. Abraham Stephens. The sea face of the fort is now prepared for mounting nine 68-pounder Armstrong guns, on traversing platforms, capable of throwing shot and shell 6 miles to the entrance of the harbour. There has also been erected two extra magazines and five shell rooms for the storage of shot and shell for the use of those large guns, together with four bangriette for riflemen.

ASSERTED DISCOVERY OF A PAINTING BY CORREGGIO.

THOSE of our readers who have visited that portion of the national collection of pictures which comprises the works of foreign schools, and is exhibited in Trafalgar-square, London, need not be reminded that among the most brilliant works of that superb collection are certain pictures by Antonio Allegri, better known as Corregio, from the small Italian town which gave him birth in 1493, and witnessed his early death in 1534. He is supposed to have been instructed in art by Antonio Bartolotti, a painter of the same place, and by 1219 had become a master of established reputation at Parma.

"Corregio's frescoes, and even some of his oil pictures, are remarkable for violent but skilful foreshortenings. His proverbial *grace*, apparent not only in his undulating forms and soft transitions, but in the action and expression of his figures, is a distinctive characteristic of his works; and he is still unrivalled in a certain harmony which results from delicate gradations of light and shade.

"The pictures of Corregio were so exclusively conspicuous for these qualities before the rise of the modern school of Bologna, that the first sight of some of his works forced Annibale Carracci, in a letter to his cousin Lodovico, to declare that in comparison with them the St. Cecilia of Raphael appeared to be wooden."

Now among the most exquisite examples of the master there are two which were acquired through the medium of an Irish nobleman, and of which we shall transcribe the official statements, viz:—

"No. 10. Mercury instructing Cupid in the presence of Venus. Mercury dressed in his winged cap (Petasus) and sandals (Talaria), is seated on the ground, and is endeavouring to teach Cupid his letters, of which, according to a Greek myth, he was the inventor. The little god, standing by his side, appears to be paying due attention to his lesson. Venus, here represented as winged, has taken temporary charge of Cupid's bow, which she holds in her left hand, and appears to be entertained with the novel spectacle. The back-ground of dark foliage contrasts finely with the well-rounded nude of the figures. Entire figures nearly of the natural size.

"Engraved in a large scale by Arnold de Jode, in 1667, and in small in 1786, by Le Villain, for the *Galerie du Palais Royal*, in which there was a duplicate of this composition. On canvas, 5 feet 1 inch high by 3 feet wide.

"This picture, one of Correggio's masterpieces, was formerly in the possession of Charles I., who purchased it of the Duke of Mantua with the rest of that prince's collection in 1730. It was bought, after the dispersion of the king's effects (it brought £800 at the sale), by the Duke of Alva; it was subsequently the property of the Prince of Peace, in whose collection it was at the time of the occupation of Madrid by the French, when in 1808 it fell into the possession of Murat, afterwards King of Naples, and it was thus, after a lapse of two centuries, restored to Italy. Its next possessor was the Marquis of Londonderry, who obtained it, together with the 'Ecce Homo,' No. 15 in this collection, of the ex-Queen of Naples, at Vienna, and both pictures were purchased from the Marquis of Londonderry, in 1834, for the National gallery.

"No. 15. Christ presented by Pilate to the people, called the 'Ecce Homo.' 'Then came Jesus forth, wearing the crown of thorns, and the purple robe. And *Pilate* saith unto them, Behold the man!'—John xix. 5.

"The greater part of the picture is occupied by the figure of our Saviour, behind whom to the left is Pilate, pointing with his right hand to Christ, and uttering the words which constitute the title of the subject. On the right is seen the head of a Roman soldier, and in the fore-ground to the left the Virgin Mary is represented in a swoon, supported in the arms of St. John. Half length figures of the natural size.

"Engraved in 1587 by Agostino Carracci, of which print there are several copies; more recently by P. Bettelini, and by G. T. Doo, R.A.; and in small, in Jones's National Gallery. On wood, 3 feet 2¼ inches high by 2 feet 7¼ inches wide.

"This picture, formerly in the possession of the Counts Prati, of Parma, was subsequently long in the Colonna Palace in Rome, and it was, according to Ramdohr, the best picture by Correggio in that city (in 1784). It is noticed also by Mengs, who supposed it to be one of the painter's earlier works. It was purchased of the Colonna family by Sir Simon Clarke, who, being unable to remove it from Italy, sold it to Murat, then King of Naples, and, as already mentioned, it was purchased, with No. 10, from the Marquis of Londonderry, in 1834."

There is undisputed evidence that the painter copied or reproduced his works, as in the case of "Christ's Agony in the Garden," one representation of which subject is in the national collection, and another in that of the Duke of Wellington's.

That there should be two pictures of the "Ecce Homo," therefore, is brought within the scope of probability, and we thus arrive at the point which has created some sensation among the *cognoscenti* of London.

It appears that about eight or ten weeks since a work was left for the inspection of a dealer, and after some washing and scraping was found to have been disguised by a super-coating of paint. This was judiciously removed, the picture relined, and being placed in a boldly-carved and newly-gilt frame, under a sheet of plate glass, has been made the subject of an exhibition.

It is not a copy of the *facsimile* class, but one in which considerable latitude has been assumed by the producer; and this is a circumstance undoubtedly favourable to the assumption that it is the work of Correggio's hand. Christina, Queen of Sweden, is known to have possessed several of his works, and the possibility of such a source is not forgotten.

As to the value of such a work, if proved to be genuine, some clue is suggested by the price (£11,500) paid to Lord Londonderry for the two pictures obtained of him. Everything, of course, depends on the authenticity of the work; but whether that be established or not, we are led to think the precedence in breadth, grace, and delicacy, those finer qualities which constituted the "*Correggiocity of Correggio*," will remain with the national picture.

BALLAGHADEREEN CATHEDRAL, CO. MAYO.

OUR readers will be interested, and probably somewhat surprised to learn that during the last four or five years a large cathedral church of a dignified and strictly ecclesiastical architectural character, has been growing up in this remote locality, out of the line of railways and amidst a wide extent of bogs and comparatively sterile country. The energy of the Roman Catholic Bishop of the diocese of Achonry, seconded by his clergy, and the cordial co-operation of some of the more influential laymen of the neighbourhood, has been the motive power which has produced this important work. The church, which has been built after designs by Messrs. Hadfield and Goldie, architects, consists of the ordinary constituent parts of a parochial church, viz., a nave and aisles, chancel with side aisles forming chapels, and the dependancies of porches, sacristy, and a western tower and spire yet to be erected. The total internal length of the building is 150 feet, its width being 59 feet, with a height from the floor of the nave to the apex of its roof of 67 feet. The style is a simple Gothic, known as "Early English" or "First pointed." A very noble arcade of eight arches on either hand forms the nave, carried on cylindrical shafts, with lofty bases and moulded capitals, the arches and capitals being wrought in white Scotch sand-stone, the bases and shafts in the local blue lime-stone. A chancel arch of lofty proportions, with shafted jambs, and a moulded arch, opens into the chancel, which has a noble eastern window of six lights; smaller arches terminate the aisles, and give access to the chapels which flank the chancel, into which they open by other arches. The roofs are framed in open timbers, the original intention having been to cover or vault them in wood and plaster, but this has been abandoned on the ground of cost. A lofty tower and spire is hereafter to be added at the western extremity of the nave. The high altar for the chancel is in progress of execution in the workshops of Mr. Henry Lane, of Dublin, whose works at Dominick-street Church and other places are so well known to our readers. The altar and tabernacle are to be of Caen stone and Irish marbles,—the tabernacle rising to a considerable height in rich canopy work, crowned by a rich gilt cross, set with crystals. The door will be likewise richly gilt and engraved. The reredos is to rise to a considerable height behind the altar, and will be formed of Caen stone, encausted with enamelled tiles of rich colours. Beyond the high altar no other fittings are as yet in progress—they will be undertaken by degrees. It is expected that the church will be ready for opening next month. Mr. Charles Barker is the clerk of the works. The total cost will be about £5,000.

NEW NATIONAL BANK IN LONDON.—A correspondent enquires, "are we aware that the *National* Banking Company of *Ireland*, comprehending *five-sixths* of shareholders *Irish*, are about expending £30,000 on a new bank at their head quarters in London (where they are compelled to pay a heavy amount annually for exchange of their notes into current coin), and why not expend the sum in Dublin in preference?"

THE NATIONAL TELEGRAPH COMPANY.—This company is now in course of formation for the construction of a system of telegraphs throughout the United Kingdom, from London to the principal towns in England, Edinburgh, Dublin, Cork, and Belfast, &c. The system is to be based on the principle of the penny postage, to convey messages at a low or uniform rate of one shilling, or some equivalent charge irrespective of distance.

THE PROPOSED PAROCHIAL CHURCH OF ST. ANDREW.

Our readers have been already acquainted, through the pages of the Dublin Builder, that the designs by Messrs. Lanyon, Lynn, and Lanyon, Architects, sent in competition for the new church to be erected for St. Andrew's Parish, in lieu of that somewhat recently destroyed by fire, were selected by the committee, and the result must prove most gratifying to that firm, as several very eminent professionals entered the lists. As yet it would appear to a certain extent problematical as to whether the structure so designed will be carried out in its integrity or not,—some say not at all,—however we leave that question to be decided by time, but have seized the earliest opportunity in presenting the public with *one* view (at least for the present, though others are in our engraver's hands) of what must be conceded by all to be a very noble and appropriate architectural work. A few words of description moreover, will prove acceptable. The plan is cruciform, with nave 83 feet long by 29 feet wide, apsidal chancel 41 feet by 28 feet, transepts (each) 25 feet by 33 feet, aisles 22 feet and 17 feet respectively, cloister porch, baptistry at south-west angle 14 feet wide, sacristy (under tower) organ loft, &c., &c. The tower, 80 feet in height, shown in the illustration will be in connection with the northern transept, nearly facing Church-lane, and be seen to its base to a considerable distance down Nassau-street; and the spire with which it is intended to be surmounted will attain an altitude of 175 feet to the vane, forming one of the highest of the few landmarks the city can boast of. For the external features generally the perspective illustration, which is taken from north-east angle, is sufficiently descriptive, but we desire to note specially the cloister porch, which with its two entrance doorways and concomitant parts is excellently and picturesquely handled. The style of architecture is the early decorated of the 14th century. Internally the nave will be 73 feet to the hammer beam, have open timber roof stained and varnished, be separated from aisles by an arcade of four bays, with circular piers and pointed arches, and have clerestory windows over same. At the intersection of the transepts with nave are four great arches—springing from clustered piers,—one of which leads to chancel, which is lighted by 5 two-light windows, as seen on the illustration, and will have a stone groined ceiling. The aisle, stated to be 22 feet in width, will be carried up in A form, terminating in gabled ends, and the other have shed roof from about level of clerestory windows, forming a pleasing variety in the outline. The chancel will be floored with encaustic tiles, and no doubt hereafter the windows will be filled in with stained glass. The materials proposed to be employed throughout are granite for the facing of general structure, and Bath stone for the dressing.

The windows throughout are generally in two bays, except that lighting nave, which has five, the north transept four, and the north aisle three. Groined ceilings are provided for the organ room and vestry.

RE-OPENING OF ST. ANNE'S CHURCH.

As already announced, this parochial church has been undergoing a series of improvements mostly internally, but partly externally, in the reconstruction of the side and organ galleries, the general refitting with pews, the opening of new windows, &c.; but the principal works were chiefly confined to the apsidal chancel, which has been newly railed in and tiled with encaustics; two memorial windows, constructed with Bath stone dressings and filled with stained glass, by Warrington, of London, serving as memorials to Knox, the Reformer, and Mrs. Hemans respectively; a beautiful and elaborately carved pulpit, reading-desk, sedilia, and font being likewise added.

The general works were contracted for by Mr. Hall, of Kevin-street, builder, but the carvings and stone dressings connected with the chancel, together with the pulpit, font, and desk, were designed and executed at the establishment of Messrs. Purdy and Outhwaite, Great Brunswick-street, assisted in the former department, as we learn, by a professional gentleman distinguished for his ability in ecclesiastical art. The church was re-opened on Sunday, the 12th ult.

THE BRICKLAYERS OF DUBLIN.

We experience at all times especial pleasure in chronicling the progressive doings of the artizan classes, but probably during our existence never has the opportunity been so favourably afforded as in the recent laudable step of a most important and generally excellent body, "the Dublin Bricklayers." Induced by higher and more ambitious motives than the mere holding of a weekly meeting for general purposes in a locality with infatuating and demoralizing tendency—as is, unfortunately, habituous with the trades throughout the kingdom—the bricklayers have set their fellow-tradesmen an example worthy of being followed, and soared higher; for by the united contributions of the body, and a few gentlemen connected with the building profession, they have succeeded in securing what others cannot boast of—viz., an important building, combining the advantages of a capacious hall for meetings, lectures, &c., a library, a reading-room, &c., and moreover spare apartments for such select members of the craft as by natural infirmity or by accident are debilitated. For this purpose the Cuffe-street Savings' Bank, of notable memory, was obtained by them on lease, and, with a comparatively trifling expenditure, has been adapted to their purposes, and duly inaugurated. We wish every prosperity to the undertaking, and commend it to the consideration of our readers. Mr. John Nolan is the president.

⁂ The Committee gratefully acknowledge the receipt of the following donations, &c., to the Institute:—

John Nolan, Esq., £5, and £1 first annual subscription.
John Bell, part donation, £1, and £1 annual subscription.
Gilbert Cockburn and Son, £5, and £1 annual subscription.
J. Beardwood, Esq., £5, and £1 annual subscription.
John Rooney, Esq., £1, and £1 annual subscription.
John Farrell, Esq., £1, and £1 annual subscription.
Mr. Drysdale, Bank of Ireland, 5s.
Mr. Byrne, Bank of Ireland, 2s. 6d.
Mr. M'Evatt, Bank of Ireland, 2s. 6d.

The Committee respectfully call the attention of the gentlemen of the Dublin Press, and all other well-wishers of progress and social order, to the generous donations and support cheerfully given by the above distinguished and eminent builders of this city, as it will unmistakably show the estimation in which they hold the men of this community after the lapse of half a century.

James Flood, Chairman.
Christopher Tutty, Secretary.

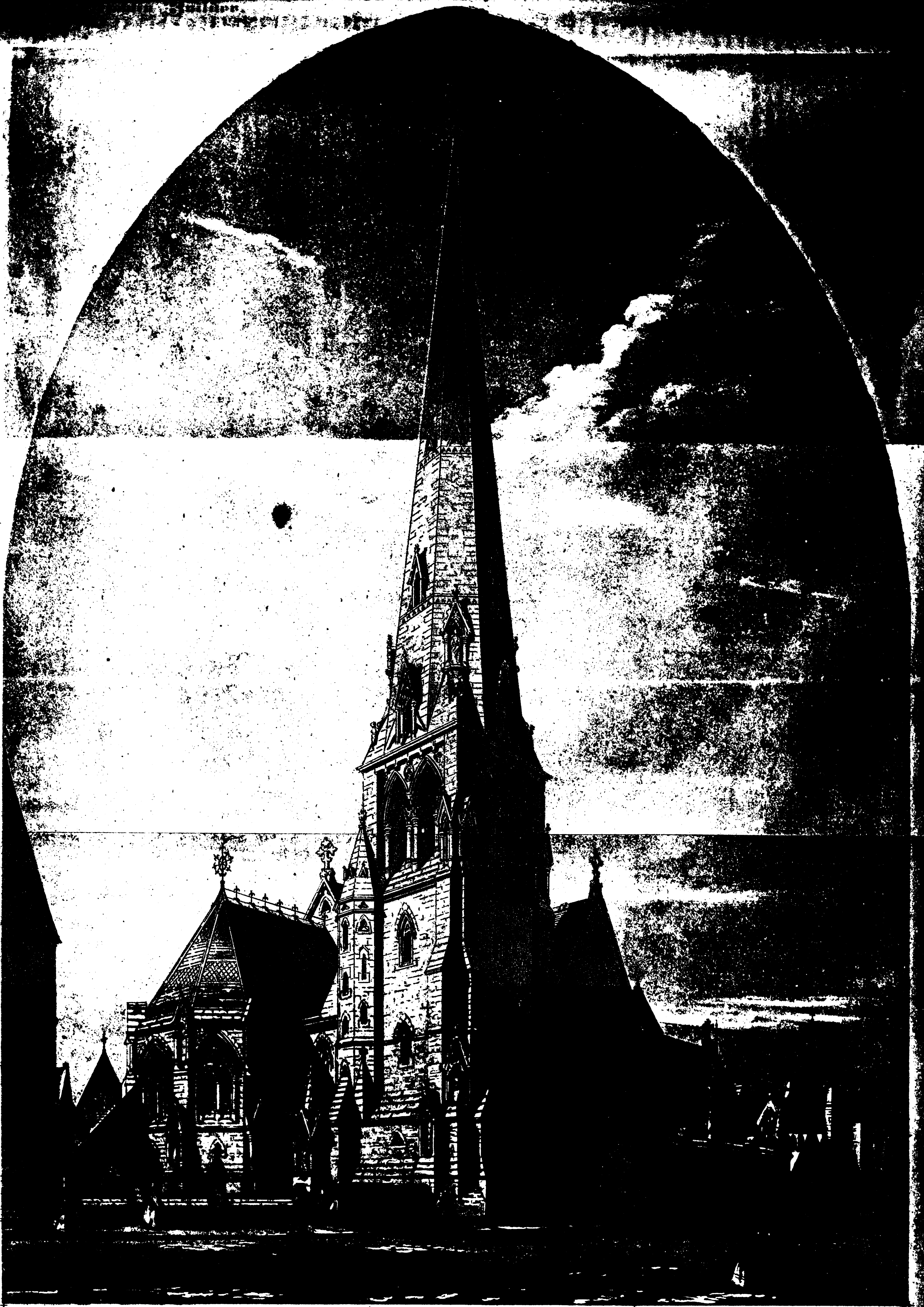
THREATENED DEMOLITION OF LONDON TOWERS AND SPIRES.

A project is now before the House of Commons in the Union of Benefices Bill, involving the destruction of some of the London churches, with their towers and spires, so replete with artistic beauty and intimacy of association with bygone architect celebrities. Political economy has been already carried to too great an extent of detrimental interference with the cause of art, but we can scarcely believe it possible that an "*enlightened*" tribunal in this "*enlightened*" age would, from observance of the former in the matter of £ s. d., consent to a wholesale vandalism. The Institute of British Architects has petitioned the House for the preservation of some *thirty-four* churches contemplated to be demolished, and including amongst others—perhaps less familiar to our readers—those of St. Mary-le-Bow, St. Michael's, St. Dunstan's (east and west), St. Bride's, St. Margaret's, St. Andrew's, &c. An amendment proposed in committee by Mr. Cavendish Bentick for the preservation of the churches of St. Stephen, Walbrook (Wren's masterpiece), St. Martin, Ludgate; St. Peter, Cornhill; and St. Swithin, Cannon-street, was carried (we trust *nem. con.*)

We are told by *The Builder* that the Institute held a meeting "*on the top of St. Paul's*"—Mr. Godwin in the chair—to consider the various towers and steeples that should be preserved, but however much we may laud the object of the committee, we certainly do not envy them their exalted position, however temporary.

THE SURVEYORSHIP FOR DERRY.

We understand that Mr. Williamson, C.E. (for many years surveyor for east division of Tyrone), and *not* Mr. Worrall, C.E., has been appointed to this vacancy, and entered on his duties. The information relative to Mr. Worrall being appointed, was conveyed to us as *authentic* previous to our last publication, and we must observe, that gentlemen ought to be more cautious in communicating *as a fact* to the public press that which, though probable, is not actually accomplished.



MESSRS LANYON LYNN & LANYON, ARCHTS MURISON, LITH. DUBLIN.

Intended New Parochial Church of St. Andrew, Dublin.

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THE PROPOSED EXHIBITION OF 1861.

Judging from the initiatory steps taken by the Royal Dublin Society, and the encouragement so far afforded by the public, there seems to be every probability of a display of art and manufactures being secured to this city during the ensuing summer. The joint committee reports that "they do not advise the Society to take any action in the matter until a sum of £5,000 shall have been guaranteed"; that "the Agricultural Hall could by slight alteration to the floor and the construction of the galleries be made the very best for the purpose of the exhibition"; also, that "the exhibition should be limited to this hall only." It would seem to be but prudence for the Society to secure themselves against loss by the project, and therefore the required guarantee is a desirable precaution, but to the suitability of the Agricultural Hall exclusively, however modified, for the exhibition, we must take exception.

It is quite too stunted at present, even without galleries, will appear much more so when they are added, and at best will present a very make-shift appearance. The dimensions of the apartment are 235 feet in length by 106 feet 6 inches in width,—to our minds insufficient both for the accommodation of the numerous exhibitors that on a special occasion of this kind may be reasonably expected, and for the crowds that are sure to frequent the exhibition. The committee seek the co-operation of the Royal Hibernian Academy as regards the fine art department, but how far under the circumstances that body may lend aid would appear questionable.

We confess we have our misgivings as to the creditable result (at least) of this project, if not dealt with in a more comprehensive manner. The Society can afford much more space for the exhibition than the *mere* Agricultural Hall. The new Museum with its connecting arcade is completed. The National Gallery is sufficiently advanced to warrant the assumption that it too would be available against May, 1861, and why should not both these form part and parcel of the proposed exhibition? The preliminaries partake of paltriness, and in our opinion display much error of judgment, which we trust will be removed in time, so as not to afford room for censure upon the managing committee.

The Guarantee Fund reached on the 16th ult. the sum of £2,500, and is now considerably greater.

Donations to the Royal Dublin Society.—Mr. M'Cann, of California, has enclosed the sum of £50, being the first contribution of the Irish Fine Arts Aid Society of California towards the aid of sending a pupil to the Continent. Mr. W. Smith O'Brien has also enclosed a donation of £5, to be awarded to the native-born Irish artist who shall exhibit the best picture painted by himself, in either oils or water colours, at the proposed exhibition. It was resolved that the marked thanks of the Society be returned to him for same.

EXHIBITION OF BUILDING MANUFACTURES AND INVENTIONS, LONDON.

To such of our readers as visit the British metropolis we would suggest an inspection of the varied and instructive display of manufactures and inventions connected witn the building profession, at present accessible *free to the public* at the Conduit-street Galleries, off Regent-street. We were much gratified with the exhibition generally, and regard it as one (though of comparatively miniature type) having a most instructive tendency, not only on those within the pale of the profession, but on the general public; as well as presenting an encouraging field for the inventive faculties of manufacturers, and in a business capacity conducing to their interest. Amongst the numerous exhibitors, we would particularize those whose names are familiar to the readers of the Dublin Builder through its columns, and perhaps amongst the most prominently interesting may be regarded the mediæval manafactures of Messrs. Hart and Son, of Wych-street and Cockspur-street, and Messrs. Johnston, Brothers, of Holborn. The display of ecclesiastical furniture, of gas fittings, &c., by each of these firms is of a truly *recherche* character, proclaiming an excellence in the working of metals, in which the English stand admittedly unrivalled. The upholstery and parquetry work, by Mr. Arrowsmith, of New Bond-street, are also most attractive, and we had an opportunity subsequently of inspecting, at the establishment of the manufacturer, a variety of designs in solid parquetrie for flooring purposes, steps and landings, dados, &c. The exquisite delicacy and taste with which the most varied and beautiful patterns are produced by the combination of solid pieces of different woods ploughed, tongued, and grooved into each other, forming a solid, compact whole, is highly creditable to the manufacturer and patentee, from whom we may remark, *en passant*, we learned that he has received several commissions in Ireland, amongst which one from the Marquis of Sligo is probably not the least important.

Minton and Maw respectively stand prominent as usual in the encaustic tile department, and contribute a variety of new and beautiful patterns. Amongst the cement manufacturers we noticed the patent fire-proof cement by Mr. J. C. Part, of 186, Drury-lane, successor to Messrs. Stevens and Son, a material which is extensively adapted to building purposes, a fact which speaks for its excellence. Hobbs and Co.'s locks display an ingenuity of mechanism truly marvellous, and the indefatigable manufacturers are constantly introducing some novelty in construction. Pierce's stoves, known as the *pyro-pneumatic*, attract a considerable share of attention, and have been already favourably noticed in the columns of the Dublin Builder. Ransome's patent siliceous stone is moulded into a variety of architectural ornaments, and owing to such capability, combined with the permanent character of its texture, cannot fail to be universally adopted as a substitute for stone, where the latter may not be desirable for various reasons. The patent process for preserving stone, cement, &c., is now being applied to the Houses of Parliament, and we trust it may succeed in arresting the palpable decay in the stone work of that magnificent structure. Mr. Jennings, of Holland-street, Blackfriars-road, the proprietor of various patents, amongst which are several in the manufacture of pottery, irou shutter bars, &c., also occupies an important position in the exhibition. In conclusion, we may take the liberty of reminding the above-named gentlemen, as well as the numerous other exhibitors and manufacturers generally that there will be an exhibition in Dublin in May, 1861, and that we hope to see their establishments fully represented on that occasion.

SCAFFOLDING ACCIDENTS.

Mr. P. Sheridan writes as follows to the *Freeman* relative to the precautionary measures which should be adopted where scaffoldings are necessary:—

> "Another accident, which nearly resulted in loss of life, occurred this day at the building now going on in Parliament-street (the site where the late calamitous fire was), by the falling of the scaffolding. The awful accident in Baggot-street is still fresh in the minds of the public, and I would put it to the good sense of the corporation, as the representatives of the citizens, to at once appoint an inspector to examine all scaffoldings erected in public thoroughfares, the same as in London and all other English cities and towns. Would it not be the duty of the city architect?"

Mr. Guinness has subscribed £20 towards the fund for the sufferers from the recent accident in Baggot-street.

Sir Richard Griffith, Bart., who won the £100 prize at the last drawing of the Art Union of Ireland, has presented a donation of £25 to the funds of that body.

Mr. William Henry Deane, C.E., late surveyor of the South Riding of Tipperary, has been appointed by His Excellency the Lord Lieutenant to the surveyorship of the East Riding of the county of Tyrone; head quarters, Dungannon.

Carolan, the last of the Irish bards, is interred in the old church-yard near Keadue, and a slab has been erected to his memory by Lady Louisa Tenison, who has also caused the burial-ground and old church-yard to be enclosed in.

In the report read at the twenty-first anniversary meeting of the Ecclesiological Society, we find the following paragraph:—"We hear with extreme satisfaction that Mr. Guinness, a munificent citizen of Dublin, intends to restore the ill-used Cathedral of St. Patrick. Mr. Slater has nearly finished the works in Limerick Cathedral."

The Spanish Government is in the English market for the purchase of several thousand loads of oak timber, the contracts for which stipulate for the deposit of £17,000 caution money.

Notes of New Works.

The churches of Adare, Co. Limerick; of Rincurrin, Co. Cork; of Ashfield, Co. Cavan, and of Drum, Co. Monaghan, are being enlarged according to the plans and specifications by the architect to the Ecclesiastical Commissioners.

The War Department have advertised for altering the redoubts at Tarbert and Kilherrin on the river Shannon, in the Limerick district; for the erection of married soldiers' quarters at Island-bridge Barracks, Dublin; for renewing the paving of eight troop stables at Ballincollig Barracks, in the Cork district; and for fitting up five troop stables at Dundalk Barracks, in the Belfast district.

The new Roman Catholic church at Donnybrook for which drawings have been furnished by Mr. Patrick Byrne, architect, is to be early Gothic in style, and will consist of nave and aisles; extreme length 143 feet, and breadth 60 feet. There will be a tower and spire, surmounted by a cross, rising to an elevation of 140 feet. The site is the space bounded by the house known as the Rose Hotel, Church-lane, on the Stillorgan-road, and the present little chapel and the greater portion of it is now occupied by dilapidated houses.

New schoolrooms, male and female, have been erected in connection with Ballymacarrett Presbyterian Church, each 40 feet by 26 feet in the clear. The building is one storey, with open roof, and a portico, containing hall and cloak-room, to each school. Amount of contract, £440. The rooms are separated by folding-doors, to render them available for meetings. Their erection was unavoidable, as the site of the former schoolrooms is to be added to the church, which has become too small to meet the wants of that neighbourhood, and is now being enlarged by the addition of a transept, 60 feet by 28 feet, at the east end, which will include about 8 feet in length of the old building, and give increased accommodation to about 400 sitters. A session-room and entrance-hall are also being erected at the south end of transept, for which and the enlargement of the church the contract is £725. The erection of the schools and the enlargement of the church have been contracted for by Mr. James M'Cracken, builder. Mr. William T. Matier, C.E., architect, Belfast.

The erection of a new town-hall at Sligo is spoken of, and the newly-elected M.P., Mr. Macdonogh, Q.C., has promised to aid the project.

On the 5th ult. the foundation stone of a new Roman Catholic church to be erected at Ballytore, Co. Kildare, was laid by Archbishop Cullen. It will be in the early Gothic style, and after the designs of Messrs. M'Carthy and O'Connell, architects.

The Directors of the Dundalk, Enniskillen, and Londonderry Railway Company have received tenders for the execution of sundry works at the several stations, &c., on the Londonderry and Enniskillen line, according to plans and specifications by Mr. Fitzgibbon Louch, architect, C.E., Derry.

A mural tablet has been erected in the porch of the York-street Presbyterian Church, Belfast, to the memory of the late Rev. David Hamilton, the former pastor of that church. It consists of a large slab of Belgian black marble, 6 feet 6 inches high and 4 feet wide. The centre is cut out of Carrara marble, of pure white, in the form of a scroll of parchment, on which the inscription is cut. The work has been executed by the Messrs. Fitzpatrick, from a design by Mr. Robert Young, C.E.

The foundation stone of the new Roman Catholic church of St. Peter has been laid at Belfast, and is thus described by the *Morning News*:—The site—a square plot bounded on every side by streets—was gratuitously given by Bernard Hughes, and is large enough to contain a parochial house, schools, &c., in addition to the edifice. The new church will be cruciform in plan, It will consist of nave, terminated by a pentagonal apse, lighted by lofty three-light decorated windows; side aisles, terminated by side chapels, west and lateral porches, sacristies, &c. The west end will have much the appearance of some of the French cathedrals, divested of their intricate and elaborate carving and sculpture. The central porch will be entered by one of those double doorways common to the English and French churches, with a column in the centre, and carving in the spandril beneath the label moulding, which will span the double arches. The central porch thus terminating the nave, will be flanked by towers, nearly 22 feet square, and in height to the top of their crosses about 115 feet. The extreme length over the walls will be about 176 feet by 66 feet—*i.e.*, of nave and aisles. The ridge will be about 70 feet from floor level. The style will be that of decorated Gothic, and those who have seen the drawings anticipate that the building will be, when finished, one of the architectural ornaments of the town. It will be built of Scrabo stone, with Co. Tyrone freestone dressing. The amount of the contract for the edifice, irrespective of internal decoration, is £10,192.

A new church is to be built at Kilronan, and the first stone has been laid. The site was presented gratuitously by Mr. E. R. Tenison, and Messrs. M'Carthy and O'Connell are the architects.

A new Roman Catholic church is to be erected in Belfast, on the Falls-road, in the decorated Gothic style, at a cost of £10,192. Length outside, 176 feet; width, 66 feet; ridge, 70 feet above floor. It is to consist of aisles, nave, and porch terminating, the latter flanked with towers, which will rise to a height of 115 feet.

A small mural fountain of bronze has been fixed in the boundary wall of the University in College-street, which would seem to signify that the unsightly wall so frequently complained was destined to be a fixture.

Tenders are required for cleansing, colouring, and painting the interior of Lismore Cathedral.

The fund for the erection of the testimonial to the late Dr. Crozier, of Banbridge, of the Franklin expedition, amounts to about £600.

We understand that competition designs were advertised for a new church at Sydenham, Belfast, offering a reward of £20, and that the only competitor was Mr. Barre, whose designs have been adopted. A correspondent complains that the advertisements were not inserted in a professional journal.

We understand that the line from Youghal to Cork will be opened on the 1st January, and the branch to Queenstown about the 1st March. It is understood that the Great Southern and Western Railway Company will form a junction with the Youghal line, so as to facilitate the forwarding of passengers and goods from Dublin to Queenstown.

A contract has been entered into with Messrs. Smith and Knight for the construction of a line of rail from Castlerea to Castlebar. It will be open to Claremorris on 15th December, 1861, and to Castlebar on 15th August, 1862.

Vigorous efforts are being made to connect Downpatrick and Newry by railway. All the accommodation that has existed on this line has been an outside one-horse mail car, with an occasional passenger now and then, but as frequently without any. It is intended to start from the station at Downpatrick, pass within three-quarters of a mile of Clough, 1¾ miles from Seaforde, running along the west shore of Dundrum Bay, close to the towns of Dundrum and Maghera, and within 2 miles of Newcastle, 1¼ miles from Bryansford, and approaches Castlewellan, from which it will only be a quarter of a mile. Crossing the River Bann at M'Comb's-bridge, it passes close to Rathfriland on the north, and, crossing the canal, terminates at Edward-street in Newry, at the station of the Newry and Armagh and Warrenpoint Railways. It is also proposed to have a branch from Mount Kearney to Gorah Wood, for a connection with the Dublin and Belfast Junction at that point. The length of the main line appears to be about 23 or 24 English miles, and as only one line of rails will be necessary, the cost will probably not exceed £150,000.

THE WATER WORKS QUESTION.

The expected inquiry by the Royal Commissioner, Mr. Hawkshaw, C.E., was commenced in the City Hall on the 21st ult., and continued for three subsequent days, during which the Commissioner, in a most painstaking manner, went through a mass of evidence to aid him in deciding this long-vexed question, and which we trust now will meet at his hands a speedy and final solution. In the following will be found a comprehensive summary of the proceedings. The Town Clerk having read the Royal Commission, and the Commissioner stated the objects of the inquiry, tabular statements Nos. 1 and 2 (which we deem unnecessary to publish, having been so fully treated of already in the columns of the Dublin Builder), respectively explaining "the state of the present" and "the necessity which exists for an improved supply," having been submitted, and other preliminaries arranged, the examination of witnesses was proceeded with.

Dr. Apjohn deposed to being a professor of chemistry, and having examined the several waters from which the city is supplied, and twenty-three other waters; made the analyses with the greatest possible care, and can speak with the greatest possible confidence as to the accuracy of them; sent in a detailed report to the corporation, but as detailed reports are not of much practical use, have constructed a table in which are exhibited the total amount of ingredients dissolved in the water. Dr. Apjohn then read a statement and handed in the following analysis:—

	Total matter dissolved.	Organic matter.	Hardness.
Grand Canal—mean of seven—analysis	20·78	·95	15·9
Royal Canal—mean of five—analysis ..	20·76	1·64	14·1
Liffey—mean of eleven—analysis ..	8·62	1·77	6·1

Dr. Wilde stated that he was engaged in the preparation of the census of Dublin, in 1841 and 1851; the map now produced is attached to that portion of the report; in the map the localities are classed according to 1st, 2nd, and 3rd class houses; the result of his experience is, *that mortality is much greater in inferior houses in which large numbers of the population are crowded together with a defective supply of water and sewerage;* formerly, when living in

Stephen's Hospital, had extensive opportunities of knowing the nature of the supply to the poorer localities; the supply was very defective at the top of James's-street and the Liberties; the sanitary condition of the inhabitants is *very much affected by the water supply*—next to air the most; has very frequently been present at the opening of water pipes in the streets of Dublin; saw great quantities of spongillæ, of a fœtid nature, pumped in such a way that showed they must have been in large quantities in the pipes; saw them pumped up in the neighbourhood of Merrion-square and Stephen's-green—in fact, out of the pipe opposite to his own house; brought in some of the water containing those spongillæ for examination, and it became unbearable in the course of 24 hours; they render the water quite improper to drink; is not an authority as to filtration, but is of opinion that filtration would not remove the objectionable characteristics from the water; had opportunities of examining the water supplies of other cities; in Stockholm, although it is the best ventilated city in Europe, the mortality is the highest in any city in Europe, arising (as one must come to the conclusion from careful investigation) from the total inefficiency of the water supply; believes there was not an instance until very lately of a water-closet in any house in Stockholm; water-closets should be more frequent and certainly should not be subject to any tax; from experience as a physician in practice in this city, knows the poorer classes are not sufficiently supplied with water; certainly about Townsend-street, and in other parts of the city, the inhabitants are not supplied with water; if there is not a supply of water brought to each house, no matter how many fountains you may have, you certainly will not keep disease out of their dwellings, for the people will not go to the fountains; they will use the dirty water again and again; would bring the water to every "flat" which might be inhabited; feels the necessity for a supply of pure water in the city; we want water brought through a channel that will fill the tubes at such a pressure as to economise taxes, which are now increased by having forcing pumps and persons to work them, as will also, in case of fire as well as for sanitary purposes, ascend to the tops of our houses.

The Commissioner—I have myself noticed this spongy substance at the outlet of one of the reservoirs, but I could not judge from that whether it run into the heart of the city through the tubes. It is your observation, however, that this objectionable substance does run into the heart of this city?

Dr. Wilde—The last place I saw it was at Stephen's-green, at the corner of York-street; shortly before that I saw it in the street I live myself—Merrion-square; when the main is turned on the substance springs with great force into the air, and there can be no doubt that it renders the water unfit for use; Merrion-square is distant about a mile by the walk from Portobello basin, the pipes running circuitously make the distance longer; (in answer to Commissioner) has not examined the spongella so as to give a scientific description of it; the odour of the substance is most offensive, the taste perfectly unpalatable, but the smell even worse; on both sides of the river the want of water is felt; the dwellings of the poor are crowded, a couple of families, perhaps, residing in the same room, and they *use the same water again and again, from not having a sufficient supply; from laziness or other causes* they will not go to the neighbouring fountains; they will scarcely go to the cellars below for it, and they use the same water *for washing and culinary purposes*, as well as their *ordinary ablutions*.

The Commissioner here asked Dr. Apjohn whether he had examined the spongy substance mentioned.

Dr. Apjohn said he had, some time ago, but does not remember the detail of his statements in reference to the spongella, but he could speak generally of it as being a highly objectionable and impure substance, with a smell exceedingly offensive.

Dr. Rawdon M'Namara examined—Is a Fellow of the College of Surgeons and Licentiate of the College of Physicians in Ireland; Professor of Materia Medica in the Royal College of Surgeons, and Examiner on the same subject in the Queen's University in Ireland; is a surgeon to No. 3, City Dispensary, in the South Union district; should say that about 10,000 of the poor inhabitants of Dublin pass yearly through his hands; visits a large number of cases at their dwellings, and believes there are few persons in Dublin better able to speak of the sanitary condition of the poor.

State the result of your observations to the Commissioner.—My opinion is this, that the supply of water to the entire of the city is deficient both in quantity and quality, and exeeedingly so to the poorer inhabitants; conducted a very extensive system of filtration yet in existence at his house; began about 12 months ago; lives at 95, Stephen's-green, where the supply is derived from the Portobello basin exclusively; the quality *of the water is infamous;* the poor have no supply of water, nor in the majority of cases no means of collecting water; have to go to fountains to obtain it, with vessels insufficient for the purpose, and it is kept in their rooms until required for use, and thus is very bad and insufficient for sanitary purposes, owing to the difficulty of obtaining a proper and sufficient supply; thinks that fully 80 per cent. of the houses of the poor have no means of getting water except in the way described; owing to the difficulty the poor have in obtaining a supply of water, and the way it has to be kept in their rooms, it is calculated seriously to affect the health of the inhabitants; bad water is most injurious to the health, especially as regards cutaneous diseases, which are very much fostered by an insufficient supply of water; present supply is quite insufficient for sanitary purposes; there ought to be water in each house, and it would promote their comforts and improve the health of the city in a way that cannot be calculated; the higher classes may have a better supply to a certain extent, but are not supplied in a satisfactory manner; there may be a sufficient supply in private dwellings, but not in a way to give satisfaction or ensure comfort; the pressure at present cannot carry the water to the tops of the houses; if the supply in the houses of the rich be sufficient, is must be collected in the basement storey, for the pressure cannot carry it beyond a certain height (believes 10 feet); the result must be unsatisfactory; though the supply may be better for the rich, the quality of the water is the same, and many cannot drink it, but send to pumps for water to drink; could not drink it in his own house without filtration; water has to be forced up to supply water-closets; never saw a house saved in Dublin when there was a serious fire, but they have been invariably destroyed by the fire in consequence of the insufficient supply of water; speaks from experience in visits among the poor; since 1846 I have been brought into connection with the poor as a medical man; people who know the quality of the pipe-water prefer getting water from pumps; a great objection is to have the water collected in cisterns, whence the sediment is frequently drawn off through the cock at the bottom, and thus consumed.

Dr. Apjohn read as follows his report to the corporation upon the quality of the water supplied to the city through the basin at Portobello, and the water pipes which issue from it:—

"Water	2·20
Organic Matter	9·71
Sand	10·20
Per Oxide of Iron and Alumina	3·50
Carbonate of Lime	74·20
Carbonate of Magnesia	·19
	100

"The amount of the organic matter, it will be seen, was very considerable, reaching nearly 10 per cent. I may add that it was of two kinds, a thready or piliform product, which, when examined under the microscope, appeared to be a confervæ or fresh-water algo, and a munbranoccous substance of a highly allulor structure, having some resemblance to certain of the sponga. This latter exhibited two appearances occurring on the sides of the basins and interior of the mains, partly as an incrustation of slight thickness, and partly as projecting growth of the size and nearly the shape of the human fingers. Their growths were recent, were of a greenish colour, and, seen through a lens, appeared studded over, particularly at the extremities, with low conical projections. The organized products just described were penetrated by numerous maggots, which had the facility of spinning threads like those of the spider, executed rapid movements, and were capable of inflicting bites. When a mass of the mixed organic matters just described was placed in a basin of water, putrefaction rapidly set in, and in 24 hours an insupportably offensive odour was evolved. From what precedes it is obvious that the incrustation which has been the subject of examination is composed partly of the earthy carbonates existing in the water, and which are so prone to separate from it, and partly of a peculiar vegetation or growth which, under favourable circumstances, springs from such incrustation. If the earthy sediment which falls was destitute of organic matter, it would probably not produce conferro or sponga; but the opposite being the case, in consequence of some of the organic matter of the water always falling with the carbonate of lime, a sort of compost is formed, which, when aided by a suitable temperature, brings into rapid development the forms of organic life which have been described. To remedy this state of things I do not know that anything effectual can be done, except to deprive the canal water, before it enters the mains, of the earthy and organic matters which are prone to separate from it. This, as I mentioned to you on a recent occasion, is a thing which can be done, though it has not, I believe, as yet been attempted on such a scale as would render the process applicable to so large a city as Dublin."

On one occasion saw spongilla in James's-street basin.

Mr. M'Mullen—In an analysis which you made some years ago of the water of the Grand Canal, you state the water was exceedingly pure.

Dr. Apjohn—I made this analysis, and I believe it to be perfectly correct, it was carefully made; on looking now at them which I have not seen for many years, there appears to have been in the water of the Portobello basin a proportion of 3 decimal, 3 of organic matter; it was after that I obtained the knowledge of the spongilla, and if I had seen it then as I have seen it since, I would not have made the statement which you have produced; I admit I attached too little importance to the amount of organic matter in the water; at that time I did not believe it to be so prejudicial to water as experience has taught me it is.

Mr. M'Mullen—With respect to the Grand Canal water, which you then analysed, you say—"I am quite certain that the quantity of animal and vegetable impurities in the canal water—impurities of which no natural water is ever destitute—does not exceed that indicated by the analysis. I may add that their relative proportion is much too small to leave any room for apprehending that their presence can confer upon the water properties which would render it either disagreeable to the taste or injurious to the health." How does it come that your opinion is so much changed?

Dr. Apjohn—The facts are not impugned. The analysis was carefully made. I believe I was in error in the statement I then made as to the effect of the organic matter upon the water. That report was made fifteen years ago, and changes have taken place since then.

The Commissioner—Had you noticed the spongilla in 1845?

Dr. Apjohn—No; I never even heard of it.

Dr. John Ryan examined—Am a doctor of medicine and a licentiate surgeon; is well acquainted with the Liberties; the supply is most insufficient, and extremely bad; it was particularly bad some years ago until the old wooden pipes were taken up and other pipes put down; knows the portion of the Liberty supplied by the corporation, the water is insufficient in quantity and very bad in quality; is in the habit of visiting the sick poor in their homes; there cannot be a greater cause of disease amongst the poor than want of pure water; in Plunkett-street there are about fifty houses, with an average of fifteen persons in each house, making a total population of about 700; all the people are dependant for water upon one fountain in the street; there is only one house in the street in which there is pipe water; was a member of a relief committee in the famine years, and of a sanitary committee, and at that time ascertained there were 800 persons living in the street; would take the number now at 700; has seen spongilla taken out of the water pipes; on the part of a great number of persons, protests against the continued use by the citizens of canal water; it has been especially impure during the last month; the water is rendered impure from many causes; has seen dead dogs and cats in the Grand Canal, and filth pumped into the canal from boats lying within the city boundary; boatmen are in the habit of distributing manure along the banks of the canal to persons, and they make up the weight by water; then leakage takes place, and that foul leakage is pumped into the canal; this occurs even as far as the 8th, 9th, and 10th locks, where it was said the water is pure.

To Mr. M'Mullen—I always thought pure water could be had at the 8th and 9th locks, until I went up there and inspected the water; on one occasion I saw the water extremely brown in James-street Harbour, and weeds and various impurities floating about; struck by this I made inqury, and found that it was caused by a steam boat which had just before come in; I have not seen this boat at work, but just after coming in.

The Rev. E. S. Abbott, Rector of St. Mary's Parish, examined—Previously lived in St. Michael's, St. Michan's, and St. John's parishes; St. John's parish is situated in a very poor neighbourhood; visits the poor frequently at their own houses, and generally speaking, they have no supply at all; there are frequent epidemics in the locality named; is of opinion that in a moral and sanitary point of view it is of the utmost importance that the poorer classes should have a proper supply of water; never heard any complaint of the quality of the water which they do get from the fountains; it may be their ignorance, but never heard them complain; there are very few pumps in the poorer localities.

Rev. Joseph Horgan, C.C., examined—Is one of the curates of St. Laurence O'Toole's parish, which is inhabited by about 3,000 of a very poor population; constantly attends at these people's houses; the result of observations as to the quantity of water supplied them is, that they have very little opportunity of being provided; believes the fountain in Newfoundland is the only public fountain in the locality; there are other fountains, but it is optional with the parties to allow the people to them; there is a supply of pipe water in the houses of the better classes; there are about 3,000 in the parish who have no supply except from the fountains; as to the quality, it is very inferior; observes in the water that there is a deposit in it after night; that it is offensive to the smell very often in wet weather; the people must go out to the fountain for water, and in bad weather they are reluctant to do so; has heard it said if the water was conveyed into the houses of the people that it would create uncleanliness, as the water would be allowed to run about, but thinks the very reverse.

Very Rev. Dr. Spratt examined—Has been a clergyman in the city since 1823, and endeavours to take a considerable interest in the social condition of the people; is constantly in the dwellings of the poor; the supply of water to them as to quantity and quality is very bad; is nothing like a sufficient supply of water to the poor; very few of them are supplied with water in their own houses; pipes are very rare amongst them, and they are often inconveniently placed, sometimes in a "huxter's" shop, for instance, the result of which is that the pipe is more or less used to create patronage; a constant supply of good water would improve the morals of the people; believes we would not have half the drunkenness which we have in the city if we had a proper supply, because the water is so bad that the people won't drink it; has often asked the people why they relapsed into drunkenness, and they always say that the water was too bad to drink it; when passing a fountain, heard obscene language used in the hearing of children, and at a very late hour at night; at the fountain in Kevin-street large numbers of poor creatures may be seen collected, waiting for their turn to get a supply of water, many of them having come from a distance, and with very little clothes on them; does not know whether the supply to the fountains is continuous or not; there can be no second opinion as to the moral and physical deterioration of the people from the want of a sufficient supply of water; has often seen dead dogs and cats in the canals, and impure stuff thrown from the boats into the canals; the boatmen have said that they have no convenience—no water closets in the boats, and all their night soil is consequently thrown into the canal; does not know what filtration may take place in the basin; has a strong objection to taste or drink the city pipe water; community have a private pump for their own use; for some time it was open to the public, but had to give this up as it became a nuisance; crowds came from all distances to get the water, which was of excellent quality, coming from a spring; 1,000 and 500 people might be seen at this pump at a time; persons in reduced circumstances are ashamed to show their poverty by going to the public fountain again; in many instances poor Catholic families, who are obliged to go to Mass on Sundays, stay away; they do not wish to exhibit their want of clothes by going to the fountain for water to cleanse themselves; the poor are obliged to economise the water as much as possible; has been in rooms where the water was used for three or four different purposes, and only thrown out when it could be used no more; the water in some rooms emitted so bad a smell, that I was obliged to leave; believes the new public fountains in the city to be a great blessing, but the water has a bad flavour; country people, used to good wholesome water, object to it; they cannot, in fact, drink the pipe-water in the city.

The Rev. Bernard M'Donnell gave similar evidence respecting Paul's parish, in Church-street, Bow-street, Hammond-lane, Manor, Prussia, and Aughrim-streets, &c.

Mr. John M'Mullen stated that he wished to direct attention to the analysis of canal water taken from the basin at Portobello, which was made by Dr. Apjohn some years ago. Dr. Apjohn was now of opinion that the water had a good deal changed, and he (Mr. M'Mullen) was not, therefore, to place such reliance on that analysis as he had been in the habit of doing heretofore. The amount of organic matter discovered by this analysis was so very small that he did not consider it could at all influence the quality of the water, and to that opinion he still adhered.

The Commissioner said this analysis was made some 15 years ago; he should like to have evidence on the present state of things. The principal objection raised to the canal water was the accumulation of vegetable matter at the mouth of the pipes; but if the suggestions of Mr. Hawksley were adopted, and that the water was filtered through sand, he did not entertain a doubt that all the seeds of vegetable matter which were carried into the pipes and grew there would be effectually excluded. The principal supplies to the Grand Canal were from springs, and, in point of fact, none but spring water was supplied to the city. With respect to the extraneous impurities which had been referred to, the canal company took every precaution to prevent them; the boat propelled by chains, which had been mentioned, was a recent invention, and, if it succeeded, it would be highly beneficial to the water, inasmuch as it would root up the vegetable matter, which would float down to the docks and be carried away.

Mr. William Pare, proprietor of the Seville Iron Works, produced a calcareous deposit which he had taken about two years ago out of a pipe which led to one of his boilers. It had accumulated in the space of twelve months. The water in the cistern which supplied the pipe was filtered through sand; the water in the pipe was generally heated to about 60 degrees.

Mr. Thomas Trouton, agent to the Royal Exchange Insurance Company, deposed to the insufficient supply of water in case of fire. A vast deal of property had been lost, to his own knowledge, on this account. He would suggest, as a remedy, high pressure.

The Rev. Thomas Doran, C.C.; Rev. Gregory Lynch, C.C.; and the Rev. Dr. Stanford, Rector of St. Thomas's, were severally examined, and testified both to the inferiority of the quantity and quality of the water supply.

Mr. William Digges LaTouche, chairman to the Grand Canal Company, was next examined, and stated that he was of opinion that the charges against the quality of the water arose from there being no filtering machine at the basin; the basin at the north side was supplied with a filterer, and therefore they did not hear the same amount of complaints as came from the south side; the Corporation, in his opinion, did not attend sufficiently to the cleansing of basins; the citizens whom he heard discuss the question did not think there had been fair play given to the water during the past year.

To Dr. Gray—The Corporation presented a bill to get water from the canals, in the present year, because they had not succeeded in being able to get it from other sources last year; the Corporation was in negociation with our Company for a supply of water before they went elsewhere. Mr. Neville applied to us to cleanse the bottom of the canal, but we could not do so without running off all the water. I never observed bubbles on the canal arising from fœtid matter in the bottom; we refused to give the Corporation a preferential and guaranteed supply, because, in the first place, we did not think the price proposed was sufficient, and next, because we would have great difficulty in settling with mill-owners; I do not think the Corporation had a right to demand from us a guaranteed supply. We furnished them with evidence as to the amount of supply we could afford, and it was for them, by constructing reservoirs, to preserve a sufficient quantity of water in time of scarcity.

Mr. Robert Mallet was examined. He gave it as his opinion, from his own experience, that no amount of filtration would, in the months of November and December, make the canal water pure and wholesome.

The Commissioner said the Grand Canal Company should be prepared to lay before him a definite, binding proposal of what they intended to do, if they wished that he should take any practical action on their suggestions.

Mr. LaTouche said he would be prepared with evidence as to the quantity of water they could supply, and it would be for the Commissioner to draw his own conclusions. As to any definite proposition he was not prepared to make any at present, but he would consult his board on the subject.

Mr. Bateman made explanations to show the purity of the streams in the neighbourhood of Ballysmutten, where he proposes to construct his reservoir, and read Mr. Yeates' return of his rain guages, from which it appeared that from the 23rd of February to the 6th of June, 1860, the rain at Dublin was eight inches. From the 23rd February to the 21st August, inclusive, the rain fall at Dublin was 17 inches; at Blessington 21 inches; at Ballysmutten, on the site of the proposed reservoir, 27 inches. This showed an increase over Dublin of 10 inches. It would appear that 50 to nearly 80 per cent. more rain fell at Ballysmutten than at Dublin. At Manchester, before the introduction of soft water, the city was supplied with hard water, which favoured the growth of a small fresh water mussel, which thickly line the reservoirs and pipes. There were myriads of them, and they lay in the pipes as thick as paving stones. There were caused by the large quantity of lime in the water. He was curious to see what would be the effect of passing water without lime. This was done ten or eleven years ago, and the result was that these mussels had entirely disappeared. There was no longer anything from which they could make their shells, and for years on their discharge the small pipes were choked with them. If soft water were supplied to Dublin in place of the present hard water, which probably favoured the growth of spongillæ, they would probably disappear.

Mr. Thomas Mallett, C.E., proceeded to place his plan before the commissioner. He proposed that the supply should be taken from the Dodder, the water to be collected in three reservoirs, and the estimated cost £184,000. Mr. Mallett laid several documents before the commissioner, setting forth the estimated expenses of the various items, and proving the practicability of his scheme.

Mr. Edward Clibborn stated he had lived for 50 years close to the river Dodder, and it had been the complaint made by persons living there, that from some cause or other the actual supply of water in the bed of the river was decreasing gradually, and to such an extent that many feared the time would come when there would be little or no water. His own experience of the Dodder for nearly half a century was, that the diminution of water increased annually.

Mr. Christopher Mulvany, Engineer to the Grand Canal Company, proposed the supply from the two canals; in 1840, a scheme was brought forward to make a certain reservoir, and the corporation applied to him to make a counter-project, and he then gave the matter consideration; he proposed to make a reservoir from the canal, whose elevation would be 176 feet above it; in 1859 the corporation proposed the scheme of supplying the water from the two canals, but this, with the other, fell to the ground; since that time he was very much inclined to alter his view of taking the supply exclusively from the one canal; this alteration of opinion arose from observation of the increased population of Dublin; he was disposed to adopt the two canals as the surest and best means of supply.

The Commissioner—Do you consider the canal water to be of the best quality?

Mr. Mulvany—I will not enter into that question; it is the best source as to economy and as to quantity; I believe it can hardly be said the water is bad, for there is an experience of it of 50 years; the Royal Canal would supply 4,500,000 gallons daily on the driest day, and the Grand Canal, for a very short period, from 4¾ millions to 5 millions daily, also on the driest day; one of the supplies of the Grand Canal is the large river, which has its source in the west range of the Dublin Mountains; the estimate of the quantity of water from the Grand Canal was based on a calculation of the least yield of this source; on the 3rd August, 1857, the yield was 2,836,200 gallons a-day, while on the 13th of the same month, after a fall of rain, it was 5,000,958; the plan showed the area of the lake which was the principal feeder of the Royal Canal to be 2,500 acres, and the area of the whole rain-basin of the lake, including the lake itself, is 7,943 acres; in addition to that reservoir, there is a stream which the Midland Great Western Railway Company have full control of, and which flows into the Royal Canal about 10 miles east of Mullingar; this stream yields 2,000,000 gallons daily; it yielded that quantity in the dry year 1859; taking these two canals as a source of supply, I think it would be amply sufficient for Dublin; this would not occasion very much interference with mill power; my proposition is, that the water should be taken from between the 6th and 7th locks; I do not know whether the canal company would make a guarantee in the matter; I do not attend here officially; I suggest that the Corporation should construct a reservoir; I think that an understanding could shortly be come to between two companies like the Canal and Corporation, with respect to authority and control over the works; in February last the heads of the companies met, and came to an understanding to give ten millions of water every day; I think the two Canal Companies are willing to give this water for£ 4,000 per annum, and that in addition the Corporation should make the reservoir so as to give out this water at a uniform quantity of ten millions daily; I have estimated the cost of the reservoirs, and I think that £140,000 would be sufficient for the purpose of conducting the water into Dublin; I do not think the reservoirs by themselves should cost more than £60,000; the cost for mains would be about £55,000, £60,000 for reservoirs, including filters; the length of the mains from where I calculated was for each five miles; I have been engineer to the canal for 14 years; taking the water between the 6th and 7th locks, the elevation is about 150 feet; I see nothing to prevent the canal company from giving what may be called a reasonable guarantee: I think there can be no doubt that this quantity of water could be given; I think a reservoir holding 200 million gallons of water would be sufficient; just immediately at the tail of the proposed embankment of Mr. Mallet's there are very large landscapes, and looking at the formation of the valley, there is a great quantity of sand, and it strikes me it would be a very dangerous place to put an embankment of any height.

Mr. Hawkesley said he attended on behalf of the corporation; he became acquainted with the subject in 1855; the first plan proposed was that of Mr. Mulvany, which was thought inadequate, as it did not give sufficient pressure for the districts in the neighbourhood of Dublin; it only gave a pressure of 168, whereas it was considered that 200 were required above the ordnance datum; the next plan was that of Mr. Thomas Mallet, known as the "Dodder Valley scheme;" his great objection to that plan was that the rainfall was not sufficient to give them grounds for supposing an adequate supply could be obtained; the evaporation, which was equivalent to 15 inches in this latitude, being deducted, would render it insufficient; fourteen inches and a-half of rain in the district from which this water was proposed to be taken by this plan wonld supply 36 persons per acre, but they required 12 millions per diem; the population of Dublin and districts amounted to 350,000, and it was necessary to have a supply for 400,000, allowing for increase; but, in supplying this, they were in peculiar difficulties, the brewers having no stream of their own; the catchment basin of this scheme was only 6,000 acres, and it was, therefore, impossible for him to approve of it; the next scheme was that of Mr. M'Lean, who proposed to supplement the water of the Grand Canal by taking a supply from the Liffey, at a place called Morristown, and then to draw from the canal at the fifth lock; so far as supply was concerned, that was sufficient for all; but it proposed to draw the water from a level too low for the purposes of the town; I did not make any report upon that, as I received no communication on the subject; the next scheme was that of Neville, in 1849, who proposed to supply from the 12th lock, for 250,000 population, at the rate of 3 cubic feet per diem; I then was induced to visit Lake Owel, and I ascertained that the supply was wholly insufficient; the evaporation on the surface of the lake is fully equal to the amount of rain falling upon it; this lake is different in position from the other reservoirs suggested; it might be possible to procure a supply from that lake equal to 15 inches per annum; 12 inches would supply 30 persons to the acre; the scheme, therefore, of Mr. Neville was found to be perfectly inadequate; I may add that the water of Lake Owel is very good indeed; the next plan submitted to me was one of Mr. Louch, in 1850, and he proposed to establish a reservoir on the Government gardens in the Phœnix Park, at an elevation of 180 feet, which also related to the Royal Canal, but at too low a level; here I may mention that I think too much importance has been attached to what is called "degrees of hardness;" very good water is that at 8 and 9 degrees; the next step taken was that of the corporation, in recommending the joint plan of Mr. Mulvany and Mr. Louch; the next scheme was Mr. Brassil's, to take the water from Poolaphoca at an elevation of 170 feet; the reservoir Mr. Brassil proposed was too small; I have had a great deal to do with the formation of reservoirs, and I can only state that the experience I have gathered induces me to say that (as proposed) a great deal of unnecessary expense would be incurred by constructing a reservoir at Ballysmutten; the first ground upon which I refrain from recommending this reservoir is because it would be impossible to estimate the expense of making it water-tight; Mr. Neville's estimate for Ballysmutten was £218,000, and £30,000 for another reservoir; the next plan was one for the supply of water from the River Vartry, which, I believe, is the best in the neighbourhood of Dublin: my own impression is, that the two canal companies would yield a sufficient supply—viz., ten million gallons daily, but I do not think they could guarantee a preferential supply to that extent; the difficulties with which the corporation met in reference to these schemes are, I believe, the cause why they are represented here to-day.

Mr. Hawksley's examination was resumed. He first gave in the results of several analyses of water, made since 1854; also a report of Dr. Donovan in reference to spongilla. Said that spongilla were not peculiar to Dublin, and that they abounded in other places. They were, for instance, in the New River in London, and in several localities in that city, where he had seen some one inch and a-half in length. He understood that they extended down half a mile from the reservoir of this city, but he had not seen them himself at that distance. It was only of late years that they had made their appearance, and were first noticed about the same time as the American weed, but there was no accounting for them. It was uncertain, too, whether they should be ranked among vegetable or animal substances. Mr. Hawksley then handed in a communication from Mr. Hassard, dated 3rd September, 1858, in reference to the Vartry scheme, and alluded to the question of filtration. It had been stated during the enquiry that the cost of filtering would amount to £150 per million gallons, but what was not a fact. To his own knowledge the cost in some places in England did not exceed £40 per million gallons. He concluded his statement by saying that he believed the Corporation had done everything in their power to promote the interest of the citizens in regard to this matter.

Dr. Gray then handed in a letter from Dr. Corrigan to the effect—

"That our present supply is not of good quality—that it is not of sufficiently pure and wholesome character; has been for many years one of the physicians to the House of Industry Hospitals on the north side of Dublin, containing upwards of 300 patients, and the quality of the water has been a subject of complaint. On referring to the report books, finds the following entry:—

"'The water supplied to the Whitworth and Hardwicke Hospitals is heavily loaded with impurities, &c.

"'January 18, 1854.'

"This report was signed by all the physicians. Again, in September, 1854, the following:—

"'The physicians beg to draw the attention of the governor to the very impure state of the water supplied for hospital use—for drinking, dressing food, &c.'

"The water here referred to is from the canal, from the same level which supplies the basin at Blessington-street. It comes from a portion of the level which probably contains a greater portion of impurities than the portion supplying the basin; but the difference is only in degree, as whatever taint or impurity exists in one portion of the level necessarily spreads through the whole of it.

"A three-cylinder cast-iron filter has, since the date referred to, been erected on the hospital grounds, and the water has been improved to a certain extent—but only to a certain extent—for a filter will not make impure water pure water.

"I had no idea, until the water supply of the city was a subject of general discussion, of the extent to which popular misapprehension exists as to the nature and power of a filter. The best filterer that ever was constructed will not make impure water pure water, or convert unwholesome water into wholesome water. A filterer will never do any more, and can never do any more, than separate, in the passage through it, from the water such substances in the form of mud, sand, hairs, straw, &c., as may happen to be *mechanically mixed* with the water, but it will not separate any substance whatever, whether poisonous or wholesome, which is *dissolved* in the water. The distinction between *mechanical admixture* and *solution* must be clearly kept in mind. Any one may satisfy himself of this in an hour. Let him provide himself with four or five glass funnels, such as are used for chemical purposes, and place in each a filtering paper, which is far more perfect for its purpose than any filter that can ever be constructed on a large scale. Let him now take solutions of sugar, gum, salt, strychnia, arsenic, lead, and solutions of organic substances, the drainage of a dung pit, and the drainage of a knacker's yard; let all the solutions be muddied by the addition of clay, sand, flock of wool, paper, straw, &c., the various mixtures will pass through the several filters, and appear underneath as clear, or perfectly transparent fluids. All the mechanical admixtures will be stopped on one side of the filter, but the soluble matters, whether poisonous or wholesome, sugar or strychnia, salt or arsenic, the soluble organic portions of the blood from the slaughter yard, and of vegetable decomposition from the dung pit, will remain in the water, filter it as often and as carefully as you may. It must be then kept clearly in mind that filtering will not convert bad water into good water, it will only improve water so far as averting mere mechanical admixture, but that it will not remove poisonous or impure matters *dissolved* in the water. It will make muddy water clear, but clear water may be very unwholesome.

"The greatest attention is paid to the hospital filter already referred to. It is carefully cleansed, at least once a year, and fresh gravel and sand introduced. At each cleansing three or four stable buckets full of fine deposit are removed, and the deposit found to contain a large proportion of organic matter, not only on the near side of the filter, but also deposited after the water had passed through the first filter. This organic matter must have passed through the first filter in solution, and then undergone some change under which it became precipitated. Even ova will pass through the fine sand filter, for worms and various water insects of considerable size were found in the clear water receptacle after passage through two filters, which could only have become developed there from their small ova passing through. With such results from a small filter it cannot be expected, I think, that a better state of water, or equally good, would be obtained from a filter on a great scale. Professor Apjohn was kind enough to examine the deposits I allude to, and it is on his authority I state that the proportion of organic matter was considerable. It is now about two months since the filter was cleaned out, but it is not improbable that even after this short period a re-examination of it by Dr. Apjohn would afford some useful information.

"I can never think that the water of a canal used for traffic purposes should be also used for drinking, for preparation of food, beverages, &c. Whatever objections applied to the proposal of last year as to the water of the Liffey, or of any other river receiving into it impurities, apply with much greater force to the water of a canal. If there be very much traffic, then the admixture of impurities of all kinds from the banks, from boats carrying manure, coals, cattle, and minerals, from every boat being a dwellinghouse for boatmen, with the canal as their house drain, and from the boats, as I have been informed, not unfrequently containing permanent stabling for horses, must be in proportion to the amount of traffic, while on the other hand, if there be very little traffic, each level of the canal becomes a settling pool for the deposit and putrefaction of organic remains of animal and vegetable matter.

"It has been, I believe, advanced that, by taking the water from a higher level and from a more distant point on the canal, a purer quality of water would be obtained. I think this is true, but only in degree. It would be more correct to say a less impure water would be obtained, for the same causes of impurity, although not perhaps to the same extent, would operate at the highest level as those that exist near the city. Cattle and men are carried over the highest level as well as over the lowest. The manure that is received into boats at Dublin must be discharged somewhere else, and the same offensive consequences as to its drainage and its falling into and tainting the water when it is being loaded must equally occur when it is being discharged. The banks must be equally open all through for the admission of accidental impurities, drowned animals, &c., and, although somewhat less in degree, the highest level will be open to the same objections in principle as the lowest.

"Chemistry is a wonderful science, but in a question of this kind, with all our respect for it, we must not trust to it alone as a test of the unwholesomeness of water.

"A soda water manufacturer has informed me that soda water or effervescing lemonade made with the pipe water of Dublin, no matter how carefully filtered, will become foul in a few days. I would take this, if it be confirmed, as evidence of the unfitness of canal water for drinking purposes against all contrary opinions based on chemical analysis.

"Moreover, we ought to know clearly what chemistry can do and what it cannot do. Chemistry can tell us the amount of organic matter in water, but it can tell us nothing of the nature of that organic matter in reference to its being injurious or otherwise. Chemistry cannot tell us what is the difference between the air of a district where to breathe it is death from cholera or yellow fever, and the invigorating breeze of the most healthful mountain top. Chemistry cannot discover any essential difference between the poison of a rattlesnake and the white of an egg, nor between a poisonous and wholesome mushroom, a wholesome oyster and a poisonous mussel, nor between the saliva of a healthy dog and the poison of the rabid animal, nor between the purulent but harmless matter that is discharged from a whitlow and the poisoned matter of glanders, more certain and more dreadful in its action than the poison of the cobra. We should obtain from chemistry all the knowledge it can give us, and it can give us great knowledge; but we must not be altogether guided by it in the question before us.

"There is another circumstance connected with the admixture of any impurities with our drinking water which we must not overlook—viz., *slow* action, and this observation applies to all impurities, whether organic or mineral. On this point chemistry has given us great assistance. We have all heard of instances in which the health of the inmates of a house or of some large institution has been gradually deteriorating, until at length it has been discovered that the water has been acting slowly in a leaden cistern or pipe, and a process of *slow* lead poisoning has been going on. Those who are not familiar with such subjects will scarcely be prepared to believe the small quantity of poisonous material capable of producing injury, as well as the length of time through which they will exercise their slow poisoning, and consequent undermining of health.

"I saw a man in hospital who, on examination, presented the professionally well-known narrow blue line in his gums indicative of lead poisoning. For several days all questioning to discover any connexion between his occupation and lead failed. He was, he said, a paviour's labourer in the streets, but at length, in conversation alone with me, he confessed that pipes were being laid where he had been at work, and that for some trifling reward he had for a considerable time done the work of smearing with white stuff pieces of hemp, and introducing them into the joints. He was afraid at first to confess this, as he dreamed that he might be dismissed for going to other work than his own. The white stuff was white lead.

"In another instance a person in business in a country town presented symptoms of slow metallic poisoning. His trade was in the soft goods, and it was only after careful examination it came out that on each market day he spent one or two hours buying metal scraps from hawkers, and that it was part of the process to rub almost every piece of metal closely between his fingers to ascertain whether it was copper, lead, &c.

"In a third instance, a writing clerk fell into very bad health, which was of long duration. The symptoms of metallic poisoning were present. In this instance also it was only after careful inquiry it was ascertained that he wrote in an office over a basement storey in which stereotype casting was carried on. The ceiling was not plastered, and air impregnated with metallic vapour passed up through the open joints of the flooring. In these two last instances it took some years to break up the health irreparably, and in both death was the result.

"A few years since, from some interruption in the trade with Naples, sulphur rose very much in price. Sulphuric acid, which is so largely used in the arts as an internal medicine, and in making acidulated beverages, was then temporarily manufactured from pyrites, and the results might have been deleterious and slowly fatal; but, thanks to our active and intelligent chemists, they almost immediately discovered that this sulphuric acid contained arsenic.

"Very recently the solution of perchloride of iron, used as a disinfectant in London for sewage, has also (it has been discovered) been found to contain arsenic, and its use has been discontinued.

"Our knowledge of the slowly injurious effect of organic impurities and of their nature is as yet very imperfect; but we know quite enough to put us on our guard as well against them as against mineral poisons. We know that a very small quantity of impure animal food may be as certainly fatal to life as mineral poison, and we know that already the refuse fluid from the manufacture of straw paper destroys the fish in the streams into which it flows, as the metallic impregnations has destroyed them in the rivers of the county Wicklow. All these considerations, I think, lead us to the conclusion that we ought not to take our supply from canal water, which must ever be liable to all the injurious impregnations that are likely to arise from comparatively stagnant water, from the multifarious animal, vegetable, and mineral substances carried as articles of traffic, and from the canal itself being the receptacle for the sewage of every boat carrying live lumber.

"We have used canal water in part for our supply for many years, and the poor who could not obtain other for drinking, have been obliged to use it for drinking also; but I hope that circumstance will not be used as an argument for being satisfied to continue its use. It might, with as much reason, be argued that, because our people have lived for many years upon potatoes, and in mud cabins, that they should continue to do so.

"I believe a supply of wholesome, palatable water for drinking would have a powerful influence in promoting temperance, and I believe that the continued use of unpalatable and unwholesome water tends to maintain intemperance in our city, and to spread it throughout the country. Among our working people whiskey is had recourse to, to correct the mawkishness of our pipe water, and a similar effect is seen on a much larger scale in regard to the country. Our railroads now bring weekly on excursion trips, or on visits of short or long stay, thousands of our farming and business people to Dublin. My opportunities enable me to say that I hear among them one universal complaint of the 'nasty' pipe water of Dublin, and brandy or whiskey is added as a corrective, and very often by men and women, too, for the first time. The taste is acquired, the habit is established, and the hitherto temperate country liver returns home a dram-drinker, to injure himself by his habits and others by his example.

"We must, therefore, take into account, not only the purity of water, as tested by chemistry, but its gratefulness, as tested by the palate. I have seen it stated by some writers of high position, in the late water controversy, that they think the present water supplied to the city is very good drinking water, palatable, &c.; but it has been entertaining and instructive to me to ask some of those how often in the day do they taste the present pipe water, and how far is their palate, at the time, capable of appreciating it. Not at breakfast, when high-flavoured tea and broiled ham interfere. It is scarcely ever tasted at midday, when the hard-working man must drink it in large quantities to supply the waste of perspiration, just as solid food is taken to support muscular strength. Seltzer, or soda water, or beer, or wine and water at dinner is drunk, or plain water is taken with or after articles of food that leave the palate incapable of judging. In the evening the opportunities are not more favourable for palate testing. But, can we take our experience from the working people of our own city? I think not, for those who have been for years inhaling bad air and drinking bad water, are not competent to judge of pure air and water. But we can get the test we want in the judgment of the thousands of our country visiters; and this, without an exception as far as I know, is as I have stated above.

"I fear I must have tired you with this long letter, and you may now naturally ask me, if I find fault with the canal water, and have said nothing in defence of the Liffey scheme, as proposed last year—have I any other source to suggest? I have not; I am not competent to offer any suggestion; but I cannot think that, with granite mountain ranges within a few miles of our city, it would be difficult to obtain a supply of water that would be wholesome and palatable, and fit for our manufacturing purposes. In principle, I believe water collected on our granite peaks, or flowing over or through granite, would be well aerated, palatable for drinking, and free from hardness for our manufacturing purposes. I hope you will have the advantage of examining Mr. Jukes, professor of geology, and director of the geology of the ordnance survey of Ireland. I should attach very great value, indeed, to his opinions, for he possesses an intimate, scientific, and practical knowledge of every hill and valley round Dublin.

"I see in many continental cities, not half the size or wealth of Dublin, water brought, for purity sake, from very long distances—twenty, thirty, or forty miles—and I cannot think that we ought to be deterred, by even a very large difference of expense, from doing the like. The supply now adopted will probably be the supply for many successive generations; and as they will benefit equally with us, they ought to be satisfied, and they will be satisfied to bear with us the expense.

"I will ask your attention in conclusion, to one matter; perhaps it may be more properly considered as of detail in legislation. I think it was contemplated in a former bill to lay down water-pipes into every house inhabited by the working classes who occupy houses in tenements, and thus bring an ample supply of water within the reach of all. I fear this would never be practicable. Independantly of the many legal difficulties that would interfere to prevent the enforcement of any compulsion on the proprietors of such houses, there would remain this practical difficulty, that unless for all except the tenant of the room, cellar, or yard, to which the pipe was introduced, for the tenants of the other tenements could not have access to it. For these reasons I should be desirous of seeing numerous fountains erected in all our crowded localities inhabited by the poorer classes, with catch basins around them. From these the poor can never be excluded. I might enlarge more on the necessity for health and temperance, and comfort's sake of the benefits to our poor of an abundant and accessible supply of good and wholesome water; but you will have, I assume, the assistance and opinions of Mr. Willis, of Ormond-quay, who devoted very much time and attention to the sanitary state of the district around him, and more particularly to its connexion with water supply.—I am, my dear sir, very truly yours,

"To Dr. Gray." "D. J. CORRIGAN.

Mr. Bateman then referred to some observations which Mr. Hawksley made in his statement, with reference to the Marquis of Downshire's opposition to the reservoir proposed in the plan of taking water from the Upper Liffey. He had reason to know that the only reason why his lordship objected to the plan was, that it would tend to make marshy a portion of his estate which at present was a rich pasture land.

The Commissioner inquired whether he believed the Marquis of of Downshire would oppose the construction of a compensating reservoir on his estate, in case the Corporation would pay the millers in water compensation, and not in money?

Mr. Bateman said thought his lordship would have no objection to its construction. Mr. Bateman then referred to Mr. Hawksley's views and calculations in relation to the fall of rain in the district from which the water was proposed to be taken from the Liffey. He said that Mr. Hawksley's calculation of allowing 2½ per cent. for every hundred feet of rise was altogether erroneous, and should not be acted on. He then referred to the numerous returns in England, Scotland, and elsewhere, to show that the actual fall of rain was very different in these places to what it would be according to Mr. Hawksley's calculations. He also dissented from that gentleman's views in relation to the expense of filtration, which he considered would be considerably greater than he proposed.

Mr. Mallett said he remarked with some surprise that Mr. Hawksley had departed somewhat from his original *data* by assuming the supply to be for 400,000 people, whereas the population of the city and suburbs was only about 270,000. He (Mr. Mallett) was also in a position to give some precise information as to the quantity of water required for manufacturing purposes, for he had been connected in the way of business with several breweries and distilleries. In Mr. Darcy's brewery, for instance, the supply of water, and which was obtained from the streets, was only about 18,000 gals. daily, and judging from that and other establishments, he would say that, supposing there were ten such in the city, the supply of water required from the streets by them would not exceed 150,000 gals. daily.

Mr. Halpin, on the part of the Ballast Board, said that when the tide was out a large portion of the Liffey was left dry, and many complaints had been made of the offensive state of the bed of the river on such occasions. Something had been done to remedy the evil by cleansing the bed of the river from time to time; in his opinion if ten million gallons of water were abstracted from the Liffey, it would be in a much more unhealthy condition than now; he was not aware that the Ballast Board had any objection to the abstraction of water from the Dodder, but they had an objection to any injurious abstraction of water from the Liffey.

The Commissioner—If a large reservoir were constructed, would the objection of the Ballast Board be removed?

Mr. Halpin replied that, if made sufficiently large, he thought it would, especially if the water which was taken out to be used by millers was returned to the river again. The Ballast Board would, however, object to any withdrawal of water which tended to injure the river or harbour.

The Commissioner inquired whether there was any difficulty experienced at the entrance of the harbour?

Mr. Halpin said the bar had been gradually improving for several years, and that there was no apprehensions entertained as to injury being done to the harbour by the withdrawal of water from the Liffey. The injury apprehended would occur above the mouth of the river, if it occurred at all.

Mr. Hawksley said there was some misapprehension on the part of the Ballast Board as to what the corporation proposed to do, or, in fact, what had been proposed in the several schemes referred to. What the Admiralty always objected to was, the impounding of the floods, but they did not propose to do anything of the sort. As regarded the Ballysmutten scheme, it would be found that all the water taken from the Liffey would return into it again before it reached the city. Mr. Hawksley then alluded to Mr. Mallet's statement in regard to the population of the city. According to the last census which was taken in 1851, there were 285,986 people in the city, and in the limits to which they proposed to extend the water supply there were 64,000 more, making a total population of 85,000. He said there was also some misapprehension in regard to the quantity of water used in the city for manufacturing purposes, which was much greater than Mr. Mallet supposed.

Mr. Brassell was then briefly examined touching his scheme, known as the Poolaphooca one. He said it was unnecessary to go into the details of it, as the commissioner was already in possession of them, but he wished to state that the district to which he referred had not been sufficiently examined; also, that it would be absolutely necessary to store the water in order to secure a regular supply. In support of this statement he referred to the history of Limerick, to show that even the river Shannon had been known to be quite dry. This occurred in the years 1666, 1698, and 1723.

Mr. Whelan, T.C., then read a long statement, giving his views upon the water question, which, he said, as a member of the corporation, he felt bound to do. He denied the capacity of either the Liffey or canals to supply the city with pure water, and advocated the taking of it from the lakes in Westmeath.

The Lord Mayor said, in reference to Mr. Whelan's statement, that if he came forward as a member of the corporation to give his views, he wished it to be understood that Mr. Whelan had done so without the sanction of the corporation, and solely on his own responsibility.

Mr. Mulvany said that there was some misapprehension in regard to the traffic on the canal, to which reference had been made during the inquiry. Although the passenger traffic had quite ceased, the goods traffic had increased of late years. As regarded the nuisance which, it was said, the boatmen threw into the canal, he believed a very erroneous impression had been made. The boatmen did not injure the purity of the water as represented.

Mr. M'Mullen said his acquaintance with the canal was much longer than that of Mr. Mulvany, and that from returns made to him he knew that the number of boats had been greater in former years than at present.

Mr. Hawksley said, in reply to some of Mr. Bateman's statements, that he had misrepresented his system as to the manner in which he calculated the fall of rain. He meant that his calculations should be acted on when a place could be found near the water side; but he never dreamt that they should be taken at a great distance from it. As regarded filtration, he believed that it would be found necessary, no matter what water might be selected.

The business being now concluded,

The Lord Mayor rose and said—This inquiry having now concluded, it is my pleasing duty, on the part of the corporation, and on my own part, as chief magistrate of the city, to thank you, Mr. Commissioner Hawkshaw, for the great urbanity and attention you have paid to every person who has been connected with this inquiry. It is a remarkable fact, and one not always found in our meetings, that during the whole investigation not one angry word has been uttered, which I can only attribute to your urbanity, as well as the ability and zeal which you have displayed in the discharge of your duty. I feel confident that, from the position you have attained in your eminent profession, the corporation and citizens of Dublin will turn your ability to the best advantage, and adopt whatever report you may think fit to make.

The Commissioner, in reply, thanked his lordship, and said he hoped that the corporation would soon see their wishes accomplished, by the completion of a work which would be worthy of the city, and which should be regarded as one of the most important in connection with it.

Alderman Hudson called attention to the necessity for publishing all the useful information which had been elicited during the inquiry.

Reviews.

Wilme's Handbook for Mapping, Engineering, and Architectural Drawing (Re-issue). London: John Weale.

A HURRIED glance at a book on the eve of going to press would neither justify a critique upon its merits, nor be fair play to the author; but of this before us—while in courtesy acknowledging its receipt at the eleventh hour—we remark, *en passant*, that it brings with it two *facts*—as *prima facie* evidence of its value and consideration for a reviewer—the one, that the extraordinary demand for the first edition exhausting every available copy in a twinkling, necessitated a *re-issue*; the other, that its identification with the name of "John Weale," a publisher in the architectural, engineering, and scientific world of universal renown, affords a guarantee that there must be some attractive metal in its composition. However, we shall revert to it in next number, when time shall have afforded opportunity for fuller consideration in detail.

Miscellaneous.

SUCCESSFUL APPLICATION OF STEAM CARRIAGES TO COMMON ROADS.—Recently the Earl of Caithness started from Inverness in his steam carriage, built under his own direction, and reached Beauly, a distance of 14 miles, in an hour and twenty minutes—notwithstanding the frequent stoppages, and fifteen minutes lost in getting water—without any more inconvenience to the general traffic or alarm to horses than if he had been in his carriage and four. So perfectly had he the whole moving power under his control, that he stopped more quickly than an ordinary carriage and horses could draw up, and this he did as often as he saw the least danger of any horses being frightened. After leaving Beauly, on those parts of the road where some distance forward can be seen, he attained the speed of eighteen miles an hour, and could have kept this up for any distance with ease and safety. On the road direct from Bonar-bridge the carriage had a severe test applied to it, but he drove it up the hills without difficulty, and coming down the steep declivity near where the road joins that from Tain, the control his lordship had over it was most satisfactory, and enabled him to descend at any rate he wished, and with perfect ease and safety.—*Banffshire Journal.*

A Liberal Insurance Company.—It is a fact worthy of being recorded, and which should be appreciated substantially by those who have occasion to effect fire insurance policies, that in the case of a recent fire at Alderman Mullen's warehouse, Victoria-street, Belfast, the sum of £900 was promptly paid by the Imperial Insurance Company, although virtually the policy had lapsed, owing to the nonpayment of the premium within the stipulated period. Were the company disposed to avail itself of a quibble, the law would undoubtedly have protected it; but generously assuming that the lapsing of the policy resulted from inadvertence, the customary notice having been omitted to be forwarded, the company admitted it to be in force, and paid the amount previously insured for.

The Shilling Art Union.—Mr. M. Angelo Hayes's picture of the Charge of the 3rd Light Dragoons at Moodkee has been selected, by Messrs. Bianconi and M'Swiney, for the £100 prize won by Mr. Broderick. A smart correspondence upon the alleged exclusion of Mr. Hayes's pictures from the exhibition of the Royal Hibernian Academy, has followed between Mr. M'Swiney and the President of that body, Mr. Catterson Smith. Several prizes are still unclaimed, and we are informed that the advertised numbers of prize tickets in the local journals do not correspond with the committee's special report. If this be the case, the probability is, that the prizes may *never* be claimed—the holders of tickets, relying on the accuracy of the advertised numbers, having destroyed their tickets when compared therewith, finding that they were not prizes. To say the least, a mistake of this kind would be unfortunate, and ought to be guarded against previous to the announcement of next year's drawing, by a careful comparison of "proofs" with the registered numbers.

The Boyne Viaduct.—In the recent report of the Directors of the Dublin and Belfast Junction Railway occurs the fellowing paragraph:—"Since the last meeting Mr. Hawkshaw had twice inspected the Boyne viaduct, and had confirmed the assurance he had given the directors on a former occasion—'that the structure was safe, and that all apprehensions of insecurity on the part of the public were unnecessary.' Mr. Barton, the company's engineer, had been directed to make the necessary preparations to carry out certain works recommended by Mr. Hawkshaw." Personal visits of ourselves to this structure would confirm Mr. Hawkshaw's statement, for there is no apparent cause of any instability whatever. The pier in question is most awkardly placed for the free navigation of the river, and there is a strong feeling prevalent in the town that the railway should not have crossed at that point, but more northward.

Autographic Telegraph.—At the Sardinian Exhibition there is a novelty which attracts much attention—the model of the autographic telegraph, an invention of Signor Bonelli, the director of the Sardinian telegraphs. In a small machine that stands on one side of the room you insert a slip of prepared paper, which looks as if it were silvered, and on which you have written a sentence. This machine communicates by an electric wire with another machine of similar appearance at the other end of the room. Between two small rollers of the latter machine you insert a slip of yellow paper, which passes through the rollers, receiving in its passage a green stripe down its centre, on which appears, in black, the exact *fac-simile* of the writing on the paper put in at the other end. The transmission is only across a room; but it is presumable and the inventor is confident that it might be made with equal ease and correctness across a continent or under an ocean, the wires once laid down. The marvel is effected by a combination of chemistry and electricity. Should no practical objections be found to the adoption of the system, this will be, as far as correctness goes, the very perfection of telegraphic transmission.

The Telegraph System.—There are in England four lines of electric or magnetic telegraphs, namely—the Electric and International Line, the British and Irish Magnetic, the South-Eastern Raiway Line, and the London, Brighton, and South Coast Railway Line. The first of these lines extends over a distance of 6,103 miles; the second, of 3,656 miles; the third, of 308 miles; and the fourth, of 119 miles; making the total length of all the lines 10,186 miles. The length of the wires used in all these lines amounted in the year 1858 to 48,990 miles; the number of stations opened for the public was 953; and the number of instruments was 4,065. In 1856 the number of messages sent was 125,622; in 1857, 1,237,013; and in 1858, 1,321,086. On the 1st of January, 1859, the Electric and International Company had 85 agreements with railway companies and public offices for their business messages. The number of such messages is estimated to amount to three times the number sent by the general public. This company also furnished intelligence, on the 1st January, 1856, to 180 provincial newspapers, and to 70 different reading rooms. The number of messages to and from the Continent, transmitted jointly by the British and Irish Magnetic and the Submarine Telegraph companies, and the number of messages for railway companies, newspapers, and newsrooms, are estimated at about 250,000 messages per annum.

Pope's Villa.—All that remains of Pope, at Twickenham, is his grave, his grotto, and his reputation. The "Tusculum" which he built out of the profits of his "Homer"—it is a profound mystery how authors *could* have been paid so well in those remote times—was pulled down by a sensible lady, who did not like an inconvenient house, even though the inconvenience might be due to the whims of a great poet. The grotto, which formed the entrance to the garden, has been suffered to remain, and a new house has been built close beside it. This modern erection will attract the notice, if not the admiration, of every stroller on the banks of the Thames. Its style is composite, and indefinite; and if I were to apportion even a small part of it to any known order of architecture, I feel that I should utterly forfeit the confidence of the reader. It displays a luxury of carving and colour not often—happily—to be witnessed in this country. If you are a bold man you may take a picture of it: there is ample space on the opposite bank to place your camera, but I cannot attempt to predict the result. The village of Twickenham contains some old-fashioned houses, and some streets of those peculiar, shabby genteel villas, with stone fronts and brick behinds, and exactly twelve square yards of garden each, which are the outward expression of the spirit of vain show pervading modern English society. The village also contains a number of public-houses, one church, and numerous fancy shops. For the rest it has nearly, though not entirely, lost its literary reputation—one or two names not unknown to literature and science are still to be found among its inhabitants.—*Photographic News.*

Fishamble-street Theatre in 1741.—About this period, Handel, for the first time in Dublin, produced his well-known "Messiah", and Fishamble-street Theatre being the "Musick Hall" was selected for the performance of the oratorio, at which gentlemen of the choirs of both cathedrals assisted, and the great composer played some concertos on the organ. The following paragraph, quoted from the advertisement, as published in *Faulkner's Journal*, will be found singularly *apropos* to certain expansive fashions of the present day. N.B.—"Many ladies and gentlemen who are well-wishers to this grand charity, for which this oratorio was composed, request it as a favour, that the ladies who honour this performance with their presence would be pleased to come without hoops, as it will greatly increase the charity by making room for more company." There can be no doubt but that the Hall was crowded every time this oratorio was performed, and that the fashions of the period bothered the managers exceedingly; for, on a subsequent occasion, we find that the ladies are again entreated on the subject, and informed that, if they "lay aside their hoops for one evening, the hall will contain an hundred persons more, with full ease." The experience of 120 years back may perhaps be found available for present instruction.

INSOLVENT BUILDER.

Aaron Loughnan, of Townsend-street, Dublin.

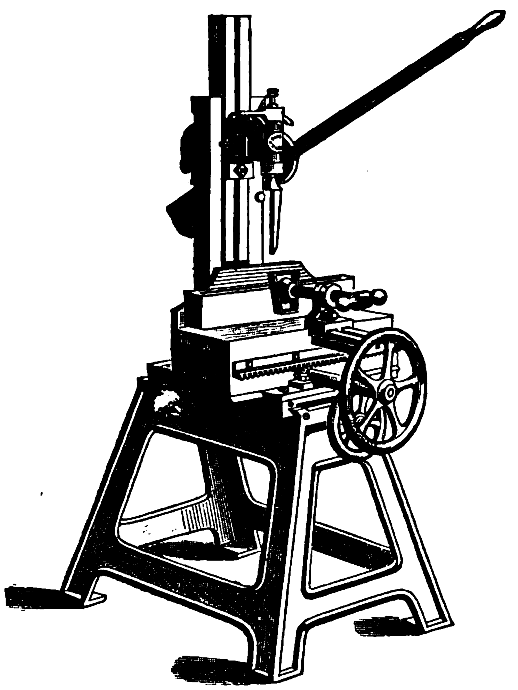
Acknowledgment.—Apropos to the courtesy extended by certain railway companies towards the editor of the Dublin Builder, in the granting of free passes on their lines, we desire to record in an especial manner the recent favours of the London and North Western Railway and City of Dublin Steam Packet Companies respectively, by means of which we are enabled in this and subsequent numbers to present our readers with some additionally interesting intelligence.

Notice.—We publish herewith a supplemental inner sheet of 8 pages that our reading space should not be encroached on by the increased number of advertisements; as also that we might present a detailed report of the recent proceedings at the commission of enquiry respecting the water supply of this city.

Note.—We are requested to mention that the name of the Clerk of Works at SS. Peter and Paul's Church, Cork, is "T. Langford Ely," not "Langford," as stated in the description of that building at page 310.

[*Advertisement.*]

Trade Catalogues.—One cannot but be struck with astonishment at the innumerable ways in which an enterprising tradesman appeals to the public with a view to increase his trade. Printing in all its branches, assisted by the skill of the wood engraver, seems in the present day to be one of the media most generally employed in spreading the knowledge of various manufactures. These arts have ably been brought into use by Mr. Benson, the eminent watchmaker of Ludgate-hill, who has sought by means of an "Illustrated Pamphlet" (consisting of nearly 60 pp., and containing upwards of 250 beautiful designs for watches, clocks, &c., with an elaborate description of every construction of watch now made), to enable persons living in any part of the world to select the watch best adapted for their use, and have it forwarded free by post.—*Sun*, 23rd August.



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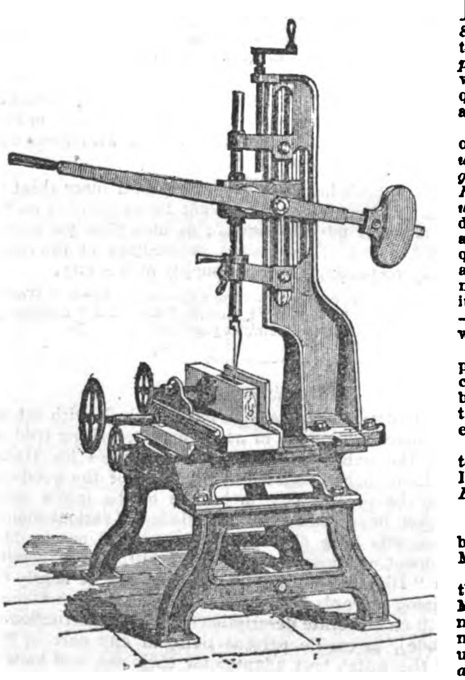

RESPECTFULLY request all BUILDERS, CONTRACTORS, CARPENTERS, &c., requiring Mortising Machines, previous to purchasing, to examine and test *their patent combined Crank and Lever Machine*, which will Mortise (Tenon and Bore, if required) both Hard and Soft Wood, and is also adapted for Drilling and Punching Iron.

The superiority of this Machine over *all* others consists *in the substitution of a solid wrought-iron plate Crank or Eccentric, by which greater power is obtained, in place of cast-metal Rack and Pinion Wheel, the Teeth or Cogs in which are so liable to strip or break out*—in the direct and perpendicular action of the Lever and Crank on the Cutting Tool, and consequent diminution of friction--in being *stronger* and *less complicated* in its construction, and more *powerful* in its motion—in the *facility* of its *adaptation* to the various depths of material —and in its *non-liability to break* or get out of working order.

This Machine has now been adopted in preference to *all others* by some of the principal Builders in London, Glasgow, Edinburgh, Dublin, and Belfast, who will bear testimony to its being the most powerful and efficient yet made.

For further particulars apply to the Patentees and Makers, GALLON, BEAN, and LUMB, LEEDS.

Extract from the Report of the Royal Dublin Society's Spring Show, 1859:—

"Gallon, Bean, and Lumb, Leeds, exhibited a very useful and complete Mortising Machine, which was highly commended."

N.B.—The Patentees respectfully intimate that this Patent extends to, and comprises Machines for Mortising by Steam and other motive power, as well as by hand; and makers and vendors of, or parties buying or using Mortising Machines, *are cautioned against any infringement*, as the patent right will be strictly maintained.

Building Ground, &c.

CAPITALISTS, BUILDERS, or Persons desiring peculiarly advantageous Residences in the vicinity of Dublin, are invited to view

THE LAKELANDS OF TERENURE BUILDING ESTATE

(Two miles from the City),

which presents a combination of advantages for Dwelling-houses not to be surpassed, if equalled, within the same distance of any capital in the empire.

These advantages are—salubrity of atmosphere (the land lying 200 feet higher than Merrion-square, and within the current of mountain air), abundance of the purest soft and spring water, a gravelly soil, singularly beautiful pleasure grounds and prospects, bathing, fishing, and boating on the Lake, which is larger and more beautiful than that at the Crystal Palace.

ONE HUNDRED BUILDING SITES

of this Freehold Property, having a Frontage of about 3,000 feet—1,500 facing the beautiful Lake of Terenure, with its wooded islands, a Deer Park on the opposite side, and mountains in the distance; and 1,500 facing a noble carriage-drive, lined with stately trees, and nearly a mile in length, are now to be let.

The Tenants will enjoy free ingress, egress, and regress to the beautiful shrubbery walks and use of the Lake, which, containing altogether about eight acres, will be carefully conserved.

Application to be made to S. D. DOUGAL, Esq., Civil Engineer, Surveyor, and Architect, 27, Lower Pembroke-street, Dublin, who alone has authority to show and let the Estate.

Mr. Dougal would undertake to Build Houses for private persons at wholesale prices, which would enable parties commanding even small capital to become the owners of Freehold Houses for one half the usual rents.

BELMYRA, DUNDRUM, CO. DUBLIN.

TO CAPITALISTS, BUILDERS, & OTHERS.

MOST DESIRABLE BUILDING GROUND TO BE LET.—This Estate, containing 150 Acres, situated within half a mile of the Dundrum Railway Station, has been laid out in Lots for Building. The position is admitted to be the most beautiful in the environs of Dublin, and is particularly well circumstanced in every respect, commanding views of Killiney Hill, overlooking Mount Merrion, City and Bay of Dublin, &c.

A railway station in the centre of the estate is in contemplation, bringing it within ten minutes' drive per rail of Harcourt-street.

A map of the lands, showing them laid out in building lots, can be seen, and every information obtained, at the offices of Edward Henry Carson, C.E., Architect, &c., 25, Harcourt-street.

THE NEW BUILDING GROUND at RATHGAR, to be called KENSINGTON-SQUARE, is now ready for setting. Lease, 900 years. Several lots are already let. Plan and particulars at

BENTLEY & SON'S,
110, GRAFTON-STREET.

N.B.—A few lots for Cottages in KENILWORTH-AVENUE, adjoining the above.

TO CAPITALISTS AND BUILDERS.

TO BE LET for BUILDING, the Ground round Wellington-square and in Hatch-street, the Maps and particulars of which may be seen at the Offices of JOHN LOUCH, Esq., Architect, &c., 15, Molesworth-street, Dublin.

PURE AND BRILLIANT GAS LIGHT.

GAS IN COUNTRY MANSIONS.

IMPROVED PATENT HYDRO-CARBON GAS APPARATUS.

JOSHUA EDMUNDSON and Co. having the exclusive right to Manufacture and Sell this Gas Apparatus, call attention of the Public to this most valuable invention. It is peculiarly adapted for Lighting Gentlemen's Mansions, Colleges, Mills, Manufactories, Railway Stations, other Country Establishments, and Public Gas Works for Towns.

The Apparatus will produce more Gas from a ton of Coal than any other, and can be so arranged in the erection that the Cooking of an establishment, of whatever size, can be effected without expense, no fuel being required beyond that used in making the Gas.

Particulars as to price, size, scientific merit, etc., and the most satisfactory reference to parties for whom it has been erected in this country, will be given by

JOSHUA EDMUNDSON AND CO.,
34, 35, 36, CAPEL-STREET.

Estimates for all parts of the Kingdom given, free of expense.

Country Towns lighted at a very small cost.

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The Dublin Builder.

VOL. II.—No. 22.

INSECURE SCAFFOLDINGS.

IF there be any truth in the saying, that "out of evil cometh good," it has had more than ample time to be developed since the recent fatal accident in Baggot-street, whereby, as already known to our readers, two workmen and a passer-by were almost instantaneously hurried into eternity, and verifying the text that "in the midst of life we are in death." Notwithstanding, however, the severe lesson so taught, no new leaf has been turned over, no practical steps to prevent, or at least diminish, the chances of a recurrence in future, have been taken by those on whose heads the responsibility rests.

The victims of negligence or ignorance—the one as culpable as the other when human life is in question—are cold in their graves; a coroner's inquiry, a few exclamations of horror and sympathy for the families of the deceased, an appeal and subscription, resulted from the accident, but as yet this is all!

Almost simultaneously—"for misfortunes never come alone," and if we hear of one accident there is pretty sure to be another in its wake—were there *two* providentially narrow escapes from fatal consequences at other establishments in progress in the city, owing to "insecure scaffoldings;" yet, with these, hosts of others preceding, and the sad one in question before our eyes, matters still remain as before in *statu quo*. How reprehensible! but so it appears likely to be till *another* and *another* coroner's jury arrive at the conclusion as in the case of Duggan, that "*the authorities having control, should not permit a thoroughfare under exclusive works of this kind, and we are further of opinion that the deceased might have escaped, if such precautions had been taken*," and till more lives are sacrificed, and families plunged into affliction and distress.

Will not our corporation interfere? and if not, why not? Prior to building operations in the city, if external scaffolding be necessary, it is required that a license be obtained, and a sum deposited at the City Hall; may we then ask if the corporation go *so* far, why do they not appoint a proper officer in connection with that department, to see that said scaffoldings are properly paled and constructed with due regard to individual and public safety? We may be met with the reply, that it is the builder's business to do it, or the architect's, to see it done; that may be very well in theory, but how does it result in practice? There were both an architect and builder directing the works at Baggot-street, at Sackville-street, and Parliament-street, yet the mishaps occurred, and on whom was the responsibility fastened? If it were the business of a salaried corporate officer to inspect these scaffoldings, and to see that they were carefully constructed, so as to lessen at least the *probable* chances of an accident, some security would be guaranteed, and in the event of a mishap arising from culpability, "the saddle would be put on the right horse." If a shop front project beyond its limit, if an area grating be dangerous, or a structure dilapidated, the City Surveyor has the remedy in his hands; it is not then too much to expect in the important matter of scaffolding, where both the lives of the workmen engaged thereon, and the pedestrians underneath are jeopardized, that the Corporation would adopt some measures of precaution, and *promptly*. Justice to the citizens and humanity towards our fellows, demand that it should be so.

Travelling somewhat outside the shadow of our adopted title, we may briefly—and perhaps not altogether inconsistently—refer to the late occurrence at the Portobello Gardens, where want of skill or proper precaution,—as the case may have been,—in the erection of scaffolding poles, caused the death of two poor men, employees at that place of amusement. The results were somewhat similar in this case to those above related, but save in the substantial sympathy of the public with the relatives of the deceased, no "universal good" has accrued from "the partial evil" thus inflicted. Probably we may incur the censure of sight-seers and pleasure-hunters for being too critical, if we proclaim such exhibitions to be highly reprehensible, nevertheless, at the risk of such disapprobation, we must express our conviction that the authorities ought not to permit them. Within the precincts of the city we believe the Lord Mayor enjoys a certain power to repress all exhibitions of a dangerous tendency, and we presume that outside its boundary a higher functionary is also privileged.

All achievements in science have been invariably attended during preliminary experiments with a certain amount of risk and occasional loss of life; but however that may be deplored, individually it becomes a positive necessity for the general weal; and a consolation is afforded, if the public of the age or posterity derive a benefit from such casualties. But in what degree towards the developement of any scientific end do "tight" or "wire" rope dancing conduce? Is a Blondin—be he the veritable or the assumed—or a Duvalli to be spoken of in the same breath with a Stephenson, a Fairbairn, or a Brunel. If Professor Lowe succeed in achieving by his monster aerial machine what he represents to be practicable, there may possibly come to pass a wonderful revolution in the means of transit both of passengers and merchandise, and steam on land or water be completely superseded. We might then become reconciled on principle, even to the previous sacrifice of human life in aeronautical experiments, and be convinced that sometimes "*out of evil*" *good cometh.*

RESTORATION OF ST. PATRICK'S CATHEDRAL.

A CORRESPONDENT of *Saunders's Newsletter*, of 29th ult., with reference to this cathedral, says:—"When the present works of restoration were commenced, at the cost and under the direction of Mr. Guinness, there remained but little of the cathedral that was not either ruinous, or had been incorrectly and inharmoniously renewed. The north transept was entirely modern; much of the south cross end was scarcely more than half a century old. The eastern chapel had been not long since rebuilt, we cannot say restored. The west front, and the east end of the church had both been disfigured by pretended restorations, in which many distinctive features were obliterated. In the choir aisles, both north and south, and in the north aisle of the nave, the handsome mullioned windows of the fourteenth century had been most unnecessarily removed, and were replaced by simple lancet lights, which had not even the merit to which they laid claim, of agreeing either in figure or in position with the originals. In fact, the true principles of restoration had been everywhere violated, and a capricious as well as tasteless spirit of architectural pedantry was manifest in all the reparations. Hence the eastern gable is deformed by two huge misshapen pinnacles which, like asses' ears, project upwards at its base. Hence the incongruous figures of the pinnacles that crown the south-eastern and north-eastern flying buttresses, which are inconsistent and irreconcileable with the other buttresses, and with the general style of the building. The same want of taste is shown in the tiled flooring of the choir, which represents no ancient pattern, but is such a design as might have been drawn from a patchwork quilt by a washerwoman. Yet the ancient tiles, of various appropriate patterns, could be found in many parts of the church, and many of them had already figured in the work of Mr. Oldham, which is deservedly esteemed. St. Patrick's, then, furnishes in its former 'restorations,' as they have been untruly designated, an ample variety of examples to be avoided. . . . . . . At Armagh, the present Lord Primate has expended above £80,000 on the repairs of his cathedral, but it is complained that the architect 'perpetrated every form of monstrous absurdity.' In Dublin, Christ Church has been irreparably defaced, and St. Patrick's has also suffered much, though not to the same extent.

"Mr. Guinness had from the first determined that his should be truly a restoration, and that he would allow no deviation whatever. He has taken care to preserve an accurate record of every part that had to be removed. Drawing, admeasurement, and photography have all been employed, and every original fragment that could supply a pattern or a hint for one has been carefully sought out and followed. How faithfully this plan of true, honest restoration, free from all false mediævalism, has been followed, will be apparent to any person who will carefully examine the progress already made, which is far from inconsiderable. In particular, we would refer to the exterior of the choir clerestory on the south side, and its three flying buttresses. These, so far as they have yet proceeded, and the corbelling of the same side, may be contrasted with the contiguous unfaithful restoration, as it was called, of the east end of the church. The critical observer, if he has not a distinct recollection of the building previous to its reparations, should compare it with some good delineation, either in print or drawing. There is no exgraved representation at all comparable to the views taken by that excellent artist, James Malton, in 1793, which effectually disprove the pretended restorations of the east and west ends of this cathedral. Yet, scrupulously as Mr. Guinness has adhered to the principle of a correct and undeviating adherence to his model, he has not escaped from misrepresentation. A would-be critic, under the signature 'Mediævalist,' prompted by we know not what motive, has recently in a very acrimonious and abusive manner assailed both Mr. Guinness and the Dean and Chapter of St. Patrick's, not through the medium of any Dublin paper, but in *The Builder*, a well known scientific journal, published in London. In this city there is an excellent professional periodical, the DUBLIN BUILDER, a monthly publication, which would have been the legitimate channel for any criticism to which the works at St. Patrick's might appear fairly liable. But if it had been adopted, any misrepresentation would have been immediately detected by its readers, while in London a groundless statement as to a Dublin matter might be circulated very widely, and produce a most mischievous effect before it could be counteracted by a refutation. The 'Mediævalist's' letter is indebted solely to the respectability of the journal on which it has been imposed for any notice it may obtain, and to which otherwise it could not, even for its malicious cleverness, have the slightest claim. The 'Mediævalist' puts forward a number of charges, which would be overwhelming if they were only true; but the little truth that is contained in his letter does not support his argument, or rather makes against it; while to his direct misstatements and insinuations, it bears about the same proportion as Sir John Falstaff's pennyworth of bread to all that intolerable deal of sack. He commenced by desiring to call public attention to what he elegantly terms 'the present doings in St. Patrick's.' 'The matter from beginning to end has been done in a corner. Mr. Guinness first privately announced his intention to restore the nave.' This is a most absurd complaint. Mr. Guinness announced his intended benefaction in a courteous, respectful letter to the Dean and Chapter, by whom it was gratefully accepted. His critic appears to think the offer should have been made ostentatiously in a newspaper. The next charge is at once absurd and untrue. It carries its refutation with it. It is, that Mr. Guinness 'required the greatest secresy on the part of a few of those in office; so much, that although at the time the work of restoration was actually in progress, those who had charge of the building, I believe, were not informed of it for a considerable time.' What must be the 'Mediævalist's' reliance on English credulity when he expects the readers of the *Builder* to believe the works of restoration sanctioned by the Dean and Chapter could have been 'actually in progress' without the sexton, beadle, and verger, 'those who had charge of the building,' being informed of the matter? But not satisfied with this arraignment of Mr. Guinness, the 'Mediævalist' proceeds to 'question the conduct of the Dean and Chapter,' . . . . 'they, and not Mr. G., are the parties answerable for what has been done; and, in my opinion,' says the 'Mediævalist,' rising to a climax, 'they have been guilty of a gross breach of trust.' This is certainly a serious accusation. But has it the slightest foundation? Is the 'Mediævalist's' wrath to develope itself into a *quo warranto* procedure against the Dean and Chapter for handing over a portion of their church to Mr. Guinness for restoration? The next blows are aimed at Mr. Guinness. 'The letter written to Mr. Guinness, containing the terms of his agreement to restore the nave at his own expense, is a curiosity in its way.' Here the critic unintentionally gives expression to a truth—an offer of unprecedented munificence may not improperly be termed 'a curiosity in its way.' From the confidence with which 'Mediævalist' pronounces his opinion, it might be supposed that he had the letter before him, but in his next sentence he dispels that delusion. 'I am informed,' he says, 'on good authority, that Mr. Guinness merely says, that he will restore the south wall of the nave,' &c. Next he accuses the Dean and Chapter of an 'overweening confidence' in Mr. Guinness, to which it should not be supposed that his offer of defraying all the cost of the restoration could any way have entitled him. A series of charges against Mr. Guinness next succeeds. 'First, he refuses to have anything to say to those who have been engaged for many years in the restoration of the Cathedral. Next he shuts up the place, and will allow no one to enter to see the works.' It is true that Mr. Guinness refuses to employ any of those who have been employed in what they call the restorations during many previous years. Besides his unquestionable right to employ whom he pleases at this great work, he has a sufficient justification, if any were required, at the deviations exhibited in the former works, and of which Malton's views and others of more recent date furnish undeniable evidence. The builder employed by Mr. Guinness (one of a firm that includes an architect and builder) receives the next blow, for 'proposing to erect flying buttresses to an early English wall, after the pattern of some *debased* works at the east end of the choir.' Here is an important admission; the east end has been *debased*, under the pretence of restoration'; yet in his next sentence the 'Mediævalist' proceeds to blame the builder for refusing to adopt plans prepared some years ago, and which would have extended innovation and debasement to parts of the church that have hitherto escaped. Yet he admits also that those plans 'were not in accordance with the the Irish tradition;' the meaning of which is, that they disregarded the peculiarities of the Gothic architecture in Ireland, as shown in most of our ecclesiastical edifices, as well as in this Cathedral. Nor is it true that the *debased* that he mentions are now to be taken as a pattern. The shafts and pinnacles of the flying buttresses are to be strictly restored in exact accordance with the originals, but in a better and more durable material, the limestone of Tullamore. It is also untrue that no one is allowed to enter and see the works. On the contrary, there is unusual facility permitted for visiting and inspecting every part. The works are necessarily enclosed by a boarded fence, and there is put up a notice usual at all buildings, 'No admittance except on business;' but this is construed most leniently, so that even the 'Mediævalist' may if he pleased have explored the entire of the Cathedral six days in every week since the works commenced. We do not profess to know what he means by 'an early English wall,' nor how a mere wall, independent of arches, mouldings, copings, or other members could be designated as belonging to any order, but we can assure 'Mediævalist' that he is entirely wrong in his statement that 'the south wall of the nave has been already taken down in such haste that no drawings whatever could have been made of it, or no measurements taken to guide its re-erection.' The fact is, that it was most carefully drawn to scale; the complete elevation is available, and will be used as a guide in the rebuilding. Several photographs have also been secured, so that in this respect there is nothing to be desired. We have now considered the whole of the charges made against Mr. Guinness. We believe we have either shown them to be groundless or irrelevant, and we are surprised that such an ebullition of ill-temper and envious feelings should have been obtruded on a scientific journal as a fair criticism on a matter that we admit 'is of imperial and not merely of local interest.'"

ARCHITECTURAL MUSINGS.

The Building Art! the Building Art!
Of the world, its old and grandest part,
It liveth to-day, though not of erst,
When prophet and prince in its ways were versed.
Ere Solomon's temple or Babel's tower,
The "mystic tie" of the mason's power,—
Were known and felt with a will direct,
For a craftsman then was each architect.

The Building Art! the Building Art!
Of the Grecian scroll and the Roman chart;
Oh, never again while the world's moon
Waxes and wanes we'll view such ruin;
Two thousand years have passed away,
And rich though in ruin, they are robed to day,
Shade of each heroic soul elect,
Both craftsman alike and architect.

The Building Art! the Building Art!
Of the palace, and hall, and public mart,
Of tunnel and tower, of keep and fort,
Of castle or church, of crypt or court;
Of which phase in its path of fame,
Wouldst thou, reader, strive to aim—
The column, or arch, or bressumer "ect,"
Of y^{e} modern craftsman architect?

The Building Art! the Building Art!
What lessons those "strong records" impart,
In Athens outstretched, in Egypt hid,
In each hieroglyphic pyramid,
The mighty duct and the wondrous dome,
Above and below eternal Rome,
The Celtic round tower still erect,
Of craftsman, scholar and architect.

The Building Art! the Building Art!
The brow, the brain, and the human heart,
The master-mind, and the skilful hand,
Ready to form whatever is plann'd—
Granite temple or marble throne,
Statue or frieze, each traceried stone;
The image outlasts the intellect
Of craftsman, artist and architect.

The Building Art! the Building Art!
Of student and lover, a word apart—
Like a truant that lagged at a stagnant pool,
I would lash you again to your Grecian school,
And teach you to copy, without the blot
Of *outre* Christian or *ogre* Goth,
And win the laurels that whilom deck'd
The brows of each noble architect. C. C. H——Y.

AN OPEN VIEW OF THE DIPLOMA QUESTION.

WE have a sort of foretaste of the coming discussion on the diploma subject, in the numerous communications and floating correspondence which have so largely abounded of late, revealing great diversity of opinions, and struggle for personal or party distinction. The Institute has issued a circular letter which will be found below, and as an independent focus of opinion is also in existence, we may at once condemn this attempt at antagonism, for it is very improbable that any scheme uncountenanced by the chartered body would command general confidence and support.

The Institute, taking the initiative in this question – to which indeed it was moved from without—proposed the simple and strictly defensible course of making an experiment, by offering a certificate of ability to those of its own members who should voluntarily submit to an examination. Then came a charge of an attempt at self-exaltation, to the prejudice of the profession in general, and the advocacy of a compulsory system; and this again has been equipoised by the views of those who think that, even admitting an examination to be desirable, the theoretical desideratum is wholly unattainable in practice.

To understand this question aright, it would be necessary to revert to professional incidents of a somewhat extended period. It had long been felt by the professors of architecture, that the merits of their art would never be rightly understood or adequately esteemed until some elementary acquaintance with its rules and characteristics came to be regarded as a necessary acquisition and accomplishment, by men of high position and enlarged intelligence.

The erection of London into a seat of education, on principles consistent with the advanced requirements of the age, where the highest secular instruction was to be laid open to disciples of every religious creed, was an event calculated to produce great and beneficial effects, and the example has received recognition and adoption to some extent by the older seats of learning.

The institution of classes for imparting information upon architecture, was an early feature of the London colleges, and hundreds of students who have passed these courses must have become conversant with the historical, the scientific, the artlike, and in short with all the bearings of the subject which admit of being orally or catechetically communicated. But it is not altogether impossible that the greater and more public object has been occasionally narrowed both by students and teachers, and for the higher aspiration of becoming intelligent patrons and discriminating judges, the hopes and aims of professional rivalry and emolument have been substituted. The information given is precisely that which those should possess who have to form opinions or to speak of matters architectural; and it forms an admirable preliminary to regular professional training, but no more; for it is unnecessary that the attendant on these lectures should ever have handled the T-square, have descended into foundation trenches, or have reached the acclivities of a roof, yet the youth fresh from the lecture-room would be better qualified to pass such an examination as college lectures are likely to propose than one practised architect in a score, because such an examination must necessarily confine its scope to those crude and tangible points which admit of systematic acquisition, and are undoubtedly of some collateral value, but which it would be erroneous to consider as the leading criterion of the knowledge that is really desirable.

One man of superior genius—confined though it be to some one department only—benefits his profession and advances the interests of art more than a thousand who are simply versed in the theories of the schools, yet how often would the trap of examination enable systematic mediocrity to laugh at the overthrow of experience and genius. The grand evil, however, seems to be, that some who lack the attainments of the school, and for the patient gathering of experience have no other substitute than bold assumption, are among the professors of a noble vocation. Now, it should be recollected that two sources of information lie open to the inquirer—namely, books and things—and that the students of the latter class, such as Watt, Stephenson, &c., have produced a large amount of public benefit, and it would have been most impolitic to have excluded them from any profession; still the difficulty of discrimination would be very great, and it, therefore, appears to us that some room at present being admitted to exist for the besom of reform, such a course will be most worthy of adoption as shall combine a considerable amount of practical information with some theoretical qualification. The simple ventilation, however, which has been given to the subject will, without doubt, be productive of wholesome results.

(Circular above referred to.)

"We are instructed by the President and Council of the Royal Institute of British Architects, to request that you will be good enough to bring before the notice of your society the enclosed proposal of the council for establishing a system of Architectural Examination, and we should feel much obliged if you would, by the end of September, if possible, favour us with the opinion of your society upon the said proposal, and with any suggestion or modification which may be recommended by its members, collectively or individually.

"We should, of course, be happy to receive such suggestions in any form which may be considered best by your society, but we may be allowed to mention that, as there are several societies whose opinion we hope to elicit, it would serve to put the whole matter in a clearer way for working out, if your suggestions could be embodied in a series of resolutions which should either adopt, alter, or reject those put forward by the council, and, so far as possible, run parallel with them.

"We could then collate together, without much difficulty, the opinions of the several societies, and ascertain how nearly they coincide, or wherein they differ most importantly.

"We annex also a copy of the resolutions passed by the members of the Institute, the adjournment having been agreed to in order to ascertain, if possible, the opinion of those gentlemen whose residence and practice are away from London, and who are, no doubt, fully represented by your society and others.

"We need scarcely mention, that the council attach great importance to the success of this movement, and would wish to know whether (although perhaps differing as to the detail) your society would be in a position to assist in carrying it out effectively."

THE METROPOLITAN (UNDERGROUND) RAILWAY.

Recently having had the opportunity of personally inspecting the progress so far attained in the works for this subterranean line of communication, and having noted some of its features, we had determined to particularize them specially, but being anticipated by our excellent cotemporary, the *Engineer*, we quote the following able description from its pages:—

The important line of communication which is to afford to the Great Western and North-western, the Midland, and other northern lines, a direct entrance into the heart of the city of London, and which is ultimately to bring within the system the calamitous Eastern Counties, and connect it with its respectable brethren, is making most satisfactory progress. Within eighteen months of the present time any person resident in the city wishing to go to any part of the north, north-west, or west of England, will have one station within easy walking distance at which he can book himself for the Land's End or John o' Groat's. Another twelvemonth will, no doubt, witness the construction of a short branch from Victoria-street to Finsbury-circus to meet a short extension from Bishopsgate, and then the whole of the eastern counties of England will be as accessible as those of the west. By this time sufficient progress may have been made with the railway which will cross the Thames at Blackfriars, to enable us to state with certainty when the London, Chatham, and Dover Western Extension will be ready for traffic; and when that is completed there will not be a part of Great Britain accessible by railway to which a passenger may not be booked direct in the new Victoria-street. The line in course of construction to Charing-cross will hardly be allowed to find its *ultima thule* at that spot, and will probably throw out some projections to reach a northern and western line. Within seven years the metropolis will be completely intersected, and each suburban district will have its railway as it has now its line of tedious omnibuses, but a sum of from ten to fifteen millions of money will be required to be expended to accomplish these results.

The Metropolitan (Underground) Railway, with which we have now more especially to deal, will absorb a million and a-half at the least before it is opened for traffic, and the line will then be probably one of the most remunerative in the country. It will commence at the Paddington Station of the Great Western Railway, into which it will run on a low level, and then gradually descend till it begins to burrow under the ground. Passing under, and in a line with, the New-road it will pick up the traffic of the London and North-Western Railway at Euston-square, which will be carried to it by an underground branch; at King's-cross it will pick up the passengers from the Midland Railway and the north of England, and proceed to Farringdon-street. Here it will throw out a branch into, or rather under, Smithfield, and wait until the London and Chatham and Dover shall meet it from the other side of the Thames.

The underground railway will have a double line of rails, each, however, of the mixed guage, so as to accommodate the broad as well as the narrow guage carriages. The roadway will be 28 ft. 6 in. in width, and the height from the rail to the soffit 15 ft. The contracts for the works have been taken by two firms: Mr. Jay has the section from Farringdon-street to Euston-square, and beyond that to Paddington has been taken by Messrs. Smith and Knight.

The most important, and indeed the heaviest, part of the line is at King's-cross. No person who has not had the opportunity of personally inspecting the amount and description of work that is going on at this spot can form any adequate idea of the apparently hopelessly complicated nature of the tunnelling. It is required at this point that the main line should receive two branches coming in opposite directions, and crossing each other at a few yards before entering the main tunnel, and all these communications have to be made either under or in immediate proximity to the rapid and continually-flowing Fleet river or ditch; and, to increase the difficulty, houses for the pointsmen and signalmen have to be built up at the junctions, and all this work has to be carried on at some 30 ft. below the existing road. Straightforward tunnelling, or even going round a corner at a sharp curve, with nothing, to all outward appearance, to guide you as to the spot at which you may come out, is simple and easy to those who understand the business; but such a complication as that at King's-cross seems thoroughly bewildering. A Chinese puzzle, navigation in a fog, a journey through an American forest or Indian jungle, seems plain and simple in comparison with the task which Mr. Jay's moles have to carry out at this spot. Without asking the reader to descend a series of almost perdendicular ladders, every round of which is slippery with soft blue clay, and where a false step may land the incautious explorer in the dark chambers far below, we will endeavour to explain the process by which the puzzle is being worked out.

The first thing to be done was to get an outlet for carrying away the earth, which was required to be excavated. For this purpose the existing railway at King's-cross afforded many facilities. The short branch to run under Maiden-lane was therefore the first attempted, and this short piece—a tunnel of about a quarter of a mile in length—was taken in hand, and is now completed. Temporary rails are laid down in it, and waggons running upon these rails, drawn by horses, convey away the earth on to the railway, where, when a sufficient number are accumulated, they are taken by a locomotive, and their contents deposited near some works now being carried on by the New River Company, about three miles distance from King's-cross. By this arrangement an enormous amount of labour is saved, and the passage of innumerable carts through the streets, carrying away the earth, is avoided.

This short eastern branch, which runs in the direction of Maiden-lane, passes under the Fleet river, now more generally known as the Fleet sewer. It is, however, a stream or river which has its rise in the Hampstead and Highgate Hills, flows through Kentish Town, and enters the Thames close to Blackfriars Bridge, at the same spot at which it emptied itself centuries since, when it formed the boundary of the city of London, and Ludgate stood at the foot of the hill, on its banks. In rainy weather, or at the time of a thaw, after a heavy fall of snow, an immense quantity of water is poured down this steam, and when this great flow takes place at the time of high water in the Thames, and the current of water cannot find a rapid exit, it flows back, and completely fills the covered sewer. On various occasions, while the excavations were going on, the sewer became thus completely charged with the back water, greatly increasing the difficulties connected with the work. It was necessary in the first instance to cut a new channel for this Fleet river, and divert its waters from the spot under which the tunnelling was carried on. The levels of the tunnels were not, however, sufficiently low to admit of the excavations going on beneath the bed of the sewer. The arch of the tunnel is about 2 ft. higher than the bottom of the sewer. A massive iron aqueduct, 8 ft. 6 in. in diameter, is stretched across the tunnel, resting upon the side walls, but the under side of it is 2ft. lower than the arch of the tunnel, and through this the water of the Fleet is carried. Trains passing along this tunnel will have to lower their chimney funnels, or they will run the risk of tapping the sewer in a very inconvenient manner. The railway passes close under the outer wall of the station at King's-cross, and very great precautions were necessary at this spot during the very critical time when the workmen were dealing with this sewer and the tunnelling, owing to the very small depth of earth between the surface and the crown of the tunnel, and the immense pressure of the heavy brickwork of the station, and of the house property at the entrance of Maiden-lane.

At King's-cross there are two branch lines running up to the station, one on the east, the other on the west side. These, as we have already stated, have to be so constructed as to communicate with and run into the main line which passes along the New-road to Farringdon-street. The two lines run in on a curve, the one from the west running in an easterly, the other from the east in a westerly direction, and they therefore cross each other something in the form of a letter X. At the point of intersection the arch of the tunnel has in consequence to be groined. This involves some very nice calculations of details in the fixing of the centreings and supports, and the two lines, after crossing each other, have to be led into the main line. Now, as the main tunnel is 28 feet 9 inches in width, and the branch lines about 14 feet, the necessity presents itself to combine in one arch at the point of junction two arches of a different radius. The span of the arch of a tunnel 14 ft. in width is, of course, very different from that of one of double the width, and the height of each must vary in proportion to the increased radius. The main line, too, is 28 ft. in width, the branches which are to run into it are 14 ft. at the point of juncture; as the lines run in on a curve the width must be 42 ft. at the least, and this gradually diminishes till the ordinary width of the main line is attained. The tunnelling, therefore, has to be what is known as bell-mouthed. On the Crystal Palace and West End line there is a tunnel of this description, but in that case the mouth or entrance is constructed above ground. At King's-cross all this work is under the ground. The tunnel not only increases in width at every inch of its progress, but it has to make a proportionate rise in the height of its arch, owing to the increased span. The arch rises about 6 ft. in 50 ft. of length of the bell month, and there is of course a corresponding elevation required in the arch of the smaller tunnels. As though it were not enough to meet with one difficulty of this sort, it is required to be overcome a second time for the second branch going eastward.

The tunnelling has to be carried out in forms which may be represented by a monogram formed of the letter X and two Y's placed thus: ⊣<>⊢, each leg of the letter X forming the upper limb of the Y's, and all the arching and building up has to be made to fit accurately together. An ant's nest, a rabbit warren, a colony of beavers, or mole's burrow, would not be more intricate. We fancy that we have explored the whole region, and traversed the whole maze, when we come upon the flicker of candles through an interminable tangle of timber, and are informed that the work there is the pointsman's house, with retiring rooms. The immense baulks of timber supports become more and more numerous, and we feel something of nervousness when we are told that this was and is the most critical part of the business. The walls and arches of the small and large tunnels of the great bell mouth press with such immense force on this pointsman's dwelling, which is at the centre of the complicated junction, that it has been necessary to use the greatest possible precautions to prevent the whole from coming to one grand collapse. There are timbers upright, horizontal, diagonal, straight, curved, interlacing, and crossing and recrossing each other, till it becomes a marvel how it was possible to have got such masses under the earth and into any useful position. The ground plan has now grown more complicated, the monogram of the two Y's and the X has received the addition of one large and two small O's, and these letters are placed in the forks of the two horizontally placed Y's. The "round house," which is a sort of key of the position, is completely covered in by a circular dome, and here will be stationed the switchmen and signalmen, who will attend to the points necessary for running the branch traffic on to the main line; for the through trains—that is, from Paddington to the city—there will be no points to attend to at the junction, as the switches will, of course, be open.

The brickwork of the tunnel is three-course, or 2 ft. 8 in. in thickness, and some idea of the extent of the work may be judged from the fact that 10,000 bricks are swallowed up for each yard formed as the tunnel advances. The shafts, as above stated, are placed about 90 ft. apart, and the work can be carried on with much greater rapidity by having the shafts more numerous, as each shaft affords two faces against which the excavators can work at the same time. The progress of tunnelling depends upon the number of men who can be employed simultaneously; and by the plan adopted by Mr. Jay, the tunnel is carried on in sections of 45 ft. each way. The rate of progress is about 20 yards per week, the eastern section is about 1,600 yards, so that eighty weeks from the commencement would suffice to complete this portion of the line. The upper side of the arch of the tunnel will vary from 10 ft. to 12 feet in depth below the level of the Euston-road, as far as Tottenham-court-road; beyond this part the depth will decrease until in some parts there will not be more then 3 ft. between the roadway and the top of the tunnel. The Fleet sewer has to be passed twice before the railway reaches the City terminus, and will have to be diverted and treated in the same manner as at King's-cross. The sewer, which formerly ran along the centre of the New-road, has been diverted to the south side, and now passes under the foot pavement. The tunnelling is built in the blue clay. In one part of the line the excavations will pass through sand, and it is feared no small quantity of water, and in another part a small strata of gravel. As at present arranged, there will be communications formed with the railways and passenger stations at Baker-street, Tottenham-court-road, Euston-square, King's-cross, Victoria-street, and Smithfield. Up to the present time the excavations have been carried on without any serious casualty. The difficult constructive details have been arranged and carried out under the direction of Mr. Houselander, the superintendent of the works, in a manner which reflects the highest credit upon that gentleman, and prove the vast resources of the eminent firm of Messrs. Jay and Co., the contractors.

THE ARCHITECTURE OF THE FUTURE.

[Translated from the Feuilleton of *L'Opinion Nationale.*]

LA BRUYERE complained, two hundred years ago, that *all* had been said, and that writers were condemned merely to repeat their predecessors; nevertheless, in the following century, Voltaire and Rousseau, Diderot and Montesquieu, discovered a number of ideas, sufficiently new, and enunciated them in a style sufficiently original to bring about a sensible modification in the ideas, political and philosophical, of their readers, and one fine day the French Revolution burst forth.

In the same way, for a good century past, architects have pretended that *all* had been achieved in architecture, and that all that remained to be done was, out of the immense number of examples, to select the three or four of the finest monuments built by the Greeks or Romans. We know the celebrated scene in "The Bear and the Pasha," where the great Schahababam asks for a learned fish, and Lagingeole answers so much to the point:—"A fish? I have what you want; take my bear." The same scene has been enacted for the last fifty years throughout Europe whenever a great building has to be erected.

"I want an Exchange," says the city of Paris. "An Exchange?" replies the architect; "I have just what you want; depend on me." Whereupon he draws out of his portfolio a Grecian temple, which he proceeds to construct in all haste. "We would wish a church," says the commission of public worship. "A church? Indeed! I have just the plan for you, and for a few thousands you can have your wish." And the artist takes up his Grecian temple and has it built a second time.

Other architects, less exclusive, propose, as models for museums or mayoralties, the Pantheon, St. Peter's at Rome, or the Cathedral of Strasbourg. But all agree in declaring, that outside the Greek, the Roman, or the Gothic, there is no safety, and that no great building could be erected on a new plan.

Meanwhile, in the seventeenth century, a doctor, who had no cook, had observed the lid of his pot, as it were involuntarily, rise from time to time, which led him to believe that steam possessed a certain power. The force thus discovered by him was utilized by others, and one hundred and fifty years after the doctor had boiled his own pot, enormous steam factories and innumerable railways spread over the surface of the globe; the cooking pot of the good doctor had produced in the material world as profound a revolution as the writings of Rousseau, Diderot, and Montesquieu had in the moral.

Behold our architects in a fix! They had been able, with the greatest nicety, to lodge in their Greek temple the vespers and the three per cents.; but with all their ingenuity they could not, in new editions of the Parthenon, accommodate the travellers, baggage, and merchandize which flow into the railway stations, or shelter the hundreds of locomotives and thousands of carriages under the new adaptations of the Roman Basilica. Besides, without being miserly, public companies look closer after expenditure than the minister of public works. They desire fine buildings, but they will not sacrifice to the fantasies of architects either the requirements of the service or the money of the shareholders.

Archimedes having omitted to discover steam power, the Greeks had no railway stations to construct; having left no model for imitation, something new must be found out. Something new was discovered. Some of our stations are truly beautiful, and have good character, although not copied from any model of Rome or Athens. Therein is progress; a happy innovation! I have no doubt much more will be done; but it is of much importance to hit upon a new path. Meanwhile, according as railways were developed and extended, as they carried more passengers and merchandize, not only were the ancient forms of building found unsuitable, but the materials hitherto employed were found insufficient. In order to shelter long trains on three or four lines of rail, wooden scantlings for roofs of fearful weight were employed, and involved enormous cost, with risk of destruction in a few minutes by fire.

The idea of trying wrought-iron girders was started. The advantages became at once apparent; these new roofs cost less money, are infinitely less in weight, and are fireproof; and finally, inasmuch as the enormous wooden beams were ugly, the iron girders are graceful. Compare, as you go to Bordeaux, the horrible station at Orleans and the charming one at Tours; you will no longer have doubt upon the subject. An immense stride was made; architects became possessed of new materials, which the Egyptians, Greeks, and Romans had not. Iron and glass were substituted in many cases with great advantage for stone, wood, and slate. Emancipated from routine, we had only to go resolutely forward.

In certain buildings, as in the library of St. Genevieve, and the Palace of Industry, the ancient and modern materials were wedded; in others, the Crystal Palace of London, Sydenham Palace, and the markets of Paris, these latter were exclusively employed. The reading-room of the library of St. Genevieve, situated on the first floor, and roofed in iron, where the girders assist in the general decoration, is alike original and beautiful. If the exterior of the Palace of Industry offers subject for criticism, it is impossible not to be deeply impressed with the interior, when we stand in the middle of the nave, so elegant and daring in its immense proportions. As to the market *(les halles)*, there is little room for criticism or fault-finding; it is up to the present the *chef-d'œuvre* of the new architecture.

Above all, in the construction of bridges the new materials are precious. We know until the last few years how much time and money were expended in the piles of a bridge. Now, iron bearers being, with equal resistance, much lighter than those of timber, a metal bridge necessitates much fewer piles than one of wood, much less one of stone; besides, it is more rapidly constructed, costs much less, and interferes less with the navigation. The stone bridge of Bordeaux cost twelve years' labour, at an expense of nearly £1,000,000 sterling. The iron tubular bridge, recently constructed some few yards distant, uniting the Orleans Railway with that of the south of France, has been constructed in two years, and has only cost £140,000. The stone bridge has twenty arches, the other only six. The workmen who fixed the piles have given evidence of moral courage. The ingenious but somewhat startling system at present employed for this sort of work is this:—A metal tube, whose diameter is that of the intended pile, is submerged. When it has reached the bottom of the river, air is forced in by a steam-engine until the water is driven out. The workmen then descend into this submarine workshop, and work at their ease by the dubious light of a few lamps, in air of the pressure of two atmospheres. If unfortunately an accident occurred to the engine, if the pump ceased to supply air, or the air in the tube suddenly burst out, the unfortunate workmen would be instantly suffocated or drowned. The several parts of these bridges are manufactured often very far from the place where they are to be put together. The Republic of Nicaragua has recently ordered a bridge from a contractor in London, just as a New York *elegante* would order a dress from a Paris dressmaker.

We see what resources the progress of science offers to our engineers and to our architects. Immense structures to raise, to which it is, happily, impossible to apply the forms invented by the ancients for their palaces and temples; for these buildings of novel form, new materials, stronger, lighter, and cheaper, than those heretofore in use: do we not then behold a happy opportunity for continuing in architecture the revolution already achieved in politics and industry! Oh! if it pleased Heaven to give us now an architect of genius, such as those who invented the types of Grecian temples, Roman basilicas, and Gothic churches! how would he not avail himself of this moment so favourable for the renewal of his art and the creation of new types, superior, doubtless, in beauty and grandeur to all that Ancient Greece or Ancient Rome, Germany of the Middle Age and Italy in Renaissance, have achieved of great or beautiful!—Signed, EDMOND VILLETARD.

TUBULAR GIRDERS IN BUILDINGS.

THE employment of the iron girders upon the tubular principle in the erection of commercial structures, where the greatest space and light are required, has just received a practical proof of its efficiency by the completion of the magnificent stack of business premises intended for the joint occupation of the Messrs. Courtauld and the Messrs. Wetford in Aldermanbury. The principal iron girder sustains the whole weight of the private portion of the premises of the former, and is capable, according to the *data* of Fairbairn, Tredgold, and others, of bearing tenfold its present burden. By its means the whole of the business part of the establishment is rendered exceedingly spacious and free from impeding archways or pillars, while it admits of the entrance from above of an expansive flood of the pure northern light, so requisite for the examination of silks, crapes, &c. Light is transmitted to the basement storey from the same source, without the employment of an open well-hole, and thus none of the ground-floor space is sacrificed. These are bold innovations, readily appreciated by business men, who will at once find, that while the architect (Mr. Woodthorp) has broken through the general monotony of similar erections, he has, by getting rid of all unnecessary ornament, stringently kept in view the essential elements of utility, economy, and effect.—*Mechanics' Magazine.*

ART UNION OF IRELAND.

ESTABLISHED 1858.

The recently published report of the Committee for year 1859-60 has reached us, and certainly presents a cheering aspect for an association as yet comparatively in its infancy. As stated in previous numbers of this journal, the formation of an Art Union was at best a hazardous speculation, replete with difficulty and up-hill labour only to be conquered by resolution and energy of purpose, soundness of principle, and that indispensable accompaniment to all new projects—"*patronage.*" However, judging from results, these elements would seem to have entered, *ab initio*, into the constitution of the Art Union of Ireland, and health and fair promise of longevity is the consequence. We will not now refer particularly to the details of its principles, we have done so before, and practice has developed their wisdom and honesty; in the abstract, however, "art" has been materially benefitted, the public taste has been improved and gratified, and the promoters may regard with some pride the successful rearing of that structure for which their plans and estimates were evidently carefully framed. Our desire—if that be of any service, however insignificant—is to see the Institution succeed, and if it does so in the same ratio—as evidenced by figures and facts—as it has done up to the present, we may reasonably augur a prosperous future. A word, however, as to "effects." There is no effect without a "cause," and if previous institutions of similar character failed, there must be some reason why *this* should be the reverse; that reason may, we believe, be easily individualized—if not solely, certainly mainly—in the person of the Secretary, Mr. George F. Mulvany, a gentleman to whose exertions and ability the result is attributable, and to whom, for his devotion to the progress of art *generally*, the public owe a national debt of gratitude.

A WORD ABOUT VICTORIA-STREET, LONDON.

What a sensation of blank and utter disappointment does the condition of Victoria-street cause to the visitor in London, who expects with reasonable curiosity to find a grand palatial thoroughfare suitable in appearance to its august denomination! The streets named after Queens Anne, Charlotte, and Adelaide, are exponents of the manner of their respective days; but we are accustomed, and rightly, to view our reigning mistress as a building Queen, like Semiramis of Babylon, Dido of Carthage, or the Carian Artemisia; and the works of either of these several personages, or even if taken collectively, would hardly admit of comparison with the works of Victoria. Instead of compassing her territory with a thong, it is necessary to make a great circle of the earth to visit her tributary states, while spring and sunshine are never wholly absent from her vast dominions. Railways, bridges, churches, palaces, exchanges, museums, houses of parliament, offices for the administration of public business, and hotels scarcely less extensive and commanding, excite astonishment in the old world and the new. Her divines, artists, men of science, and merchants are scattered wherever the business of civilization is to be promoted or begun, her richly-laden galleons of peace are known in every port, and her ships of war on every sea. Nor is she more respected on the ground of her power than for high and exemplary personal qualities; yet, in the very district of the Court, close to the seat of Parliament, under the shadow of Westminster Abbey, and almost adjacent to the Queen's own residence, is this great stigma allowed to exist; and the abandonment of the work is only the more strongly contrasted by the pretentious nature of the beginning, as the ruinous carcases are colossal beyond those of any other street; for London, although it may compete with any city in point of general effect, cannot boast of much that is gigantic. But surely it is only necessary that public attention should be drawn to the deplorable condition of this street, and to its very unsatisfactory influence on the minds of strangers, to induce some new effort for securing its completion in the style originally contemplated, or to manifest the propriety of a change of dedication! There is Old Bond-street and New Bond-street, and we should presume to suggest that this might be appropriately designated "Westminster Bond-street."

The Commissioners of Public Works have accepted the proposal of Mr. Joseph Bryan, of Dunmanway, for building extensive additions to the District Model Schools, Dunmanway, Co. Cork.

BUILDING GROUND AT TERENURE.

A few years ago one of the most favourite holiday resorts in the vicinity of Dublin was the demesne known as "Bourne's, at Terenure," and by the kind sanction of its hospitable proprietor the banks of its glassy lake were the scene of many a convivial gathering. Subsequently, however, the property changed hands, and the present proprietor, doubtless sensible of the rapidly increasing demand in that locality for building sites, has decided on portioning it off into lots, with frontages of about 1,500 feet to the lake, and a like amount to a spacious carriage-drive. However much we may regret, for the sake of "auld lang syne," the proposed innovation, yet we are bound to acknowledge that, combined with facilities presented for building operations—materials being close at hand—the beauty of the site and the surrounding scenery at once proclaims the field to be a desirable one for investment, and well worthy the consideration of such of our readers as purpose embarking in "*the bricks and mortar.*"

INDURATION OF THE EXTERIOR OF NEW MUSEUM, TRINITY COLLEGE, DUBLIN.

Messrs. P. S. Barff and Co. have now completed the induration of the Portland stone work of the Museum, Trinity College. Owing to the wet season their progress has been slow, but in order to ensure the success of the operation every attention has been paid to the application of Ransome's patent solutions. As regards the appearance of the work there cannot be two opinions; the surface of the stone is as natural as if no material had been applied to it. It is perfectly clean, and every trace of discolouration has been removed. The stone has been rendered hard and non-absorbent—a deposit of insoluble silicate of lime having been placed in all its pores. The material used is *not* a *pigment*. It is formed by the chemical decomposition of silicate of soda by the chloride of calcium; and the result—silicate of lime—attaches itself to the lime of which the stone is composed, forming with it a homogeneous mass,—excluding damp, and therefore preventing the disintegrating effects of frost and water as well as the various noxious properties of the atmosphere. In the preservation of stone, it leaves untouched the character of the material to which it is applied. Other systems have been tried at the houses of Parliament and elsewhere, but these have this great defect—that they perfectly conceal the material of which the building is constructed, and have the appearance of badly executed distemper colouring The question of their durability is very doubtful as in the Speaker's court of the House of Commons the work which has not long been executed is being re-coated in many parts. On the whole Mr. Ransome's process is by far the best in use at present. The induration was committed by the College authorities to Messrs Ransome and Co., of Ipswich. Messrs. Barff and Co., of Potter's-alley, Dublin, were the contractors.

VANDALISM *VERSUS* PROGRESS.

A somewhat acrimonious interchange of opinion has taken place concerning the proposed removal of the Hereford Town-hall, and the cry of vandalism has been raised as in the recent and more reasonable case of the Gusten Hall at Worcester. In that instance a building of great antiquity, with architectural features of considerable interest, was on the eve of demolition from sheer indifference to its claims—a wish to be spared the charge of needful reparation, or to serve some most secondary purpose of immediate convenience.

When we recollect how much damage the antiquities of this island have suffered from causes of a parallel kind, it is perfectly natural that we should welcome any wholesome efforts at conservatism; but when motives of personal interest and feeling are demonstrated, the advocates forfeit their claim to general confidence, and deprive the subject of its most dignified ground of attention.

The circumstances connected with the two venerable cities of Worcester and Hereford are perfectly distinct, and indeed almost opposite in character. In the first the destruction of the Gusten Hall was to be censured as uncalled for by any pressing necessity, but if we were to make the conservation of every old and dilapidated building, no matter how confirmed its disuetude, obsolete its purpose, or obstructive its existence, paramount to all other considerations, progress and improvement would be at an end.

Now it appears that in nearly the widest part of the central *place* of Hereford which, by the confluence of two streets takes a sort of ≻ form, stands the timber edifice known as the Guildhall, and we may say a very interesting example of its class, but certain changes have for some years been in progress under the guidance of an Improvement Committee, whose claim to the merit of a just and rational course we see no reason to impugn, and deem the removal of a building under such a sanction to be as much in accordance with the ordinances of nature and the conditions of our being as the death of a patriarch, or any other consummation of an appointed career.

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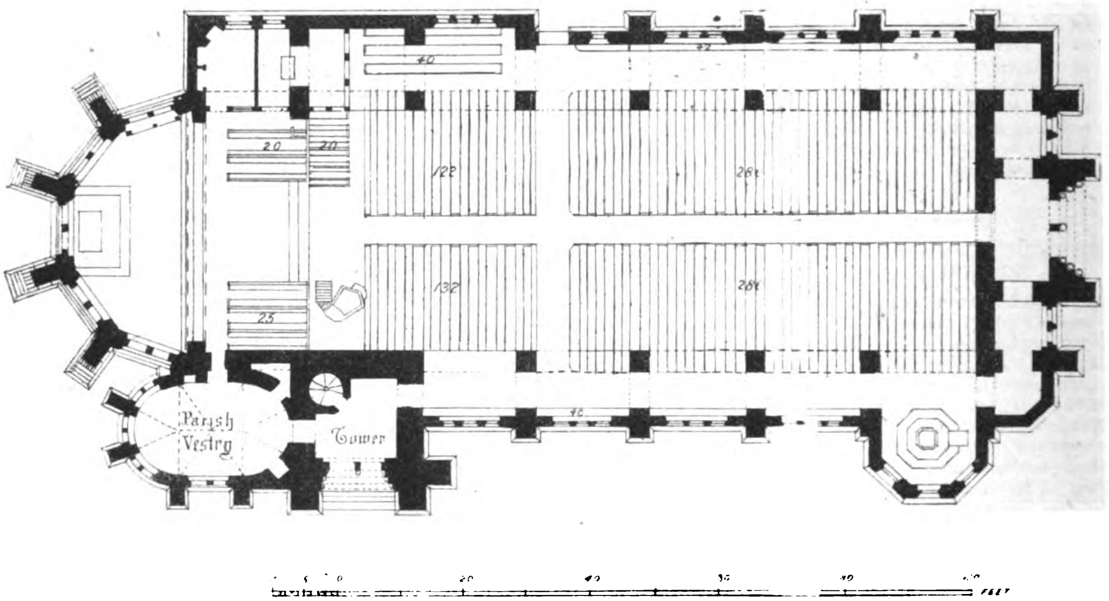

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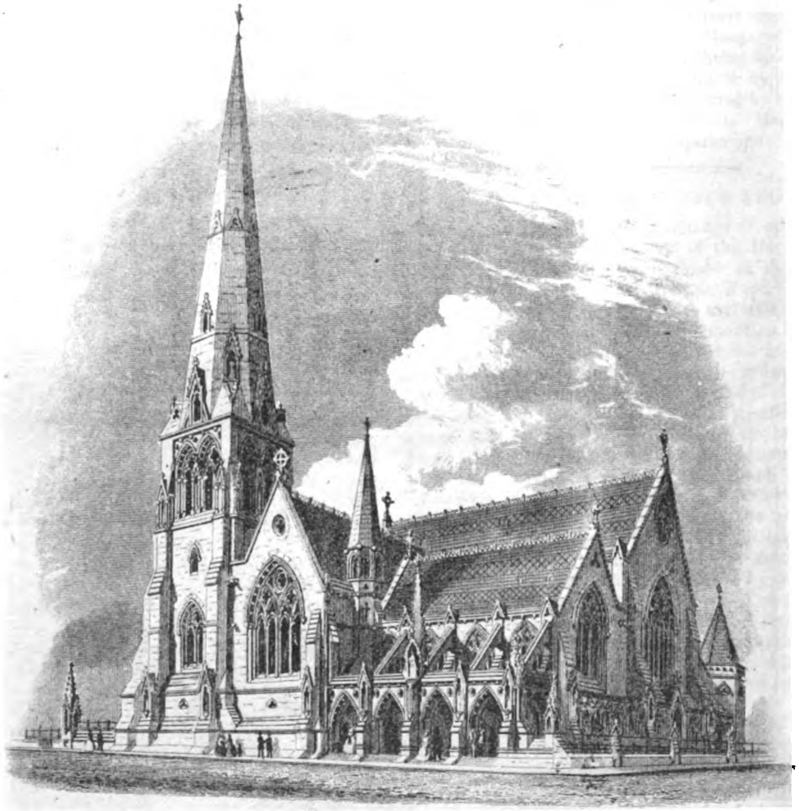

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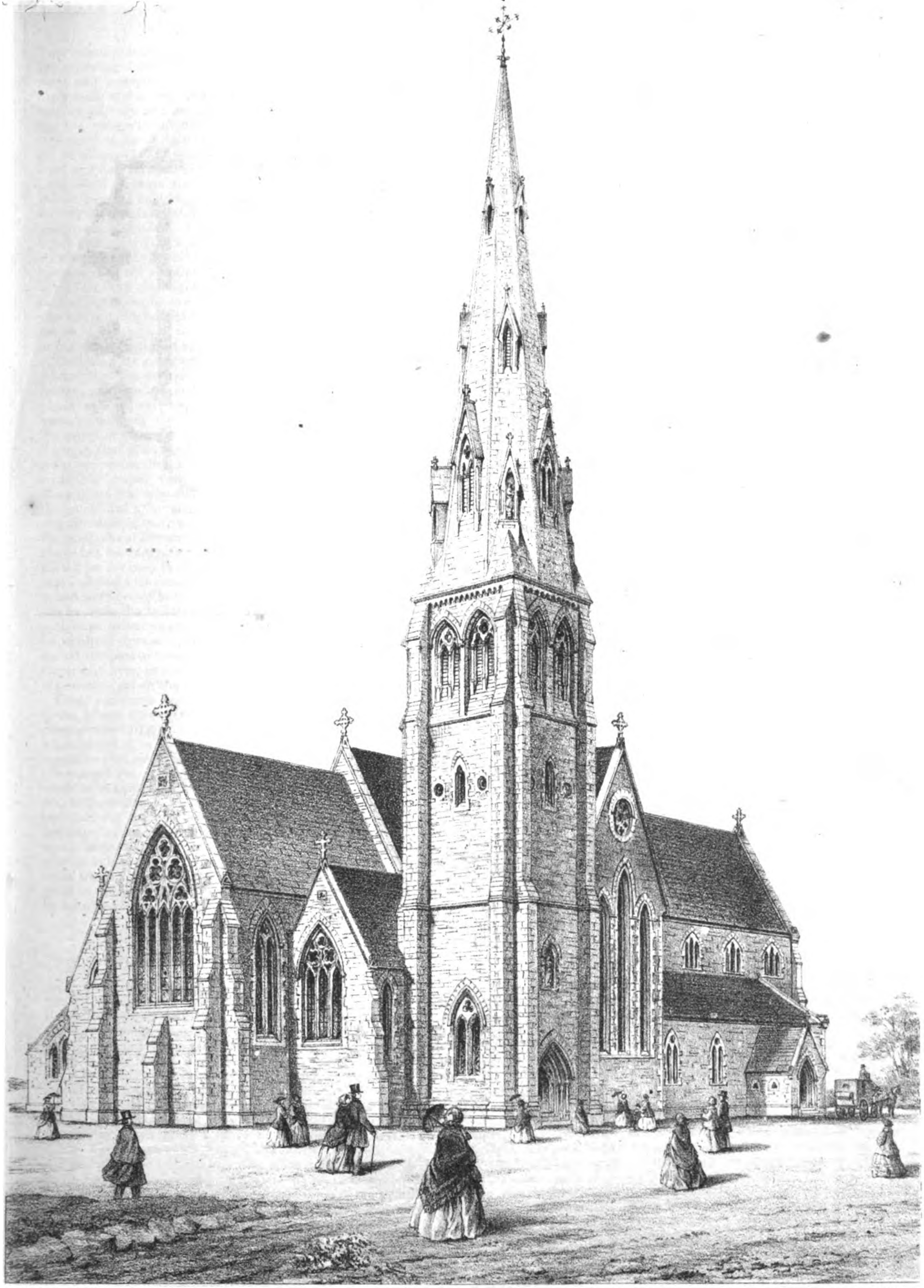

J. J. McCARTHY R.H.A. ARCHITECT.

MORISON, LITH, DUBLIN.

CHURCH OF THE HOLY CROSS, TRAMORE, COUNTY OF WATERFORD.

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THE EXHIBITION OF 1862.

THE International Exhibition proposed to take place in London in 1862, having received such an amount of preliminary support—royal and popular—as must place it beyond the influence of pecuniary peril, and a site having been appropriated at South Kensington, we may not unreasonably look for an early intimation concerning the nature of the structure to be raised there. We recollect how little of direct benefit arose from the general competition for the building of 1851, open as it was to men of all schools and countries, and how imminent was the probability of a merely commonplace result; but we also recollect that by the attention drawn to the subject, the knowledge that suggestions were courted, and that no letters patent existed in favour of any individual or class, a design was ultimately, though tardily, obtained, whose novelty aptitude and merit have been universally admitted, and whose characteristics have been widely copied. The trammels of art were loosened, and the scope of invention expanded by the vigorous innovation; and while the students of architecture were devoting themselves to the discovery of a sixth order, the grand desideratum was suddenly developed from an extraneous source, opening a new sphere of design, and, comparatively speaking, a new gift of nature in the vastly-extended application of iron to structural uses.

Reverting for a moment to the early steps of that undertaking, we find that the invitation for designs was accepted by thirty-eight foreign, one hundred and twenty-eight London, and fifty-one provincial competitors; but it appears that although some of the works were deemed very meritorious, there was not one strictly suited to the object in view, and the whole were consequently rejected. Next, it seems, that those to whom the task of selection had been entrusted set about concocting a plan of their own, a course perhaps more creditable to their zeal than discretion, and productive only of an example of crudeness and deformity, from which its originators and the public had a fortunate escape by the appearance of Mr. Paxton, now Sir Joseph, with a sensible scheme, backed by the support of the late Duke of Devonshire. A conjunction of ability and patronage are of but too rare occurrence, even though the leading feature only should be assigned to the originator, and the qualities of gracefulness and that nice constructive economy to which the eye is accustomed in the re-edified work at Sydenham attributed to other minds, just as while the Dublin Bazaar of 1827 may claim the initiation of such expositions within the United Kingdom, a demarcation must be admitted between the germ and its subsequent fruition. Nor should the part so usefully taken by the Society of Arts be passed forgetfully over, as that body rendered good service to the first, and is now engaged on the preliminary labours of the second exhibition.

Great allowance must be made and indulgence given with regard to the doings of ten years since, but the intervening period, from the present time to 1862, is not too great for the deliberate and mature organization of so comprehensive a matter, although many departments may go simultaneously forward; and we would by no means recommend the assumption, that because an immense stride was taken at the onset, no important advance is likely to be now made; for, on the contrary, we hold that, while similar materials may form the staple of the new work, a wide field is open with respect to their applications as well as to the general features of design. Instead, therefore, of a single month as before, let there be three months at least for producing plans, and instead of that remorseless haste which so overtasked the powers of those employed, we would point to the better method and superior economy of letting all things be done seemly and in order.

TOPICS OF ARCHITECTURAL POLICY.

As railway boards issue to their proprietors notices of Bills in Parliament bearing upon their undertakings and prospects, so has the Royal Institute of British Architects issued to its members a communication embracing many points of professional interest, upon which it has lately exercised, or now proposes to exercise its agency. From this statement it appears that the Institute has addressed some remarks to the Mayor of Hereford respecting the old Town-hall of that city, alluded to in another column. On the examination question, it has addressed the various provincial architectural societies in a circular letter which will be found elsewhere *in extenso*. It has also shewn great activity and interest with respect to the safety of certain churches, towers, and steeples in the city of London, endangered by the probable operation of the Act for the Union of Benefices. Next it furnishes some particulars relative to thecompetition for the Palais de Justice at Brussels, received through the Committee of Privy Council for Trade, and finally it supplies copies of notices received through Her Majesty's Government of a competition for the intended new opera house at Vienna.

The attention and assistance of architects is also drawn to and requested with respect to the antiquities and works of interest, the safety of which may be in any manner affected.

OBSERVATIONS ON STREET RAILWAYS.

SOMEWHAT sceptical of the desirability of—nay more, positively prejudiced against—the proposed system of horse railways for the streets and thoroughfares of cities and towns, we proceeded, by kind invitation, to Birkenhead, to witness the opening of the first application of the invention in this kingdom; and we may state—at once coming to the point—that, as "seeing is believing," we returned thoroughly convinced of its superiority over the existing method of propelling vehicles, subject to the friction of the roadway, the consequently increasing wear and tear, and labour to the horses.

By the *simple* contrivance—and, after all, all great ends are worked out by comparatively simple means when developed and understood--of a grooved line of rails, varying in guage from 4 ft. 8½ in. to 5ft. 6 in., countersunk in longitudinal sleepers, level with the pavement of the streets, some 70 passengers may be conveyed on a car—of course of much larger dimensions—commodious, tasteful, well ventilated, and perfectly manageable, with infinitely less labour to two horses than one-third the number can by the antiquated "bus" fashion.

Lacking even practical proof—but it has been fully and incontrovertibly demonstrated—the volunteered testimony of such men as Mr. Laird, so well known as one of the greatest naval architects in the kingdom, and moreover a gentleman of peculiar acumen and scientific attainment, and of Mr. Dargan, who pronounced his unqualified admiration of the principle, speaks volumes.

Tramways are now one of the most engrossing topics of the day. Shall we have them here? is an oft-repeated question, and one which we can answer. Mr. Train, who, by-the-way, in energy and resolution of purpose, seems far a-head of his most "go-a-head" fraternity, has expressed his determination to give us Dubliners the benefit of his patent, and from what we learn, the intention will speedily be followed by the development. Again we are asked, Where shall they be laid? is it on Rathmines route first, or Clontarf, or where? Will the corporation sanction them—are the streets too narrow *(par example* Grafton-street)—are they not attended with danger? &c., &c. But these or similar questions have been asked everywhere the project was mooted, and are answered so ably in a general way in a pamphlet under the above title, addressed by the patentee to the Right Hon. Milner Gibson, M.P., President of the Board of Trade, that it best answers our purpose to submit the following quotations therefrom, which will be found to comprehend all elucidation of the principle, and explain away that prejudice which still exists with the minority, but which is the invariable concomitant of every innovation upon old-fashioned customs:—

"When I made up my mind last year to succeed in demonstrating the practicability of these railways in English cities, London was the starting point; but a practical member of parliament having assured me that most of the great undertakings of the day were initiated in the provinces, instancing 'steamboats, railways, gas, water-works, telegraphs—even Rowland Hill was a provincial institution,' I applied to Birkenhead for permission to show them a pattern card of an invention that can be extended as long as customers may require. 'Show its success elsewhere, and then come to London.' This I intend to do. The field is wide; the labourers few. By-and-by the rolling of iron, the cutting of timber, the building of carriages, the erection of stables, the equipping of horses, the making of roads, and the consequent employment of engineers, clerks, contractors, mechanics, conductors, navvies, &c., will be practical proof that in introducing street railways into the old world I have given a boon to the people, and a new source of wealth to the kingdom. During the past fifteen years four hundred millions have been invested in the railways of the country. *Five per cent.* invested in the railways of the city during the next five is *twenty millions sterling!*

"Omnibuses were only introduced into Liverpool thirty years ago, and steamboats, railways, electric wires, gasometers, iron bridges, free trade, reform bills, and volunteers (the *national guard* of the land), have all been born during the Queen's lifetime. So, with faith, hope, and energy, and considerable money, I shall establish, what a Cunard captain aptly calls, the rich man's comfort and the poor man's luxury. When Liverpool has a good hotel, a decent theatre, a respectable ferry boat, and street railways, the 'Borough' should be promoted to a 'City.'

"If I am properly supported by the corporations, the ladies of Lancashire and Cheshire, at no distant day (instead of being packed in a sardine box with a sweep, as in the present omnibus system, or stowed away in the steerage of the Mersey ferry boats—there is no cabin!) can step under cover at any part of Birkenhead into a commodious railway carriage—ride to the pier—walk under a glass arcade into the saloon of the new ferry boat—walk again under a glass arcade from the floating stage to the railway carriage on the Liverpool side, and be taken to St. George's Hall, or the Philharmonic, and thus effect an important saving in *umbrellas!*

"Street railways in England will soon become a great fact—Birkenhead opens the ball. Liverpool follows. Then Manchester, Birmingham, Glasgow, and *Dublin enters the ring;* and London cannot well hold back after building the Metropolitan *Subterranean* Railway. A street railway can be constucted directly over it in as many months as that will require years. The former costs three thousand per mile, the latter three hundred thousand! In the one you travel in the dark, in the other in broad daylight. The street railway accommodates both sexes, while the Metropolitan shuts out one half the population—the ladies! Who crosses in the Thames tunnel? The former stops before every man's door, the latter has stations only at intervals. One starts every five minutes, the other every half minute if required. The Metropolitan blocks up the thoroughfare for months, the street railway for hours only. Surely then if London opens wide her gate to permit the Metropolitan to undermine the city, tunnel through sewers, water-pipes, gas-pipes, and cess-pools, at great cost and great inconvenience, she certainly will not shut it in my face when I respectfully ask permission for a fair trial of my street railway?

"Are not our streets too narrow? asked the leading Christian banker. By no means. London streets are wider than those in American cities. Ludgate-hill and Cheapside are of course in your mind. But when we remember that there are some five hundred miles of streets in and about London adapted to this system, why select the narrowest to commence with? All see an ink spot on the white table-cloth; but who thinks of examining the fabric? That one black sheep prevents the eye from observing the thousand white ones?

"In conclusion, let me say that the egg will shortly be chipped in this country under my patent, at great cost and labour, and I shall endeavour to prevent my chicken (as is too frequently the case with valuable inventions) from becoming somebody else's hen!

"The street railway is an important link in the chain of progress. What is more interesting than to run along the path of improvement from the child Asia to the man Europe, stopping a moment to reflect at the slow-coach-omnibus-system at the half-way station of those middle ages when credulity made up for intelligence—when men did the work of horses and palanquin and sedan chair made way for cab and bus—when captains went to sea without a compass—sailed without chronometers—when geographical knowledge comprised a little patch of sterile land—when philosophy was without scale—astronomy without demonstration—when learning had no printing-press, writing no paper (the tax on which you have laboured so industriously to remove), and paper no ink.

"Those were the days of wax and birch bark parchment—stereotyping on wood and not leaden types—when they made war without powder, shot, mortars, or cannon—without Minie, Colt, or Armstrong—when magnetism had no telegraph, iron no rails, steam no boilers. When flint and steel, instead of lucifer match, made the fire, and the sun-dial instead of the watch told the hour—when trade was without books—correspondence without postage—when merchants kept no ledgers, and shopkeepers no cash books. Surgery had no anatomy then—emetics no ipecacuanha, agues no quinine, clothing no factories, and the diligence had not even succeeded the saddle horse.

"All those days are with the past. The photograph has displaced the daguerreotype. The stereoscope is pushing away the photograph. The telegram saps the brains of the mail bag. and the sewing machine gives antiqnity to the 'Song of the Shirt.'

"Battering rams, and bows and arrows were not used at Solferino. The gas-light supersedes the cocoa-nut lamp. The quill followed the thorn bush, the steel pen the quill, and who so far behind the age as not to use the copying press? Arkwright's cotton jenny coined pounds in England, while Ely Whitney's cotton gin coined dollars in America. So will the introduction of passenger railways confer a blessing upon the public, and add wealth to the nations.

"Let me try, said Fulton, and the steamer went four miles an hour; now the rivers and lakes are filled with floating palaces. Let me put the wire between Washington and Baltimore, petitioned Morse, and all the world wondered! Now the girdle is about to be put about the earth, as Shakespeare said, in forty minutes. Nothing was ever accomplished without talking. How could the government live without an honourable opposition? Truth is sifted through argument. All new inventions must pass through the fiery furnace of scepticism. Nobody believes a fact till demonstrated.

"England has been fifty years in introducing the America volunteer system, but, it is to be hoped, that as many weeks will not pass before she gives a fair trial to the American passenger railway.

"Although the Americans have seized the idea and are practically demonstrating it, by introducing street railways into all their large cities as if it was a modern invention, I find that there is nothing new after all in the system, except its application for passengers. A century ago tramways were used in England.

"Cæsar's roads from hill to hill, still mark the Roman's track. First, pack-horses transported the products of the land from place to place. Even a hundred years ago, this was the custom in Scotland; in fact, in some places in the Highlands, and in some of the hilly parts of Wales, it is the practice of to-day. Wooden sledges drawn by horses succeeded. Then wheel carriages—afterwards wooden tramways—and last came, what the Egyptians used in the age of the pyramids, and the Chinese dnring the Christian era, canals (the first in England was made in 1756). The Asiatic practice of laying down timber in bad roads most likely introduced the wooden rail. Down to the Elizabethan age, coals from Newcastle were taken in carts or on paniers to the sea."

We observe from the proceedings of the Town Commissioners of Kingstown that there is a project in embryo for connecting that important suburb, Rathmines, with Kingstown. This is doubtless a good idea, and if accomplished in manner proposed must confer immense advantages on both localities. The plan is so simple and so natural, that we feel quite amazed at contemplating why it has not been done long since. It is to run a tramway from the Bray Railway at Foxrock across to Kingstown, a distance of about 2 miles, thus bringing Kingstown as near to Rathmines as to Dublin. The route for the Rathmines and Rathgar folk will then be from Miltown station or Harcourt-street to Foxrock by rail, and then by train to Kingstown. We learn that an American company are the projectors, and the capital required is under £10,000. We are quite willing to borrow an idea from our transatlantic brethren, but in a small local enterprise like this we would rather see it in the hands of some of our own capitalists in the neighbourhood.

At the meeting above alluded to the following resolution was unanimously carried:—

"That having learned that a company is about to run a tramway from Foxrock to Kingstown, we desire to take this, the earliest opportunity, to express our approval of such project, as it will afford the numerous inhabitants of Rathmines, Rathgar, and Dundrum a quicker and more agreeable route than at present exists for visiting Kingstown."

VENTILATION AND HEALTH.

It is a startling fact, tested and proved by every-day experience, how much of our existence, and its attendant comforts, lie in our own hands, so far as opportunities offer to promote it. As it is a truth in the religious world that God will never bless the end to the neglect of means, so is it in the physical world. Neglect attending to the claims of health, and the end will duly respond in corresponding debility and suffering. This is an axiom which every one daily hears more or less—it is a truth in which the majority agree; but the lesson having to be learnt, not out of books, but the deeper volume of experience, is ever necessitating the practical results to its victims. Neglect and suffering will ever be companions, because they have sworn fidelity to each other; and while we know that the world is not contented with the second-hand experience, we likewise know that many "ills to which flesh is heir" would be avoided did they but deign to receive it. It is stated to be one of the prevailing fashions of the day to advertise, but all fashion sinks before necessity, for it then becomes a duty, even though the same may be at the expense of being classed among those who print to please. "Health" is a word all understand—its pure enjoyment more so, and who would so falsely deem any means "a sacrifice" to secure it? one would imagine none, and yet it is only by bringing such continually before the public eye in the means of doing so that the same is reminded of the self-obligation. "Fresh air" has almost become a proverb—if judged by enquiry—for securing it, while ventilation now, as a means to do so, offers so many facilities in its simplicity, economy, and comfort, as to be almost a boon within command; to which, in the combination above stated, we feel bound to award our meed of praise to that so well known as "Moore's Patent," 81, Fleet-street, London, to which we cannot pen any higher testimonial than stating their wide and extensive adoption where health is valued, we do so for reasons heretofore given since it is no longer a theory doubtful, but a reality proved, and enjoins upon every one an obligation and a responsibility only estimated by neglected privileges.

Correspondence.

[Note.—*The statements of Correspondents must not be confounded with* "editorial" *remarks.*]

ST. PATRICK'S CATHEDRAL.

TO THE EDITOR OF THE DUBLIN BUILDER.

Sir,—The feeling of mistrust and alarm with which I and many others have regarded the progress of the works at St. Patrick's has been considerably increased by the statements of a correspondent of *The Builder* (London), and permit me to add, *not* decreased by the article quoted from a local contemporary which appeared in *your* last number. A visit to the building, and the scanty information to be obtained by a distant inspection from the outside of the barriers (which I am informed is all that is permitted) is certainly not calculated to reassure. The article which you quote says—"It should be equally well known that the church will be still more indebted to Mr. Guinness for the good *judgment* and *correct taste* with which he directs the expenditure of £20,000 on the works of reparation. His principle is to replace whatever is decayed, adhering *exactly* to the ancient patterns, and making no other alteration than the substitution of a better material. The plan is to restore but not to innovate," &c. Now with the utmost respect for Mr. Guinness' good taste and talents, I would most respectfully remind "your contemporary" that they are those of an *amateur*, and I would with confidence leave it to any member of our profession, or any archæological association in the sister country to say whether any amateur, however accomplished as such, and however assisted by the most intelligent builder in Dublin, would be competent to enter on such an Augean task as the reparation of St. Patrick's—due regard being paid to the vested rights and interests and intentions of the earnest men who many a year ago raised a stately pile for the worship of God, in wonderful perfection and marvellous beauty. In a word, does the "replacing of whatever is decayed" mean that we are to be treated to a reproduction of all the abominations which in the course of a more barbarous age have become encrusted on the ancient fabric—the restorations (?) which have been accomplished by the Gothicists, in whose day Walpole's villa at Strawberry-hill was considered a divine work of Gothic art, and the lath and plaster of Fonthill Abbey not inferior to York Minster itself? Are we to have, for instance (I only state one out of many) a renewal of those buttresses on the south side, with the fearful and wonderful pinnacles surmounted with round balls, which may with a remarkable stretch of courtesy be ascribed as of an Elizabethan character? Are we to have a reinsertion of the bad tracery in the old early English windows in the south side of the nave clerestory? Is in fact nothing to be spared but the very objectionable pseudo-Gothic front of the western façade? Was it absolutely necessary (I am now seeking for information with the utmost deference, as I have no *absolute* reason to doubt the necessity) to remove the whole of the southern wall of the nave? Could no portion of the triforium have been spared demolition, remarkable as it was for great beauty, sacred for the labour and love lavished on it by hands and hearts long mouldered into dust, and hallowed by its enduring existence through six long centuries. With every ancient stone disturbed vanishes some of the charm of the place. Will anyone again be stirred to enthusiasm when he is told that the new walls are but a *tolerably* faithful *copy* of more ancient ones, that had seen kings come to worship within them—had echoed to the tramp of mailed knights, and the requiems of saints carried by devout men to their burial? I repeat that I do not make these remarks with any intention of denying the necessity of the wholesale demolition in question, but with a view to asserting the importance of the operation which renders it highly improper that it should be carried on in a corner, and further with some faint hope of elucidating information. I would now suggest that it is high time that some steps should be taken by the architects of Ireland as a body. Were we not as a body, open to the reproach cast on all our countrymen by our neighbours, of want of unity, we would have among us a properly constituted architectural association that would have long since moved in the matter. In the unhappy absence, however, of such a body, the importance of the question at issue ought to form a common bond of union among us, and I would respectfully suggest to those interested in the matter to join in a respectful and friendly memorial to the Dean and Chapter and Mr. Guinness, which would no doubt be received with courtesy and consideration. Should we sit by unmoved and uninterested, we may be prepared for just and reiterated charges of barbarism from our brethren and friends on the other side of the Channel, who guard so zealously any ancient fabric committed to their care, having furnished another melancholy instance of how far from our city "the sun yokes his studs."—Yours faithfully, **Delta.**

[With reference to the works in question, we are *requested* by the builder, Mr. Timothy Murphy, to state, that recently four architects —viz , Messrs. F. Darley, P. Byrne, Wm. Murray, and James H. Owen—inspected the building, and expressed themselves perfectly satisfied with the character of the restoration; also that, far from the operations being carried on with closed doors, admission is obtainable any time in the day from 6 a.m. to 6 p m., and visits from professionals and the public are courted. We reserve for the present any *editorial* comment.]

THE RECENT WATER SUPPLY COMMISSION.

Sir,—I cannot refrain from offering a few words of congratulation to yourself as an influential advocate, and to those generally interested in the improved supply of water to the metropolis of Ireland.

The space devoted in your last number to the proceedings of the Commission of Inquiry, sufficiently attests your sense of its importance, and there are indeed few subjects of which it would be more difficult to over-rate the effects in regard to social advancement and well being.

The polluted condition of the Liffey and of the Thames have drawn forth a copious flood of animadversion, which happily seems likely to remove the ground of complaint in both cases; the forerunner of cleanliness, both private and public, being an ample supply of pure water.

My memory embraces a time when it was contrary to statute here (in London) to pass the contents of a water-closet into the sewer, but every house had its cesspool, from which the accumulated contents were removed at long intervals, and with nauseous odours, making the night hideous and the surrounding atmosphere the impure vehicle of disease. But we have changed all that: the law prohibits cesspools, and water is supplied, not always indeed in a satisfactory quantity or on terms of perfect equity, but still supplied in a degree of purity only recently attained. The old and injurious surcharge for high service has been removed, therefore closets in the upper storeys are as attainable and economical in that respect as at the bottom of a house. This is indeed a most salutary change, and I have gladly availed myself of the facility to furnish in houses for the industrial classes such conveniences on the upper as well as on the lower floors, and to lay the water on to every storey, which, together with the provision of a shoot for dust, has led to a saving of time and labour as well as to means of increased propriety that have been cordially and thankfully appreciated. The abundant presence of clear, wholesome water would do far more to induce its adoption instead of less wholesome and infinitely more expensive drinks, than the most persuasive eloquence, to say nothing of that purity of house and person it induces—so near akin to purity of mind as to bear out the old saying, that "cleanliness is next to godliness."

A charge by measure is much to be desired, so that the careful may not be liable for the waste occasioned by the negligent, and a constant supply would be in many respects preferable to the existing system of tanks, but as such an arrangement may be difficult to accomplish, cisterns of stone, slate, galvanized iron, or brickwork lined with some variety of Roman cement, or of earthenware, may be advantageously used in lieu of lead. But let the nature of these receptacles be what it may, a good and plentiful supply should be enforced as needful in the same way as lighting, paving, and other observances which tend to the good of the community in general. "The larger a city becomes," says Mr. Sidney Smirke, "and the greater the aggregation of its inhabitants, the more urgent becomes the duty of the legislature to provide by stringent measures and by a vigilant control for the health and well being of the people."

London. **Thomas Morris.**

ST. ANNE'S CHURCH, DUBLIN—QUESTIONABLE TASTE.

TO THE EDITOR OF THE DUBLIN BUILDER.

Sir—An article appears in the September number of the Dublin Builder, announcing the re-opening of St. Anne's Church, briefly noticing the new works—"Two memorial windows constructed with Bath stone dressings, and filled with stained glass . . . . . serving as memorials to Knox the reformer, and Mrs. Hemans respectively—a beautiful and elaborately *carved* pulpit—reading-desk —sedilia and font being likewise added."

Nothing can be more inconsistent with the greater part of Knox's career than placing a stained-glass window to his memory. Painted glass and sculptured work he warred against with the zeal of a Goth. Surely it must be "questionable taste" to commemorate his memory in the very materials he so ruthlessly demolished in all directions. There is only one course to follow in accounting for the taste of the gentlemen who suggested the window in question, by having the Reformer painted full size in the act of throwing a paving-stone at the window erected in the adjoining bay to the memory of the amiable and accomplished Mrs. Hemans.—Yours truly,

Gorey, 17th Sept., 1860. **John Kelly.**

A correspondent complains of *want of water* at Church-road, and with reason. The matter has been already referred to in the Dublin Builder.

Notes of New Works.

Messrs. Kinahan and Co., the extensive spirit and wine merchants of universal note, have recently entered into a contract with Mr. Meade, builder, to the amount of £2,000 or thereabouts, for important works in connection with their establishment in this city. Situated as it is at the junction of two leading thoroughfares, and in immediate proximity with the main artery of traffic, Carlisle-bridge, and seen to a considerable distance down Sackville-street, the improvement may be regarded as one of metropolitan and public character, and consists chiefly in the external decoration of the present front, the erection of a massive granite main cornice and blocking at top of the entire extent of the building, the substitution of handsome plate-glass windows for the antiquated eight-paned sashes, the removal of the present clumsy area railings, the space now occupied being thrown into the street pathway—a great desideratum—and partially covered over by a new open portico. We would forgive this latter feature, but it might be unreasonable to expect that the proprietors should, for public benefit, give up the space, and not require some equivalent. Mr. Caldbeck is the architect.

The houses Nos. 17 and 18, Mary-street have been completely rebuilt, and are being fitted by the proprietor, Mr. G. Tickell, for an extensive furniture and upholstery establishment, under the direction of Mr. Jones, architect; Mr. George Whiteacre, builder. The expenditure will be about £1,500. The shop front will be of a novel and ornate character.

Two detached villa houses are about being built on Pembroke-road (opposite the Botanic Gardens) for Mr. P. Sullivan. Expenditure, £1,650. Messrs. Farrell, architects.

Additions and alterations are being made at the South Dublin Union Workhouse. Mr. James Freeman, builder.

The interior of Little George's Church, in Lower Temple-street, has been re-pewed and newly fitted, at an expense of about £200. Mr. Whiteacre, builder.

Additions are being made to the offices, and improvements to the residence, of B. M. Tabuteau, Esq., Simmonscourt, Donnybrook. Messrs. Farrell, architects; Mr. William Crowe, contractor. Expenditure, £950.

Alterations and additions are being made to the dwelling-house of Greenmount, Drumcondra, the recently purchased property of Jeremiah Perry, Esq., under the direction of Mr. J. J. Lyons, architect.

The alterations to St. Bridget's Church have just been completed, and during their progress, which occupied about five months, the structure was closed. The old gallery, pews, pulpit, reader's desk, have all been removed, and with the exception of the gallery, which has been dispensed with, replaced by new and improved fittings. Tiled floors have been introduced into the aisles and chancel, and the entire of the interior thoroughly remodelled, painted and varnished, &c. The belfry has been altered and a new bell hung therein. Messrs. Barker were the contractors, and are said to have executed their work satisfactorily.

A mansion has just been commenced at Aughentaine, Fivemiletown, Co. Tyrone, for Mr. Thomas R. Browne. Style, Italian, with campanile at south-east, 65 feet in height; 5 reception-rooms; 8 bed and dressing-rooms. Cost, about £6,000. The offices form a separate wing building. Messrs. Farrell, architects.

The Roman Catholic Church of St. Cronin, at Roscrea, originally built after designs by the late W. Deane Butler, architect, is being finished internally, under the directions of his son, Mr. J. S. Butler, architect. The ceiling will be entirely new, with segmental traceried ribs in stained and varnished timber, the spaces between being panelled in stucco. The centre compartment of transept and chancel, and side chapel ceilings will be groined and panelled entirely in stucco. Messrs. Hogan and Son are the general contractors. Expenditure about £1,000.

The church of St. Mary, New Ross, Wexford, is being improved and repaired by the Ecclesiastical Commissioners.

A new school has been commenced upon the property of his Grace the Lord Primate, at Ardtrea, Stewardstown, according to drawings by Mr. Barre, architect. Messrs. Dunn are the contractors.

Plans have been prepared by the same architect and estimates taken for new schools at Tynan, county Armagh, and the buildings are to be commenced immediately. Sir James Stronge and the Primate have subscribed largely to the undertaking.

The new Roman Catholic church of Annacurra (Aughrim, Rathdrum) is now ready for roofing. It has been erected by subscription.

A branch bank and manager's residence is to be built at Ennis by the Provincial Banking Company, according to plans by their architect, Mr. Wm. Murray.

The Wesleyan chapel, Markethill, is being remodelled, including new flooring, seating, pulpit, &c. Mr. Barre, architect.

A design has been furnished by the same architect for a new Wesleyan chapel at Moy, county Tyrone.

The Roman Catholic church at Ballyshannon has been for some time in process of decoration by Messrs. Barff and Co. An apsidal chancel, designed by Mr. M'Carthy, and a high altar in Carrara marble, by Messrs. Farrell, together with stained-glass windows, have also been added.

The restoration of the stable building at the Palace, Armagh, approaches completion. The plan has been completely remodelled, with the addition of dairy, laundry, &c., fitted up with drying and heating apparatus; the stables and harness room, &c., with Musgrave's patent fittings, all under the direction of Mr. Barre, architect.

Ten schoolhouses have been lately built at Ardcarna, in the parish of Roscommon.

A new church has been commenced in Bindon-street, Ennis, facing the new bridge; a new road is also in progress.

The new Wesleyan schools at Armagh are finished, and extensive alterations are contemplated in the chapel adjoining. Mr. Barre, architect.

The consecration of the new church of the Assumption. at Wexford, took place on the 9th ult. As already stated, with full particulars, it is a handsome Gothic edifice, commenced after plans by the late Mr. Pierce, and completed under the direction of Mr. M'Carthy.

Tenders are required by the War Department for works at Military Cemetery, Fermoy.

A Wesleyan Methodist Church for the military at the Curragh camp, and one of the first of its class introduced into this country, has been erected by Mr. Vivian, of the Lucan Iron Works. The skeleton is formed of studding 4in. by 3in. and 4in. by 2in. alternate some two feet apart; sheeted internally with half-inch rough wainscot, canvassed and papered, and covered externally with corrugated and galvanized iron. The roof is an open one – sheeted and stained internally—with slight iron principals, and covered with iron externally. Mr. E. F. Tarleton, architect. There is also a residence for the chaplain similar to the above.

New schools are to be built at Killilea, county Armagh; and a design has been furnished for same by Mr. Barre, architect.

Reviews.

Delamotte's Primer of the Art of Illumination. London: E. and F. N. Spon, Bucklersbury.

Our readers doubtless remember that through the pages of this journal the author's name now before them has been already introduced on two occasions with reference to his "Ancient" and "Modern" Alphabets respectively,—works which from their excellence were at once sufficient, independent of any other efforts, to establish his reputation, and which afforded a guarantee that in his production of any subsequent book he would be equally happy. Thus favourably predisposed we refer to that before us, and find that far from confidence being misplaced, it is fortified by minute penetration into its contents, which evidence an amount of ability in compilation and beauty of manipulation most excellent. It professes to be an "elementary" work, but though undoubtedly such to a certain extent, its pretensions to our mind might soar higher, and an honourable and prominent position in the artist's library should justly be awarded to it. Referring to the frequently unsuccessful efforts of even otherwise skilled artists in the matter of "illumination," the author says that "the secret is they are unacquainted with the fundamental principles of the art;" again that in attempting to copy specimens "they are amazed at finding that after all the pains bestowed on it, their copy has an effect so different from that of the original,". &c. Strange that in this age of progress we should be unacquainted with the manipulatory secrets of those who peopled the earth centuries ago, and have left us their works to improve on and to analyze. Yet so it is in this as in many other branches of art, but with a view of bringing to light the mysteries, Mr. Delamotte's is produced. The contents embrace a history of the characteristics of illumination, practical directions in preparing the colours, gold, &c., and numerous exquisitely handled monograms, initials, the hours of S. Louis, of Henry VII., and of Anne of Brittany, &c The specimens are of the choicest character, and the colouring and gilding handled and blended with the greatest chastity, especially in "the hours of St. Louis." Altogether this is a charming little work, and most practically useful.

Stereoscopic Illustrations of Clonmel, and the surrounding Country, including Abbeys, Castles, and Scenery. With Descriptive Letter-press, and Eighty-two Photographs; royal 4to, fine toned paper. By William Despard Hemphill, M.D., F.R.C.S.I. Dublin: Curry and Co., and Cranfield. London: Bennett. 1860.

It is refreshing to experience that Art has other votaries besides those whose ordinary avocations compel them to worship at her shrine, for, when the pilgrimage is voluntary, it is clearly the more sincere. With aspirations of a loftier character than those generally prevailing with pleasure-seekers during leisure hours, "our amateur author"—by the way an Æsculapian disciple—quitting temporarily his diagnosis and obstetrics, starts on his mission, camera in hand, "to pass agreeably the few physician's holidays," and "illustrate by sun-pictures the beauties within easy access of his home." Such is the avowed purpose of his task, and perfectly has he fulfilled it. We have never seen a work in all respects more exquisitely produced. The stereoscopic views lead us through an extensive district amongst the ruins of "the Rock of Cashel," Cormac's Chapel, the abbeys of Holycross, Ardfinnan, and Cahir, Lismore and Mitchelstown Castles, Athassil Priory, &c., conducting us into every nook and cranny, and developing every detail with strict fidelity. Amongst the many advantages of photography may be enumerated its unerring accuracy and capability of reproduction *ad infinitum*, but by the more recent application of the stereoscope its value is considerably enhanced, the beholder "finding the mirror held up to nature," and lights, shades, distances, and relative proportions as perfectly thrown out as in the original. Thus we may, with such a book as this before us, and without much stretch of imagination, set forth on a tour in search of the beautiful through an extensive district far from home, without stirring from our study chair.

Each set of illustrations is accompanied by descriptive letterpress, and the typography, printed in two colours, is executed in a style highly creditable to the printer, Mr. Peter Roe, of Mabbot-street, upon whose excellence in his branch of art we abstain for *obvious reasons* from dwelling *too* minutely. The binding is likewise admirably and delicately treated; and on the whole Dr. Hemphill may congratulate himself on his production of a book which both internally and externally will bear the strictest scrutiny, and command universal admiration.

Specimens of Mediæval Architecture from Sketches in France and Italy. By William Eden Desfield, architect. London: Day and Son.

THE first six numbers of this work have reached us, each containing *five* proof plates executed in the well-known first-class style of the universally eminent lithographers above named, and at the marvellously moderate price of 3s. 6d. per number. One of the plates would be well worth the money! The pictorial and the practical are most successfully blended, and every detail even in the perspective sketches is clearly developed—a characteristic seldom present in works of this class. We would particularise as a *study*—and if possible for superiority in the manipulation—plate 7, viz, Bayeux Cathedral (west front), and plate 30, Constance Cathedral. The interior of Laon Cathedral (No 30) is also beautifully handled, and a charming subject. The enlarged *morceaux* and the details are most valuable acquisitions, and we doubt not that, when completed, the work will rank amongst the standards.

We are reluctantly compelled to hold over our review of Wilme's Handbook of Mapping, previously alluded to briefly, until next No.

The Midland Great Western Railway branch line to Tuam has been opened for traffic.

It is stated the Roscommon extension line will be opened on the 1st of November. Lords Lucan and Crofton, with the engineer and resident engineer, proceeded by special train a few days since to within two miles of Castlerea.

BRAY.—Referring to the progress of this locality, a correspondent of *Saunders'* says, that the ground is being opened opposite the Marine Hotel, for the purpose of laying down gas-pipes along the Esplanade-road to a considerable distance in the direction of Bray Head. The houses on the shore will be the first to reap the benefit of this, but it is to be hoped that a few gas-lamps will be erected before the winter sets in at certain distances along the shore road; also, that the well constructed dock, formed by the Dublin and Wicklow Railway Company at the mouth of Bray river, is being deepened. This is the first move in the right direction. The next is to cut away the bar of sand and stone which lies directly opposite the mouth of the river. For this purpose a certain sum has been subscribed by gentlemen interested in the welfare of this delightful locality, but the sum stated is totally inadequate to the work to be accomplished. It is proposed to build two parallel walls from the railway bridge to the sea when the bar is cut away, and thus, by sharpening the current of the river, prevent any future accumulation of the same nature. It is of vital importance to the welfare of Bray that no time be lost in carrying out these proposed improvements.

Public examinations in drawing, conducted by the Science and Art Department, will be held on the 3rd inst., at the school of art, Royal Dublin Society.

THE OPERA.

As usual after the lapse of the London season, we *provincial* metropolitans—at least so we are regarded by our Cockney neighbours—eagerly yearned for the advent of the travelling troupe from her Majesty's and the Covent Garden houses, and their announcement is invariably attended with no small amount of commotion and preparation in the vicinity of "the Royal," not to speak of the impetus afforded elsewhere in certain departments which it is not our province to particularise. But seasons affected by "atmospheric" influences and those identified with the "artistic," both seem to lose their equilibrium occasionally, and labour under some variability of temperament; for certain it is that even in the department of Italian opera there is not always present that superlativeness of excellence so manifest as in the engagement just concluded. We dare not—even assuming that we were equal to the task, which in all humility we confess we are *not*, for we feel ourselves as much amateur in the matter of music as a musician would in attempting a dissertation on the constructive arts—enter into a lengthened criticism on the merits of the several artistes who have taken part in the recent series; but we may with some confidencesubmit that the mere mention of such names—without disparagement to the other members of the troupe—as Grisi, Viardot Garcia, Gassier, Mario, Graziani, and Ciampi attest definitely the character of the engagement, and cause criticism "to hide its diminished head." Heretofore when we lived in slower times than we now do—thanks to the genius of progress and his foster brother "steam," they are rapidly paling—lessees believed that something short of a miracle was achieved if they succeeded in inducing *one star* to attempt a *tedious* and *perilous* voyage across the Channel, and the public were satisfied; but now the enterprising caterer "who guides the helm" at the Royal, availing himself of increased facilities, is satisfied with presenting nothing less than "a constellation." Avoiding most scrupulously that hackneyed vocabulary of dramatic terms which some few Press critics seem most *luxuriously* to indulge in, and as it were by a mere transposition of studied phrases, with a few original addenda to make the one notice answer for a season, we may remark that, to our mind, the most successful production of the engagement was the opera of "Don Giovanni," in which all the leaders of the troupe before mentioned sustained the principal characters. With exquisite music, an amusing plot, and such a caste, how otherwise could it be?

Referring to the choral and orchestral arrangement—which by the way seldom occupy the position in public consideration that the labour and skill in their production entitle them to—we must not omit to award Mr Levey his meed of praise, for though nominally acting under a conductor, he, like many others in various positions of life, does the *work*, and the superior officer reaps, if not *all*, at least *too much*, of the credit.

Without much hope of its proving beneficial, we must chime in *our* unqualified disapprobation of the boisterous deities—those enemies to melody and harmony, while rudely aping to court both—who studiously and wantonly disturb the audiences. Indeed the Dublin theatre is becoming notorious for clamour and interruption, but we trust that Mr. Harris will adopt the most resolute means to stop it, and he may rest assured he will be fully sustained by *the Press* and the respectable majority of the community, for whose amusement he so skillfully caters. Foreigners and the inhabitants of the sister countries, already prejudiced against anything "Irish," are not likely to be improved in their sentiments as to our national respectability of character, and we doubt not but that the gossip of "the green room," when such displays take place, is far from being *complimentary*. Appeals to good taste become useless where none of that commodity is forthcoming, and but one alternative is left to the lessee, which for the maintenance of order he should not hesitate to adopt.

OUR ILLUSTRATIONS.

WE present this month a supplementary illustrated sheet, displaying another view of the intended new church of St. Andrew, as designed by Messrs. Lanyon and Lynn, and a ground plan for same building submitted in the competition by Messrs. Deane, Son, and Woodward, whose drawings were considered by the committee third in the order of merit. Also a full page view of the new Roman Catholic Church at Tramore, designed by Mr. M'Carthy, architect.

TO NEWSPAPER EDITORS.—We shall feel much obliged by the conductors of metropolitan and provincial journals, who favour by quotation from our pages to acknowledge such as from "THE *Dublin* BUILDER," our title being very frequently, to our detriment, misrepresented, though we are satisfied only through inadvertence.

NOTICE.

Post-office Orders and Remittances should be made payable to MR. PETER ROE, 42, MABBOT-STREET, DUBLIN.

☞ *NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the* DUBLIN BUILDER." *All other Communications should be addressed to the "Proprietor and Editor,"* 17, LOWER GARDINER-STREET.

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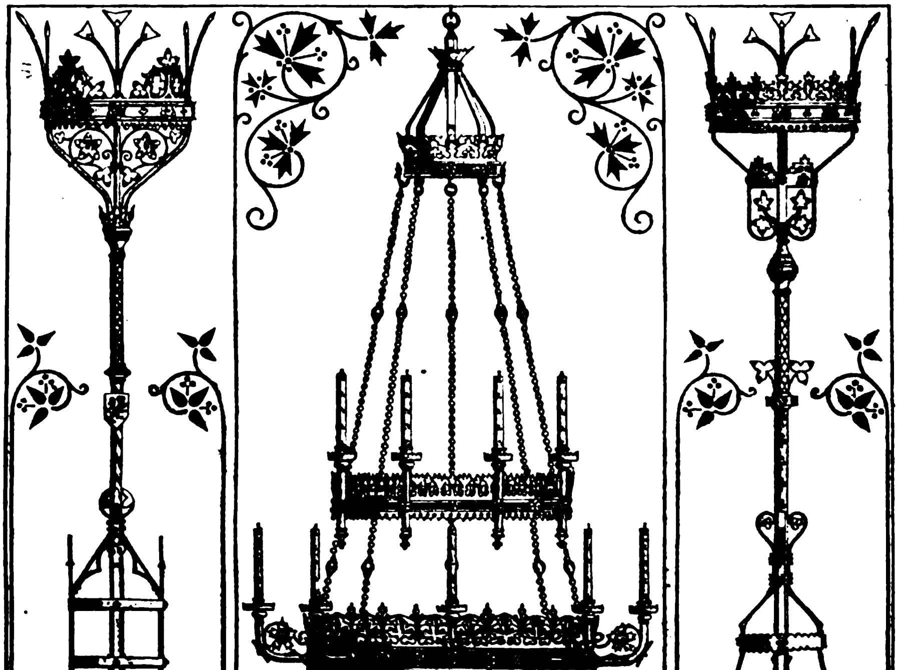

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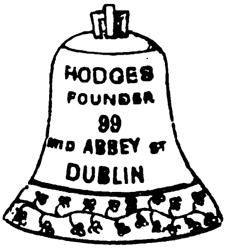

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The Dublin Builder.

Vol. II.—No. 23.

THE TAYLOR PRIZES—FIRST DISTRIBUTION.

FOR some days past the announcement that there were being exhibited at the Statue Gallery of the Royal Dublin Society a collection of works of art, sent in competition for the Taylor prizes, attracted thither some few individuals—fewer indeed than desirable — ourselves amongst the rest. Before we proceed to notice these works, we present a brief outline of the circumstances connected with this exhibition, as stated in the Society's circulars:—

"By the will of George Archibald Taylor, Esq., late of Mespil-parade, Dublin, the sum of £2,000 was placed at the disposal of his executors for the promotion of art in Ireland; and it has been resolved to establish a perpetual endowment for the encouragement of students in the fine arts, according to the terms thus recited:—

"The general management to be entrusted, in conjunction with the executors and trustees of the will for the time being, to the Royal Dublin Society, as joint trustees.

"The dividends to be applied, after providing for necessary expenses, to the endowment of scholarships and money prizes, open to all students of art, of either sex, who shall have attended for two years at least a school of art in Ireland, or who, being of Irish birth, shall have attended for the like period a school of art in Great Britain or elsewhere, and who shall produce at the exhibition hereinafter mentioned works of art displaying conspicuous merit or high promise of future excellence.

"An annual exhibition to be held in Dublin of the works of art which shall be sent in for competition.

"The proper subjects for competition to be determined by the trustees.

"The amount of the money prizes to be in the discretion of the trustees, having regard to merit; and when high artistic talent shall be manifested, one or more scholarships (to be called the Taylor Scholarship) of £20 or upwards may be awarded, which may be held for a second and third year, provided the student shall produce in each year a work of sufficient merit.

"The prizes and scholarships to be withheld in whole or in part, when no adequate positive merit exhibited; and the amount so reserved added to the principal of the fund.

"The prizes and scholarships will be awarded upon the report of the judges, to be chosen respectively from the Council of the Royal Dublin Society, the Royal Hibernian Academy, and the Governors and Guardians of the National Gallery of Ireland, with certain provisions in case of either failing to fulfil its part."

The sizes of the pictures and other particulars are then specified.

Clause No. 13 says that,

"Candidates for scholarships must be prepared to satisfy the trustees of their intention to devote themselves to art as a profession.

"The trustees do not prescribe the precise subjects of the prize works, discrimination in the choice of a subject being regarded as. in some measure, a mark of artistic capability; neither do they put any limitation on the age of the competitors. But in the adjudication every circumstance will be considered with reference to the prime objects of the endowment, namely, the encouragement of the schools of art in Ireland, and the development of Irish talent; and the trustees reserve to themselves the absolute right of determining whether the party competing be strictly *a student*, and in other respects comes within the intention of the trust.

"Communications on the subject of the Taylor Prizes and Scholarships may be addressed to Ralph B. Brunker, Solicitor to the executors, 31, York-street, Dublin; or to William Edward Steele, Esq., M.B., Assistant Secretary to the Royal Dublin Society."

Appropos to these provisions we find the following syllabus issued for the year 1860:—

1. For the best picture in oil colours, the subject historical or familiar	£10
2. For the best landscape in oil colours	10
3. For the best composition in sculpture	10
4. For the best water colour Drawing (Subject or Landscape	10
5. For the best architectural drawing (elevation in perspective of some known building or a design) ...	7

It will be seen by the above, that all subjects submitted in competition must be *original*, but we regret that the number of pupils who have entered the lists is very limited, and moreover think—from the degree of merit displayed—that the adjudicators have exercised a wise discretion in withholding the scholarship and one of the prizes. Facing the entrance doorway in the ante room of the gallery is a recumbent female figure, cast from a model by Miss Jane Morgan, of Cork, and awarded a medal in the School of Art in that city. To this work a Taylor prize has been decreed. The pose of the figure, and the disposition of the drapery, specially entitle it to much commendation, and suggest a reasonable inference that at no distant date the artist will occupy a position amongst the many notables in art produced in that city. Another prize is bestowed on Miss Annie C. White's excellently drawn and tinted perspective view of west nave and aisles of St. Patrick's Cathedral, prior to Mr. Guinness' restorative works being commenced. We understand that this lady has projected the drawing in question from actual measurement,—the difficulty of which task must be appreciated, but *the fact* is proclaimed by the accuracy with which every feature and moulding, every crumbling detail is delineated. We should be disposed to wish that this lady would pursue the art to a profession, and institute an order of "lady architects." A third prize is awarded to Mr. M'Evoy's picture—a forest landscape, in oils, a meritorious work for a student, but somewhat too cold and stiff in style. Amongst the *non*-premiated works we find a charming picture,—with certain restrictions—in oils, by Miss Almont, a view near Stillorgan, and to our minds, without drawing invidious comparisons with others, at least *entitled to a prize*. The lights and shades are effectively brought out, the exuberant foliage of the trees most naturally depicted, and with a vigour and warmth peculiarly commendable for a young artist. We must, however, with all due regard for the artist's license, take exception to the ultra-blue tint of the smoke from the cottage chimney, brighter than the *too* bright sky in the background. Nevertheless the artist has much reason to hope for congratulation upon the merits of her work. Mr. Crowley has two pictures strikingly different in style,—the one not altogether an unsuccessful imitation of the Belgian school; the other, viz., the harbour of Wicklow, displaying a good deal of truthful treatment and picturesque grouping. We would say to this artist certainly "try again" and *again*. Mr. Maine's water colour picture (a portrait) of an aged gardener in a sitting and pensive posture, with his dog asleep beneath his chair, is a meritorious work in its line. A group of fruit and flowers by another competitor displays too gaudy colouring, and cannot have been copied from nature. There are two other pictures—do they merit the name? —one by a Dublin, the other by a Cork student; but as they do not even approach to passable mediocrity, the authors' names are best committed to oblivion.

THE ROYAL COMMISSIONER AND THE WATER SUPPLY.

THE recently published report of Mr. Hawkshaw, C.E., after reciting the objects and particulars of the enquiry which had been called on to institute, the sources of the present supply, the state of the city basins, the various suggestions for an improved supply submitted during the inquiry, the evidence connected therewith (and already published *in extenso* in the DUBLIN BUILDER), proceeds to point out the River Vartry scheme before all others, in the following terms:—

"The water of the Vartry is *wholly unobjectionable*. It is practically equal to that of Kippure, as it respects softness and freedom from impurity, and possesses the great advantage of being generally colourless.

"There is a very eligible site for a reservoir, and the collecting ground is sufficient in extent for the requisite supply to the population.

"It is more costly than the other schemes; but, on the other hand it possesses an advantage which will compensate for the greater cost, viz., that of admitting of a ready supply of water to the large population on the coast between Dublin and Bray—a matter of great importance when it is considered that the extension of all the best buildings is in that direction.

"I have found, during my investigation of this subject, that, although numerous sources of supply had been suggested, yet the water of many of them. however suitable in other respects, was more or less deeply coloured. This I have already intimated.

“It arises from the circumstance that the granite mountains from which the Liffey and Dodder derive their origin are not found naked and exposed, but are usually covered with a thick coating of peat.

“It has appeared to me in determining this important question, upon which the health and comfort of a large and growing population will greatly, and most probably for a long period of time, depend, that all water highly coloured with peat is thereby rendered ineligible, provided that water free from such objection and otherwise suitable can be obtained.

“A mistake on this point would be more seriously felt by the inhabitants of Dublin, because, however bad the water supplied to that city has hitherto been in other respects, it is ordinarily colourless.

“Mr. Bateman, who advocated the Kippure scheme, believes he could, by a process of separation, render the Kippure water sufficiently free from colour.

“Mr. Hawksley, who examined this district on many occasions, and who reported on it in 1859, differs from this view, and concludes, that unless chemical agents were used, which would add enormously to the cost, the water, if taken from the Kippure, would when supplied to the citizens of Dublin, be a brown water.

“It appears to have been this among other considerations which induced Messrs. Hawksley and Neville to seek a supply lower down the Liffey, and to adopt Coyford, where the water, by travelling several miles exposed to sun and air, and by mixing on its route with some limestone water, undoubtedly loses some of its colour, and approximates more nearly to that great desideratum, a colourless water.

“Possibly some improvement could be effected in the colour of the Kippure water by taking in that of the River Brittas; but after long and patient consideration, I have arrived at the conclusion that, if on no other ground, yet on the score of colour, it would not be advisable to adopt either Kippure, Poulaphuca, or the Dodder, as a source of supply.

“The waters of Coyford would probably, when supplied to the consumers, be nearly white, and though somewhat inferior in point of hardness, might, I think, in the absence of a better source, afford an eligible supply to the city of Dublin. But it appears to me that in selecting an article so important to the health and comfort as water, it is an imperative duty to choose the best, if that can be obtained at a cost within the means of the corporation.

“The water of the Vartry is, in my judgment, *so much superior to all the other waters, the quality of which has been discussed*, as to induce me to prefer it; and in coming to this conclusion, I have weighed, as well as I am able, every point that should enter into consideration in coming to so important a decision.

“No new source of water supply can be obtained for the city of Dublin without encountering difficulties of some sort.

“Were it determined to take water from the head of the Liffey at Kippure, it would involve an interference real and imaginary with a river between sixty and seventy miles in length, studded with mills, skirted by important demesnes, and flowing at last through the harbour of Dublin.

“The Poulaphuca project would involve almost an equal amount of interference with the rights of property.

“The Coyford scheme, if carried out with a compensation reservoir, would still involve many similar questions, and it would not escape these difficulties if it dispensed with a compensation reservoir.

“And the river Dodder, though only twelve miles in length from near the summit to its junction with the Liffey, has numerous mills on its course, and there are many more on the city watercourse, and on the Earl of Meath's watercourse. This river also empties itself into Dublin harbour.

“Though the river Vartry is comparatively short, the Vartry scheme *is not wholly free from objections of this kind.* The river flows through Wicklow harbour it passes through a place of considerable beauty called the ‘Devil's Glen.’ But the mills upon it compared with the Liffey and the Dodder are few in number and small in value.

“These questions have been considered in arriving at the relative cost of the schemes.

“The estimates given by different individuals of their various projects did not admit of accurate comparison.

“To aid me in my investigation, I requested Messrs. Hawksley and Neville to devise a competent plan for taking water from the Vartry, and also to furnish me with comparative estimates of the cost of obtaining supplies of water by means of those projects, which appeared to me, after reviewing the whole question, to be the most eligible, viz., the Dodder, Kippure, Coyford, and the Vartry. These estimates are made out as nearly as was practicable on the same scale of prices. The following is the result of their detailed investigation:—

		Estimated Daily Supply.	Cost.	
		Gallons	£	£
1	Dodder including Filters	10,000,000	234.668	
	Annual cost of filtration, capitalized		12.500	
				247,168
2	Ballysmuttan or Kippure, including Filters ..	12,000,000	233,579	
	Annual cost of filtration, capitalized		15,000	
				248,579
3	Coyford, with compensation reservoir at Kippure, including Filters	12,000,000	210,307	
	Annual cost of filtration, capitalized		15,000	
				225,307
4	Vartry (without Filters)	12,000,000		295,992

“The water from the Vartry, without filtration, *will be equal in quality, and superior in colour, to any of the others with filtration*, and therefore the annual cost of that process, which if capitalised would amount to £12,500 on the Dodder scheme, and £15,000 on the Ballysmuttan and Coyford schemes, should, for purposes of comparison with the cost of the Vartry scheme, he added, as it has been to the first three estimates respectively.

“And further against the increased cost of the Vartry scheme must be placed the revenue that would accrue to that project from the greater facility it would afford of supplying the population between Dublin and Bray.

“In conclusion, the results I have arrived at are,

“1. That the state of the present supply of water to the city of Dublin is bad.

“2. That there is urgent need of an improved supply.

“3. That the best source from which an improved supply can be obtained is the River Vartry.”

After some discussion upon the resolution that the report be received and adopted, the question was put by the Lord Mayor, and carried unanimously amidst applause.

Thus is solved the *vexata quæstio* of the water supply of Dublin, one of the most memorable and protracted that ever occupied the consideration of a municipal body!

Ireland, said to be the slowest of civilized countries, now boasts of the swiftest steamers in the world—the *Ulster*, *Connaught*, and *Leinster*, plying between Kingstown and Holyhead. Each are about 350 feet in length, and make the voyage (68 miles) in an average period of 3 hours 15 minutes. The enterprise of the City of Dublin Steam-packet and North-western Railway Companies respectively, in providing the accelerated communication, cannot be too highly appreciated; and when the *Munster* is on the line the system will be complete. We *believe* that *we* live in an age of wonder, but what if our children's steamers should accomplish the journey in *half* the time, as we have done in that of *our* fathers? What a revolution in naval architecture is sure to follow the feat so far accomplished! How posterity will smile at our Himalayas and Great Britains! and regard them, as we in our turn have others, as “cumbersome tubs!”

We have the authority of Mr. George Francis Train, the patentee, for stating, that in about six weeks the first street railway will be opened in London. The route will be along Victoria-street, Westminster, extending from the Broad Sanctuary, near the new Westminster Hotel, to the Vauxhall-bridge Road. A car of somewhat similar pattern to those at Birkenhead, is being built by the Railway Carriage Company of Birmingham.

The new Victoria station of the London, Brighton, and South Coast Railway situated at Pimlico, about 400 yards from Buckingham Palace, is now open, and the largest of any of the metropolitan termini.

A new railway has been opened in Turkey, between Rustenjie and Tchernavoda.

A new Roman Catholic church, forming a portion of an extensive pile of buildings erected at Liverpool, from designs by Mr. W. Pugin, architect, has been opened for divine service. It is said to be, with one exception, the best specimen of ecclesiastical architecture in the town.

The new machine for emptying the drains of Paris, considered one of the wonders of the age, came into use recently, and attracted an immense crowd to see it perform its work. The city of Paris had deputed its three chief engineers to report upon its merits, and success was pronounced complete. The drain, which by this new method was emptied in broad daylight, was one containing 80,000 litres. The principle of vacuum is employed, and it is decided that henceforth all great operations of the kind are to be conducted on the same system. The operation, unsavoury as it appears, was considered of so much interest to the health, cleanliness, and convenience of all large cities, that it was treated as a solemnity, and the court-yard of the Caserne de l'Omeine, where it took place, was filled with all the notabilities of the city—journalists, doctors, economists, and legislators.

A "DORMANT" INSTITUTE.

THE activity already manifested at the earliest dawn of the Session of 1860-61 amongst the respective scientific and artistic bodies of the kingdom (metropolitan and provincial), reminds us forcibly of the invincible drowsiness of *one* of the fraternity, who, while others are "up and stirring"—fully refreshed after a long interval of repose—still tenaciously grasps Morpheus' mantle, and yawns for prolonged oblivion. To disturb the slumbers of the weary is an ungracious act, but we must plead guilty to the imputation if, in the performance of a public duty, we take permission—first *gently*, and, should it prove ineffectual, afterwards *persuasively* and *energetically*—to remind our somniferous friend that it is *time* for him "to rise also." As even amongst children sprung from the same parents the greatest dissimilarity of dispositions, tastes, and opinions are observable, so is a marked contrast presented by this member of a family, having wide and influential connexions, towards his relatives, either at home or abroad. Precept, moderately applied, or even the forcible argument of practical example, have as yet proved unavailing in diverting his taste from its slothful channel; nevertheless we are far from pronouncing his disease totally incurable, however great may be the amount of skill and labour necessary to bring about the desired end. Drawing aside, however, the curtain that veils our sleeper enjoying his *bon repos*, and directing the bright rays of public opinion full upon his oblivious countenance, moreover divesting ourselves of metaphoric garments, we come, in plain terms, to ask the ARCHITECTS OF IRELAND—why is it that *they alone* of their fellows in the United Kingdom are unrepresented by an *active* conservator of their interests? and why, when made sensible of the fact, do they not adopt the proper course to ensure one? Dublin is *styled* "the second city in her Majesty's dominions," and not unreasonably complimented on "the architecture of her public buildings"—the architects of Ireland have invariably been distinguished as a body for their attainments, and many members of the fraternity have, both at home and on foreign ground, fought many a brave battle for priority, not unfrequently bearing away the palm gloriously; yet withal, individual supremacy seems to be the engrossing consideration, and the members of a gentlemanly profession, presumed to possess more dignified aspirations than mere Mammon-loving materialities, tacitly writhe under the stigma, that their *common* interests are entirely superseded by their *personal*. In glancing at the past history of a body styled "The Royal Institute of Architects in Ireland," we desire specially to record, that we speak, on *principle*, for the well-being of the profession and the advancement of an art with which our own most earnest aspirations are associated, and not with the desire of reflecting on its members individually, most of whom are personal friends, and for *all* of whom we entertain, as kindred craftsmen, more or less regard. This explanation we deem necessary for reasons we need not *now* detail, but which will be readily understood, and we trust appreciated, by those to whom it is directed. The institute in question was first formed in 1839 by a few of the—*then comparatively* few—practising professionals, with the late Sir Richard Morrison as president, and, with some intermissions, continued its meetings until 1857, when, notwithstanding the fact that the financial state of affairs was perfectly solvent—a sum exceeding ONE HUNDRED POUNDS being to the credit of the body in the public funds—it seemed to become desirable (in whose opinion or for what reason we know not) to suspend the institute, and sell the material property, for the purpose of reimbursing the treasurer some £30 or thereabouts, due to him for payments made. Rather startling this; but until a *general* meeting of *all* the members be convened, to wind up the affairs *in toto*, and the officials render a comprehensive account of their stewardship, we cannot recognise the institute as positively defunct, but only revelling in that obliviousness for which it ever maintained a predisposition. In plain truth and as a matter of *business*, may we ask, is the course suggested one that those entrusted with the conduct of the affairs of the institute ought to hesitate to adopt, either for *their own satisfaction* or that of the members and the profession generally? Three sessions have passed by, yet matters remain in *statu quo;* and if the "dormant institute" is determined to defy all remedial measures, it ought at least have *the honour* to awake for a moment and *say so*, that a successor, more energetic and competent, might be appointed to fill the post. We confess to a regard for old associations, and we should much prefer seeing the "parent" (are we complimentary in the term?) institute *redivivus*, than find the place it should occupy in the possession of a stranger. Yet this result we must expect, and acting as the mouthpiece of the profession, in which there remains yet a sufficiency of youthful blood and independent principle, we pronounce the warning.

Strange to an anomaly is it that in this state of things individual members positively sympathise with each other on the fact, that the profession in Ireland has no fitting representative, and exclaim with wonder ever and anon, as to the why and wherefore, the irreconcileable inconsistency, &c. *Action*, not *talk*, ought to be the banner under which every zealous worker should aspire to move; but unfortunately in the elements of our national composition the balance is materially in favour of the latter commodity. "Time enough" is a somewhat dangerous principle to depend on, yet we must remind our readers that "there is a time for everything," and if the "dormant institute" should still remain proof to our *gentle* persuasions, we shall not hesitate to appeal to the alternative of "energetic treatment." Elsewhere in this journal are to be found reports of the proceedings of the various scientific and artistic bodies of the kingdom, and well may the *Architects of Ireland* "hide *their* diminished heads," in comparing the position of their brethren elsewhere with *their own*. Let us hope, however, that in our next "bulletin" we may have the gratification of recording even the *partial* awakening of the patient from his *coma* state!

ARCHITECTURAL SOCIETY, LIVERPOOL.

ADDRESS OF THE PRESIDENT, JAMES M. HAY ESQ., ON THE OPENING OF THE SESSION, 1860.

GENTLEMEN,—The study and advanced knowledge of architecture have ever been confined to a small portion of the community, and it is not wonderful that it should be so; for when to master even a rudimentary knowledge of the art requires so much time and patience, how much more does it not require to be able to judge of its excellences or its shortcomings, to point out its faults or suggest their improvement? It is this small portion of the community, this cultivated few, to whom the architect in all his highest efforts addresses himself. They are the leaders of taste, and are the tribunal before which he stands or falls, whose approval he covets, whose censure he would avoid. Of late years the study of architecture has been greatly promoted. Men of the highest literary attainments have enlisted in its service, and devoted their energies to the elucidation of its principles, both in works of deep metaphysical inquiry and those of a more popular form. A greater general interest has been established. This and other architectural societies are partly the result of that interest, and react in a further extension of it. The number of architects has increased in much larger proportion than the population; nor am I of those who regard this as a misfortune; on the contrary, it is my conviction that there are still too few, and that much of what passes current as architecture (where every canon of pure taste and sound construction is violated) is where no architect has been employed. The works in the vernacular style of the present day have been visited with deserved ridicule and the severest criticism, but others beside the profession are chargeable with their faults.

It is somewhat difficult to leap forward a hundred years and imagine what posterity will say of the arts in the year 1860, or to divine its critical opinion of the architecture of our own time. Still we do form an opinion, which, though necessarily partial and conjectural, may yet be worth while to analyse and record.

We can look back upon the history of our art, and trace it from its infancy; we can watch it step by step as it gradually advanced towards comparative perfection and then rapidly declined; how it sprung up in other lands and pursued a similar rise and fall, or became mingled with other streams, and then again bursting out and spreading into various ramifications, enjoying a greater or less glorious period of existence. But we still observe it in every case obedient to the universal law of progress and decline. It is interesting to embrace the whole in one comprehensive view; it is interesting to examine the leading styles and the various secondary and tertiary ones proceeding therefrom, to analyse their elements and their various relationships; it is not only interesting, it is a portion of knowledge indispensable to the architect, for it is the very groundwork of his art, and essentially necessary to a thorough mastery of its principles.

These remarks have been suggested to my mind by a vivid recollection of Mr. Huggins's chart of architectural styles exhibited here towards the close of last session. The idea was a happy one, of so embodying the entire history of our art, and presenting it to the student at a glance. Its invention cannot but be considered as exceedingly well timed; for if published it must yield valuable assistance in the study (now of so much importance) of the development and relationship of the various styles of architecture in all times and countries—and not only among the profession, but also among the public at large—and assist in rendering architecture a feature of popular education. It is to be hoped that Mr. Huggins will have it published in such a manner that a copy may be had by every member of the profession, and also suspended on the walls of every school and seminary in the kingdom.

The exclusive study of one style will induce a preference for that style, and the practical result will be a servile copyism alike degrading to the artists and injurious to the art. It is only the mind which is thoroughly imbued with the principles and characteristics of all styles, and which draws its inspiration from every source, that is capable of producing great and original works. His genius is unfettered, for his materials are unlimited; his invention is more active, for new combinations suggest themselves at every step and become moulded and recast in forms of beauty never before dreamt of. Though familiar with all precedent, he is less bound by it, and sees the same end accomplished in a variety of ways, resulting in various forms of beauty; his ingenuity is thereby stimulated, and his own productions are more likely to exhibit the most excellent qualities of ancient work.

If the prevalence of the styles practised in the present day—the classic or Italian and Gothic, with their various ramifiations—be the result of fashion, we may safely predict for them a transient or evanescent existence. But the revival of these styles rests upon a broader and deeper foundation. They each of them exhibit principles or qualities which we dare not sacrifice, and must not lose sight of. While the battle of the styles goes on, the great majority of architects practise in both styles, making their selection according to the object of the building, the nature of the site, or the kind of materials at command. We may consider this as a mark of progress, for it indicates a thinking out of the subject from the very beginning. An architect may now draw his inspiration from sources as wide apart as the poles, and introduce forms and features in his designs for which no examples exist and no precedent can be cited. This is also a decided mark of progress, for it indicates a consciousness of art power which,

> " Without breaking covenant with the mighty dead,"

but estimating at their proper value ancient examples, is yet ready to avow its independence and assert its superiority. This practical freedom is perceptibly changing the expression of our architecture, and giving it a character of its own. Hence the difficulty of giving a name to the style of certain modern structures beyond indicating their parentage. This is considerably in advance of the period when it was thought a high eulogium to say that this building was exceedingly fine, for the portico was an exact copy of one in Rome, or that that church was a splendid example of modern Gothic, for all the details were taken from York Minster. No true architect is now desirous of his work being mistaken for that of the 13th or 14th century, or any other period of past history, but rather that it should be the product and bear the impress of his own mind.

Liverpool possesses buildings recently erected, or still in course of erection, which exhibit the justice of these remarks. In most of these the classic element is predominant, while a Gothic spirit animates and pervades the whole. These buildings are valuable acquisitions to the town, and will remain as landmarks in the advancing tide of architectural development. London and other cities and towns have numerous examples of the same tone and tendency—examples in which we can imagine their authors saying to themselves, " Let us throw style entirely aside; let us design this building according to the principles of art, refusing to admit any one style having exclusive occupation of our mind at the time."

I do not overlook the importance of travel, whether to the student, the draftsman, or the busy practitioner. All men should travel, were it for no more than to amuse themselves; but to the architect this amusement may be combined with sound architectural instruction.

During the recess I availed myself of the opportunity of having a few weeks' tour on the continent; and next to a ramble amongst the villages and hamlets of our own land, there is nothing so invigorating to mind and body, or tends so much to restore that equilibrium of the system as foreign travel. To see with your own eyes those monuments of architectural genius which in past years have been your study, is always a source of enjoyment. Around them are associated some of the happiest moments of your life—those moments and that period when your love of art was just awakening in the soul and began to glow with intensest enthusiasm. You walk around them with boyish wonder, and seem to renew an intimacy as with an old friend. Much is familiar, much more has all the freshness of novelty. Discarding or correcting false impressions, you are no less gratified in finding out that others which you had previously formed are fully borne out and corroborated by what you see. But the value of travel consists not so much in actual seeing as in what is suggested. The mind is kept in a state of active excitement; ideas follow each other with rapidity, but are evanescent, and should be jotted down as they arise, otherwise they are lost. My excursion included the tour of Mont Blanc and a small portion of Switzerland, a country which was entirely new to me.

With most young architects the desire is to see the antiquities of Greece and Rome or the mediæval cities of the continent. This is natural, for there are to be found the finest examples of architectural art; but let them not forget to visit mountain scenery whenever it is in their power to do so. Ruskin somewhere says that the brains of the architect are too much bricked up by a continual residence in large cities, and that he should repair to the mountains to give them air, and health, and vigour. This repeatedly occurred to my mind in traversing some of those wild mountain passes, where, pausing in the midst of awful solitude and profoundest silence, the whole soul glowing with indescribable emotion, you feel isolated, alone with the Eternal and the Infinite. Architectural lessons are here taught on the grandest scale. How simple and yet how varied those mountains appear! with what an idea of eternal fixedness they strike the beholder, and yet how animated is the picture as they seem to play at hide and seek with the floating clouds and long drawn sunbeams!

The architect is frequently advised to go to nature to study; but this, I apprehend, is generally considered to mean the vegetable and floral portion of her domains, where, instead of thoughtlessly repeating the work of past artists, he may study the leaf and flower for himself. Let him not limit his interpretation of the advice to so circumscribed a sphere: to the ardent and faithful student of architecture, nature in these Alpine regions has lessons of higher importance to unfold. It is here that he is irresistibly impressed with the elements required to form a grand architectural work—simplicity, boldness of outline, composition, and grouping; an overpowering breadth of light and shade; daring contrast in form, structure, and colour; and, pervading all, an expression of eternal repose.

The young student is apt to spend too much time in acquiring a knowledge of mere detail, and the practical architect in its application, forgetful of more important elements. The purest detail will not atone for the absence of these, and their presence alone will stamp a work with genius and power. There are works in even the most debased styles arresting attention and proclaiming this fact. Detail is but the feathers on the butterfly's wing, the foliage on the tree, or the mossy covering on the mountain side; it is that artistic stippling which gives emphasis in some parts and reduces it in others; it bears a certain relationship to the general conception of the work as a whole, but is the last, not the first, consideration in architectural design.

The approaching completion and inauguration of the Free Library and Museum are naturally occupying much of public attention. It must be a source of great gratification to Mr. William Brown that he will so soon be in a position to hand over to the authorities and public of Liverpool this enduring monument of his generosity—a generosity that is appreciated by every intelligent mind, for its fruits will be experienced by all classes of the community in the present as well as in future generations. The gallery to be set apart for scientific and mechanical inventions has a peculiar interest for the members of this society, and it, along with the architectural department of the library, so much indebted for its valuable contents to the zealous and persevering efforts of the chairman, Mr. Picton, will become an attractive resort for both our students and professional members.

I trust that the session we have now commenced will be a useful and prosperous one. The history of architecture is closely allied to the history of the world and the progress of civilisation; and the architect has no time to fritter away in pursuits which have not a direct or indirect bearing on his profession.

THE *AGRICULTURAL REVIEW* ON DUBLIN STREET ARCHITECTURE.

In a recent number of the abovenamed cotemporary we find—after a complimentary notice of this journal, for which we feel obliged—the following remarks:—

" As a rule, the fronts of our houses have not width enough for any really effective design. Let one of them be done up ever so well, it only looks like one side of an overgrown mantelpiece stuck against a row of brick houses. It is too narrow for its height, or too high for its width, or rather, narrowness, and the eye wanders literally in quest of the fabric to which it belongs. But, instead of finding any remainder, the visual organ conveys to the brain the image of the half of some other unfinished design. No. 10 presents a solid, massive front, as if built of granite, from top to bottom; No. 11 grins at you, all in brick; whilst No. 9 and No. 12 are on each side, as if they had belonged to each other originally, but had lost partnership in some fantastic midnight dance, and had been disfigured and disguised somewhat merely by the application of pigments of different hues. So on, one might go, noting how the masses of building might be grouped and laid out, as a landscape gardener would do with a piece of ground; but finding that all the owners and artificers had put their heads together, to see how best they could steer clear of doing their work in harmony, or for a common purpose."

ART IN ENGLAND.

It has been a settled thing this many a year that the English people are deficient in the aptitude for art. The French, the Italians, the Germans, half kindred as they are, assume a soaring superiority over us in this respect, and have long solaced themselves with the thought, which enabled them to grant us more freely our due on other points. The genius of England was purely practical, they declared: steam, bridge-building, railroads, mechanism, and money-making in all its branches was our province; but in the region of art, in the delicate sense of the beautiful and the graceful, she was nought—a barbarian, a Caliban. We were the gnomes, in fact, of humanity, condemned to work in the dark depths of the earth—the continental nations the sylphs, floating in the rare ætherial atmosphere of beautiful conceptions and graceful fancies. There was superficial evidence enough of this theory to convince even ourselves of the truth of this humiliating theory. We had but to look around us at our furniture, at our daily implements, at our costume, at our buildings, at our monuments, to be driven in candour to the confession that what the English artizan produced might be solid, sound. useful. strong, cheap. even mechanically neat and perfect in its adaptation to the service in view, but that it was disgraced with the stamp of unmistakeable ugliness. Take, for instance, our pottery. None could beat us in the manufacture of the material ware; but what nightmare phantoms were the shapes it was moulded into—what distorted caricatures were designed upon it! Even Wedgewood employing Flaxman to adorn dinner and breakfast services with his pure and classical conceptions failed to shake the reign of the hideous over our ceramic manufactures. Squat and bloated jugs, terribly suggesting the obesity of beer drinkers, graceless dishes blurred with the insane "willow pattern," were all hugged with maternal fondness to the national bosom. Through the whole range of practical art the same characteristic research after the unpleasing was manifest. Foreigners laughed at our want of taste, and we had to join in the laugh with the best grace we could, and pay dearly for our elegance as a foreign import.

It was certainly puzzling how this should be. Had the inhabitants of these particular islands been deprived by a wholesale *lusus naturæ* of those finer perceptions which add a crowning grace to civilized life? Was there something in our insular atmosphere that cretinised us in respect to art, and shut up the sense of beauty in utter numbness? Having a national muster-roll of great names, on which figure those of Wren, Reynolds, Gainsborough, Hogarth, Leslie, Turner, Maclise, Landseer, it would be difficult to acquiesce in this position. The question is, whether the aptitude for art is geographically distributed. as are classes of plants and animals, and if the British soil and climate be one in which it refuses to flourish. Facts very emphatically answer no in the instances referred to and numberless others; and more recent manifestations are at hand to show that the Englishman is not afflicted with that defective organisation which must shut him out inevitably from excellence in Art.

Gœthe wisely said, "Take care of the beautiful—the useful will take care of itself." In this country it is our practice to let everything take care of itself; and we have furnished the most admirable illustration of the truth of the great German's saying, for the useful alone has flourished with us. But Art must be fostered by timely and enlightened patronage; it must be tended, watched, and sunny gaps made for it, or it will not shoot up and smile on us with its luxuriance. Such patronage among foreign nations has been constantly granted to Art by the State, and in Catholic countries by the Church; and the prevalence of beautiful objects has educated the taste of the people at large. For years these influences have been at work, and hence the supposed natural superiority of continental nations in æsthetical matters. On the contrary, the stern Puritan spirit of our Protestantism and our republican jealousy of State interference, have shut out both of these sheltering and vivifying agents, and left the encouragement of artistic excellence to the precarious patronage of individuals. Thanks to the wealth and taste of our aristocracy, a general blight has not nipped the growth of all Art in this country; but until quite recently our art treasures have been shut up from the public view. With the exception of a rare church, a rarer old cathedral, and, rarest of all, an occasional statue, the native Briton, except in his cultivated fields and natural scenery, has been surrounded by unsightly objects. No general appreciation of what is truthful and beautiful in art therefore has been inculcated in the mass of the people, and hence they have been stigmatised with the absence of the very sense of the excellent.

Tardily these truths have been recognised, and we have roused ourselves from apathy as a nation towards the careful encouragement of Art and the education of the public taste. The State has been empowered to exert itself to some extent in this direction—not with much liberality perhaps, but what it has done has been entrusted to hands who have worked strenuously, and they have been much assisted by private munificence. The Government Schools of Art, having their head-quarters and directing momentum at the South Kensington Museum, have already effected a little revolution in the character of our manufactures; and if we may implicitly trust the evidence of the directors of this new department of the executive before a Select Committee of the House, which it is fair to say is corroborated by the testimony even of foreigners, we are bidding fair to outrival the Continent in its boasted special aptitude for works of art. In 1859, M. Roudot was commissioned by the Chamber of Commerce of Lyons to see what was likely to be the result of our efforts to get rid of this national badge of inferiority so complacently fastened upon us. After visiting the "Department of Art" and the schools, he reported his impressions, and the concluding sentence in his report is—"Lyons is warned, and will fight valiantly to preserve her superiority in the domain of taste and art." If this be not adroit flattery to lull us into a false confidence, and tame our ardour with premature triumph, such an admission is a most satisfactory evidence that we have not entered into a wrong path, and this national care for the interests of Art was truly the only thing wanting to place England, in this respect, on a level with other nations.—*The Press.*

NEW MUNICIPAL OFFICES AND POLICE COURTS, BALLARAT.

We find in the *Ballarat Times* a description of these buildings, for which the models and designs submitted in competition by Mr. C. D. Cuthbert (late of Dublin) were selected. The following are a few particulars collected therefrom:—A tetrastyle portico, 30 feet high, centrally placed, and communicating with a great hall, divided by columns into three compartments—of which the central will be 82 feet by 35 feet, and the sides 47 feet by 14 feet—forms the main entrance, and will be surmounted by a tower, 90 feet in height; a library and museum, each 98 feet 6 inches by 30 feet, occupying the western wing, and the police courts, with their various offices, locks-up, &c., the eastern. Granite is the chief material employed throughout, and the elevations are of plain character. It is said that the ventilating arrangements have occupied much of the architect's consideration. The foundation stone was laid on the 16th of August. Messrs. Evans and Barker are contractors for the first portion—viz., eastern wing and part of centre. Total expenditure when completed to be about £16,000.

VEGETABLE FUEL.

We have received the preliminary prospectus of a company projected "to carry into effect, under a new patent, the manufacture of fuel for 'smelting,' as well as for ordinary purposes, and for the more effective and extensive working of the peat bogs of Ireland." We are at all times pleased to view any effort made for the development of our resources, and in this instance have no reason to question the feasibility of the project, if the financial details have been carefully digested. A successful issue, however, would mainly depend on the extent of the *demand* for the article in question, and whatever may be its merits, we see *one* difficulty looming in the distance for the new company to surmount—namely, want of appreciation. For such of our readers as may desire to be acquainted with particulars, we give the following extracts from the prospectus:—

"When fuel free from sulphur is used in the smelting of ores, the metals produced, vary in value from 25 even to 300 per cent., beyond those manufactured by fuel containing sulphur."

"The effect of sulphur is to lessen malleability, because the particles of the metal become crystallized."

"Almost all metals *now* produced in Great Britain are manufactured from *coal, which in every instance contains sulphur* more or less, and formerly the *iron of Ireland* bore the first mark in the markets of the world, its ores being smelted by *wood* and *wood charcoal*, whereas the iron of Great Britain *now* ranks far *below* the foreign—viz., of Sweden, Russia, &c.—where the superiority arises entirely from its being manufactured with *vegetable fuel.*"

It appears that the new graving dock recently built by the Ballast Board at a cost of £100,000 is not sufficiently large "to dock" the new Holyhead and Kingstown line of steamers. We apprehend it never was intended for such a purpose, being only designed to accommodate those of ordinary, not *extra*ordinary dimensions.

Messrs. Laird's (the builders of the *Ulster*, *Munster*, and *Connaught*) graving dock at Birkenhead is capacious enough to admit the largest vessels yet built, except the *Great Eastern*, the entrance being 87 ft. wide, and the dock 450 ft. long, with a depth of water on spring tides of 22 ft. on the block, whilst the *Leinster* is only 350 ft. long and 65 ft. wide over all. There is also a gridiron outside these works 600 ft. long, which, with some modification, and at a moderate cost, could be adapted to accommodate the *Great Eastern*.

FORTNIGHTLY ISSUE!!!

Subscribers and Advertisers are respectfully informed, that on and after the 1*st of January,* 1861, The Dublin Builder *will be published on the* first *and* fifteenth *of each Month, or, in case either should fall on Sunday, on the day preceding.*

It is, therefore, requested that all who have not as *yet signified their intention of supporting the Proprietor in this undertaking, will have the goodness to do so without delay. Advertisers will favour with their orders referring to a* Fortnightly, *not a* Monthly *issue as heretofore. All Accounts will be furnished terminating with the December Number, previous to commencement of the New Series, and attention is requested.*

A graduated scale for Subscribers will be adopted, particulars of which will appear in next Number.

Illustrations.—*The Editor will consider all subjects submitted for illustration.*

BRAY.

Bray presents just now a busy scene—the hammer and trowel are heard in all directions, and houses of every imaginable class, shape, and capacity are springing up. The poor little village of some few years since, where the arrival of an occasional mail car or excursionists' carriage would cause quite a sensation, has rapidly grown into a populous town, a fashionable watering place—the Brighton of Dublin, at least in embryo. Building ground, formerly set by *the acre*, is *now* difficult to procure even at fabulous prices by *the foot;* during "the season" shopkeepers *now* reap a rich harvest, not as heretofore dragging on a bare existence; streams of visitors *now* emerge from every train solicitous to ensure even a corner in a hotel, where formerly the appearance of a solitary tourist suggested a brisk competition amongst the employeés of rival establishments as to which should become the favoured receptacle of "the stranger." The esplanade is an immense improvement—the introduction of gas a greater. Thanks to steam! thanks to the enterprising spirit of the company who command the iron road approach to the metropolis! and, though last not least, thanks to William Dargan—a name always prominent in the cause of progress—for all this! Glancing at the vicinity, viz., Foxrock, Stillorgan, Ballybrack, Killiney, Dalkey, &c., there is a stir apparent likewise—we shall detail hereafter—which serves to convince that we are not *quite* in that state of somnambulism which some people would persuade the world is a characteristic of "the Irish."

COMPENSATION FOR RAILWAY ACCIDENTS.

With the view of preventing litigation after accidents on railways, a suggestion is thrown out by *Herapath* to this effect—to "establish in case of death a uniform scale according to the class of passengers, viz., *first* class, £1,000; *second* class, £500; *third* class, £250." If that were adopted, we would ask the scale proposed for *compound* and *simple* fractures—how much for the loss of leg or arm respectively, contusions, disfigurements, sprains, bruises, &c.? We confess we do not see the practicability of this adjustment, as it not unfrequently happens that the frieze-coated or smock-frock occupant of a *third* class carriage, with a family, may be in reality a much more important and respectable member of society than many who, to be fashionable and luxuriate in a *first* class carriage, trespass too much on the credulity of their tradesmen, presenting an imposing front with hollowness within. In such a case—and many others which could be adduced—the principle of compensation ought to be precisely reversed, and the larger amount given to the representatives of those whose *moral* worth and social weight would cause their death or injury to be more keenly and extensively felt. That some system ought and might be adopted to diminish the probabilities of litigation from such causes, we quite agree with *Herapath*, but to our minds it can only be effected by several railway companies appointing a paid commissioner or two to enquire into the *circumstances* of each sufferer, and award compensation on the *quantum meruit* scale. Yet difficulties here intervene likewise, for the balance of probabilities would generally be in favour of the companies of whom such commissioner would be *de facto* the employeé, and his sense of impartiality would be severely tested: again, *an award*, unless made a rule of court, or proving (as when would it?) mutually satisfactory, would be mere moonshine, and eventuate in litigation. Moreover we think it not likely that the Government would sanction the legality of arbitration where so much revenue is derived from litigation. However, if practicable even in a degree, "of the *two* evils we would choose *the least.*"

LAON CATHEDRAL.

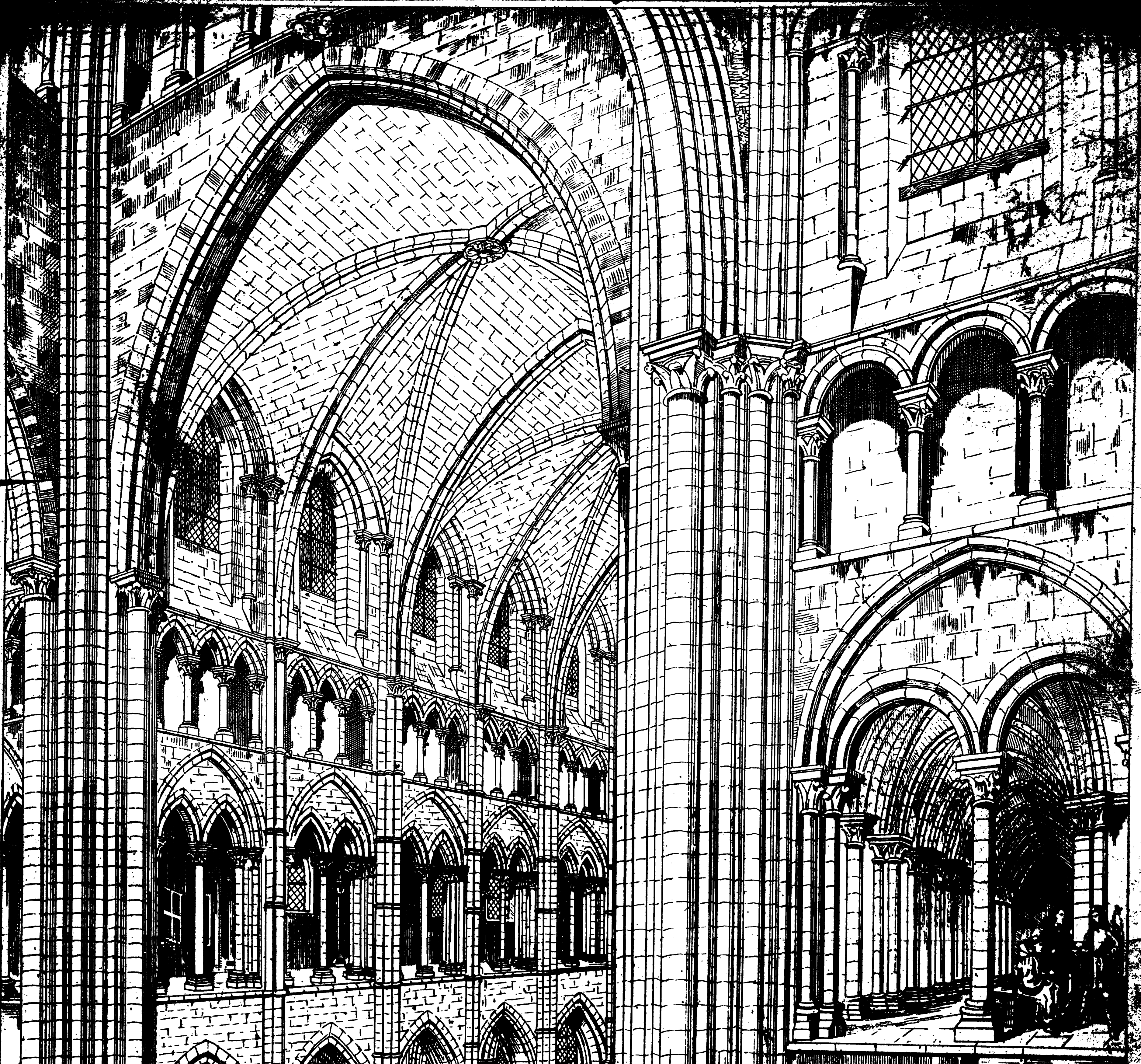
We present herewith a double page lithographic illustration of the interior of this fine continental example, after a drawing which appears in "Architectural Sketches in France and Italy," reviewed in last number, and published by the eminent firm of Messrs. Day and Son, London. The work in question embraces a variety of very beautiful subjects, and we would commend it to our readers.

THE NEW POSTAL SERVICE.

We confess we are not amongst those who bestow unqualified praise upon the Post Office arrangements in some respects, for accelerating the delivery of the mails between England and Ireland, since the new boats were placed on the Kingstown and Holyhead route on the 1st ult.; nevertheless we feel assured that they herald the approach of a system which, when details are well digested in St. Martin's-le-Grand, will prove of immensely increased advantage to the public generally. The chief features in the new arrangement are that instead of *two* deliveries—viz., the morning and mid-day—being requisite for the letters, &c., posted in London or Dublin up to 1 o'clock and 6 o'clock respectively the day preceding, a morning special delivery, due about an hour after the ordinary one, answers the double purpose and discharges both; then another special or night delivery, containing the morning papers and *late* letters, may be regarded as a *supplemental* one. The former answers admirably for all commercial purposes, either metropolitan or provincial, as the mail arrives (at least in Dublin) at a period admitting of the dispatch to the provinces by the morning mail, and the delivery on same day in Belfast, Cork, Galway, and elsewhere being effected. But except in the mere matter of the morning journals of each metropolis being delivered in the other a couple of hours before the ordinary time, we cannot see the advantages derivable by the mass of the commercial community from the *night special* delivery. The majority of our merchants and respectable traders live in the suburbs, if not altogether, at least for a third of the year, and leave their counting houses at 4 or 5 o'clock. Or even assuming that they do reside in town, they hardly like to be disturbed from their *otium cum dignitate* repose after business hours by the postman's knock from 9 to 10 p.m., or are then in the vein to answer letters for the purpose of *saving a post.* There are many instances no doubt in which "necessity has no law," and it *must* be done; but as a general rule, not so. Where, then, is the advantage to the city merchant of this night or *supplemental* delivery? If absent from his place of business, and no messenger employed to convey the letters on delivery, they remain in his box till the following morning, and those posted 15 hours before are found by him simultaneously with those posted on the evening of the day but *one* preceding. To passengers the facility afforded for reaching two points so far distant in such a short space of time, and at certain seasons in the broad daylight, is, of course, most invaluable.

AIR *VERSUS* STEAM!

In most inventions of the present day, wherein motive power forms an element, it is attained by a simplicity of action truly wonderful, when compared with the works of our fathers. The circle of progress hitherto limited is, however, rapidly expanding its diameter, and we must be reconciled if in *their* turn also *our* favourite theories should yield to the modern innovator. Foremost amongst those on which the inventive faculties of man are bent is the application of "air" to mechanical purposes, and we are so strongly predisposed in favour of its pretensions before "*steam*" in point of economy and freedom from complication, that even in *our* time we anticipate the probability of seeing the latter completely superseded thereby, and becoming a mere *thing of the past.* We had an opportunity recently of inspecting, in full operation, at the extensive premises of the patentee and manufacturer in London (a model of which may be seen at the agent's, Mr. Mooney, 26, Summer-hill, in this city), an invention of a very ingenious and meritorious character, in which air is made available to effect a variety of purposes. We allude to Peill's wind engine for driving machinery of various descriptions. For pumping it is especially invaluable, and may also be applied for the uses of the farmer in grinding, cutting chaff, &c.; and for the builder in sawing, planing, &c. Amongst its economical advantages may be enumerated the facts that it costs nothing for fuel, and that the occasional attendance of a lad will be sufficient to regulate, alter, or stop its course. Moreover, we are pleased to learn that numerous orders have been received from various parts of Ireland for its construction, and that the manufacturer is at present busily engaged in their execution. The nature of the invention is however such as to suggest a doubt of its applicability under all circumstances of the atmosphere; but though it must be conceded that when the wind does not *blow* the engine will not *act*, nevertheless in this climate it will be admitted that a *dead calm* so seldom takes place that undue stress need not be laid on the difficulty. An examination of the model will satisfy as to further particulars.



W. M. MORISON, LITH, DUBLIN.

INTERIOR VIEW.

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THE SESSION OF 1860-61.

On the 5th instant the Institute of British Architects is to hold the opening meeeting, and according to present announcement, Mr. Sidney Smirke, R.A., will read a paper entitled "Recollections of Sicily." At the Royal Academy the same gentleman is to deliver lectures on architecture on the evenings of January 24th, 31st, and February 7th. The Architectural Association held its first conversazione for the Session on the 26th ult., and as the syllabus betokens much earnestness of purpose we publish it *in extenso*:—

"Oct. 26. Conversazione and Opening Meeting.
Nov. 2. Class of Design—Verandah.
9. Consideration of the Subject of Architectural Examinations and Report thereon.
10. Class of Design—Entrance Lodge and Gates to a Mansion.
23. Consideration of the Subject of Architectural Examinations and Report thereon.
30. Class of Design—Capital to a Column Quarter Full Size.
Dec. 7. A Paper will be read by Mr. Bloomfield, M.A., on the "Arrangement of Churches."
14. Class of Design—Grand Staircase to a Mansion.
21. A Paper will be read by Mr. R. W. Billings.
28. Class of Design—Timber Truss for roof fifty feet span. N.B.—Scantlings to be stated.
Jan. 4. A Paper will be read by Mr. Arthur Allom, on "The Battle of the Styles."
11. Class of Design—Town Gateway.
18. A Paper will be read by Mr. J. A. Bunker, on "Foundations."
25. Class of Design—A Villa.
Feb. 1. A Paper will be read by Mr. R. Druce, on "An Architect's Audience."
8. Class of Design—A Conservatory.
15. A Paper will be read by Mr. G. B. New, on "Brickwork."
22. Class of Design—A Stable and Coachhouse.
March 1. A Paper will be read by Mr. Thomas Allom, on "Light and Shade."
8. Class of Design—Tympanum with Sculpture.
15. A Paper will be read by Mr. J. H. Christian, on "Masonry."
22. Class of Design—National Schools.
29. Good Friday.
April 5 Class of Design—Ornamental Hinges.
12. A Paper will be read by Mr. T. Blashill.
19. Class of Design—A Seven-light Window.
26. Conversazione.
May 3. Class of Design—Principal for Iron Roof over a Railway Station 8 feet span.
10. Special Business Meeting.
17. Class of Design—Encaustic Tiles.
24. A Paper will be read by Mr. R. O. Harris, on "Carpentry."
31. Class of Design—Interior of a Library.
June 7. Nomination of Officers.
14. Class of Design—A Porch.
21. Election of Officers.

"Prizes will be given for the best Essay on "Street Architecture and its Treatment," and for the best Series of Sketches made by the Class of Design during the Session.

"Half hours in Botany on the evenings of Ordinary Meetings, to be opened by Mr. Thomas Blashill."

The Liverpool Architectural and Archæological Society has had *two* meetings, and at the second, viz., the 17th ult., special consideration was given to the "Diploma Question" as proposed by the Institute of British Architects, but decision postponed till the next ordinary meeting.

The various archæological societies—including the London and Middlesex, which is the most important—have nearly all assembled. At home the Royal Dublin Society, Museum of Irish Industry, Institute of Civil Engineers, Kilkenny Archæological, Dublin Chemical, Ossianic, and others, have also commenced their labours, verifying, however, the Shaksperian proverb, that "the labour we delight in physics pain." Of those abroad we experience peculiar pleasure in recording the operations of the American Institute of Architects, whose members are so near akin in sympathies to those of the United Kingdom, and who since its establishment have displayed so much of that "go-a-head" temperament which is said to be a characteristic element in the Transatlantic constitution. Judging from appearances, the session promises to be a very successful and busy one.

PROPOSED NEW CHURCHES FOR MONKSTOWN PARISH, CO. DUBLIN.

By the Church Temporalities Amendment Act, passed last session, power was granted to divide this parish (hitherto extending to Stillorgan, and beyond the Golden Ball, also as far as to part of Killiney), and to create thereby two additional distinct parochial districts —namely, the parish of Kill and the parish of Tully; a perpetual curacy, with a stipend of £100 a-year, payable by the Ecclesiastical Commissioners for Ireland, to be attached to each. We understand these partitions have already been made, and the school-house near Ballycorus Mills has been licensed as a place of worship in the parish of Tully until a church be built. In the parish of Kill it is proposed to erect a church forthwith, but the site is not yet fixed upon. This, however, is merely a matter of selection, as Messrs. Bentley have offered to present an acre of their land at Foxrock for the purpose, rent free for ever; Mr. Perry has likewise offered a site on his land, near the Kill of the Grange, nearly in the *centre* of the parish. The former, however, bids fairly to become very shortly much more in the centre of the parishioners, which is after all the point of importance, and having the decided advantage of superior elevation, we presume will be adopted; besides, being convenient to the Dublin and Wicklow Railway, many persons from Dublin would help to increase the congregation in fine weather.

IMPROVEMENT OF THE STREETS.

A correspondent addresses the following observations to *Saunders' News-Letter*:—

"Permit me, through your much read paper, to express a hope that the new carriage-way now being made behind the Four Courts is not intended to be permanent. I do not know whether it is in the hands of the Corporation, the Board of Works, or the Benchers of the King's Inns, but surely whatever body has the control of it ought not to offer such an insult to public taste as to run a line of street in a very oblique direction to a handsome pile of building. It is obvious that the new range of building at the rere of the Courts ought to form one side of a fine oblong square, or the diameter of a semicircular space, with a line of street leading towards the King's Inns, from immediately opposite to the Solicitors' Buildings. This square or semicircular space might be made at once, together with the beginning of the new street, which at any future convenient time might be carried on; but if houses to range with the present new line of roadway should once be commenced, the thing would be hopeless, and a permanent eye-sore created as a constant annoyance to all who are anxious for the embellishment of the city. I may as well take this opportunity of urging the Corporation to interfere if they have the power, and to prevent any more tolerably regular streets from being disfigured as Lower Sackville-street and Westmoreland-street have been, by the fine uniformity of these streets having been marred by all sorts of fantastic and tasteless elevations plastered up. As for Kingstown, it is a hopeless mass of jumblement."

SAUNTERINGS IN THE SUBURBS.

Devoid of interest to the citizen or the antiquarian researcher as may *appear* the locality of Drumcondra (formerly a remote suburb, but now a northern wing of the Irish metropolis), it is nevertheless not wholly so; for within the circle comprehended by that title may yet be conjured up some few subjects not altogether without historic association. Foremost among those—however strange the precedence suggested may appear—is the fragment of a venerable elm, popularly known as the "big tree," from time immemorial identified with a celebrated court of justice (?) held in the immediate proximity. Few years have elapsed since a summons to the "big tree" was regarded with as much concern as an appearance before the Court of Queen's Bench—the one doubtless serving as the inevitable forerunner to the other; but it, together with other manorial and judicial establishments—viz., St. Sepulchre and Mary's-abbey—have yielded to modern innovation, and become mere matters of the past. Previous to the hurricane of 1839, this notable elm preserved its majestic proportions uncurtailed, but on that eventful occasion was cleft in twain and "nought but a wreck left behind." Moreover, the history o lthis tree is associated with the name of the ever-memorable Dean Swift, who is said to have planted it—a statement, however, we are not prepared to vouch. Passing further, we notice a structure popularly known as Kellett's schools, a bequest being granted therefor by Miss Anne Kellett in 1811, and recorded on a tablet in front until effaced by recent external alterations, but now forming the female school of St. Francis Xavier. A few years since it was burned, save the walls, the original of which are still standing. Turning at right angles to the main road we find Jones's-road, so styled after Frederick, *alias* "Buck" Jones, formerly patentee and manager of old Crow-street Theatre, and whose former mansion, known as Clonliffe, is placed somewhat midway, and celebrated for a tragical occurrence between the military, Jones's servants, and some burglars. This house has undergone many changes, and after remaining for a considerable time idle it was taken by Government for a revenue police depot; but owing to the amalgamation of that body with the constabulary, became again unoccupied, and was subsequently purchased by Archbishop Cullen for a preparatory ecclesiastical college, and is now known as Holycross College, Clonliffe. It was at one time in contemplation to continue Russell-street road across Fortick's Grove, by bridging the Tolka at Richmond; and had this been effected some twenty years ago it is probable that the northern suburbs would now supersede the southern. Drumcondra bridge crosses the Tolka—a river of old poetic associations and patriotic memories, though a late writer in an Irish periodical could "see nothing in it" but its water-carriers. Belvedere House, close by, once the residence of Sir Coghill Coghill, Bart., was also the seat of Lord Chancellor Lifford, and is a brick building of somewhat antiquated fashion. How the memories of forty years crowd upon the mind in contemplating Clonturk House, formerly the residence of the notable Dhuval! Here another Portobello Gardens were placed, various kinds of amusements provided, and, it is said, artificial spas, to impose on the credulity of hypocoudriacs and dyspeptics, manufactured by the aid of old iron and sulphur. A short distance from Clonturk gateway is the lane leading to Drumcondra burial ground, where Grose, the antiquary, Gandon, the architect, and Furlong, the poet, "sleep their sleep of peace." Some of the monuments are in a good state of preservation, and inscriptions nearly 200 years old may be deciphered. Opposite stood, about thirty years ago, a famous tavern and place of resort during Dhuval's time, and said to have been patronised by the corporation of Dublin for their public dinners, when, in what are designated "the good old times," the gastronomic art occupied no small share of corporate consideration. Evidencing the vicissitudes of fortune, we may note that the proprietor of this establishment, whose thousands were at one time almost countless, ultimately sat by his basket at the foot of the bridge, a mere mendicant.

Facing the main road is the once celebrated Cat and Cage Tavern, and a few paces on is the Post-office (where the brilliant Lady Morgan spent a portion of her girlhood), in 1820 a widows' alms house, and in 1790 the station for the royal troops to intercept the rebels in their course to the city from Swords and Santry. The Missionary College of All Hallows (illustrated in number 14 of the DUBLIN BUILDER) is also in the immediate neighbourhood, the original building of which comprises a square block erected by the Earl of Charleville in the last century, and the modern additions were built under the superintendence of Mr. M'Carthy, architect. This was also the habitation of Sir John Claudius Beresford of '98 memory, and subsequently of Sir Guy Campbell. It is conjectured that on the site of this building Saint Malaga had a church and religious establishment, called in the Annals, Laorn Beachaire, in Fingal near Dublin. Opposite the college is Drumcondra Castle, on the Goosegreen-road, a castellated structure of the era of the revolution, long in possession of Mr. Richard Williams, of Dame street, and for some time the residence of Sir Duncan M'Gregor. Adjoining the castle to the south is Grace Park, once occupied by the memorable Major Swan, the friend and associate of Major Sirr. We find ourselves on the threshold of adjoining districts which will more properly be treated in a separate article, so for the present we close.

HINTS ON VENTILATION.

No subject connected with the duties of an architect demands *more* study and careful attention, or receives *less*, than that of "*Ventilation*." The primary considerations of our modern building practitioners are, effective elevation and comprehensive internal arrangements; but the sanitary welfare of the inmates is regarded as purely secondary, if even in that degree. Under the above title, a series of papers, which originally appeared in the *Dublin Medical Press*, is now reproduced in pamphlet form by the author, Mr. John Louch, one of the oldest and most respected members of the profession in Dublin, and second to none in his devotion to the philanthropic pursuit of sanitary science, or in competency to treat the subject in question. Mr. Louch commences at the foundations of a building, and demonstrates how a want of precaution in providing against the natural exhalations of the earth, malaria, &c., ensures the existence of "damp in dwellings," and is productive of most detrimental results.

The old proverb, "that a stitch in time saves nine," is forcibly illustrated, and the author, with an eminently practical mind, first points out the causes and results, and then suggests the remedy. Let us hear what he proposes to ensure a dry house:—

"My practice for many years has been to sink the ground composing the *basement* floor of a building to at least two feet under its level, and sinking the ground for three feet around it, removing all the *earth* taken out to a distance, filling in the entire space with sharp broken stones, or clean gravel free from any loamy matter, and over this spread two or three inches of clean mortar. The footing courses of masonry of all the walls of buildings *should be built dry, free from mortar;* these precautions, with proper drainage, will effectually prevent damp in ground floors, and will make them, in a measure, as wholesome as the upper floors of dwellings. I have known floors of places of worship, although they were six feet from the earth, become rotten from the effects of the exhalations from the earth, and had to be replaced at a great cost, *the ground of which had been well sewered.* The upper parts of buildings may be made dry by proper eave and other gutters from the roofs, and the external face of the walls cemented."

Again, referring to the ventilation of sewers, he says:—

"In speaking of sewers, many schemes have been suggested as necessary to remove from them the various gases generated by the decomposition of putrid matter lodged and passing through them, and much controversy has ensued in consequence. Now, to overcome such a task as to try and ventilate *sewers*, would be as difficult as to remove the poison generated in its great abundance and intensity in marshy and swampy lands. All that can be expected to be done, is to prevent its escape into our dwellings, by proper sink-traps, &c. Be assured if you keep the poison confined within its limits it will be *innoxious*, and why impregnate the air of cities or towns with it to ventilate sewers."

The all-important subject of "Hospital" ventilation occupies much consideration in this pamphlet, and the following example is cited to illustrate the necessity of ensuring a pure atmosphere in all establishments where sick persons may be:—

"About the year 1821 or 1822, the St. Patrick's, or Swift's Hospital, in Dublin, had its corridors or wards heated on the principle of the hypocaust, and the large fireplaces done *away with.* Looking to the construction of this hospital, it will be seen it consists of a centre, with two buildings running *parallel* from its rere, containing wards or corridors—each about 320 feet long by 14 feet wide, and of sufficient height; off these corridors are the various cells and day rooms—the former are 12 feet by 8 feet 6 inches, and opposite to the cell windows are similar windows in corridors. The buildings are in height two floors above the ground floor. It was always considered *salubrious*, and in which the patients lived to an old age. Soon after the introduction of the hypocaust as a mode of ventilation and heating, the mortality amongst the patients appeared to be very great, and caused considerable anxiety to the *governors* and physicians in charge. It became necessary to remove it; as soon as this was done, the health of the patients was restored, and since that *period* the large fireplaces (three to each corridor) have been used, with iron guards to them. (I see, on looking to the plans of most of the new asylums for insane, that the open fireplace is used as the mode of heating the corridors.) Since the period first mentioned, the windows, both in corridors and cells, have been considerably enlarged, the doors constructed to do away with, as much as possible, the prison appearance, and the patients receive as much liberty as their circumstances admit of."

In speaking of barrack-rooms the author denounces as a failure the system adopted under the directions of the commission, and says:—

"I mentioned my opinion at the time, that the shafts so formed for the exit of vitiated air would 'act as down-draught shafts, and will be continually stopped.' This opinion was formed about five months ago. I can now state with confidence that for a safe mode of ventilation it has proved a complete failure. The men suffer exceedingly at night from the quantity of cold air that blows down on them, and they are obliged to stop them up."

A glance is then given at the history connected with the ventilation of the Houses of Parliament, and the pamphlet concludes with the following:—

"I have now brought under notice every matter I consider necessary on ventilation, and I have confined myself to such matters as may be carried out in all buildings as suited to our requirements, and hope that sanitary measures may become an essential part of the profession of an architect. I do not wish in the least degree to *dictate*, but an experience of many years' practice shows me that a continued study of the branches of sanitary architecture is one of the best qualifications in a member of my profession."

Altogether this is an instructive and readable little book, combining scientific theory with practical experience, and if not as formidable or comprehensive as previous works, it has the merit of presenting, in a very small compass, much to be learned by all, not even excepting established practitioners.

Among the list of subscribers for St. Andrew's new church we find Alderman Atkinson and the Rev. Mr. Bourne, vicar, for £500 each; the Bank of Ireland, £200; the Duke of Leinster, Andrews and Co., Pim, Brothers, and the Royal Bank for £100 each; besides numerous others for various lesser sums.

Notes of New Works.

A new Roman Catholic church is in progress of erection at corner of Leicester-avenue, Rathgar. The plan is oblong, 132 feet by 45 in clear, with apsidal chancel and side aisles. A granite portico will form the front, and a campanile immediately over same. The general walling will be of black stone, with granite dressings, string courses, &c. Mr. Patrick Byrne, architect; Mr. Jas. Freeman, builder. Expenditure about £4,000.

The front of the Prince of Wales' Hotel in Sackville-street is being newly decorated in cement, under the direction (we believe) of Mr. Nagle, C.E.

The front of Mr. Sexton's (clothier) new shop in Dawson-street is entirely composed of Cork red and Connemara green marbles, and was erected by Mr. A. Colles, of Millmount, Kilkenny; Mr. Caldbeck, architect. We hope to see numerous others erected of same material.

Messrs. Cherry and Shields are decorating, but with very questionable taste, the front of their establishment in Upper Sackville-street.

Austin's new warehouse in Westmoreland-street, now partially completed, will present one of the most *attractive* fronts in the city, a consideration too often attained at the sacrifice of architectural merit.

A commencement will soon be made with the works of the new Roman Catholic church to be built at Donnybrook.

Two dwelling-houses are being built near the Dalkey railway station by Mr. Cunningham, after plans by Mr. Wilkinson, architect.

A new Protestant chapel is being built at Richmond Lunatic Asylum; same architect.

Malahide bridge is partially completed; the piers are of massive stonework, and sustain a superstructure of iron. Owing to the very strong current which flows at this point, much difficulty was experienced in carrying on the works, but all seems to have been ably accomplished by the engineer, Mr. Harty. We regret, however, to find that, owing to some want of caution, one of the workmen was recently drowned there.

A new station is to be built at Foxrock by the Dublin, Wicklow, and Wexford Railway Company, according to plans by Mr. Wilkinson, architect. The directors seem to have met the desires of property holders in this growing neighbourhood with a commendable promptness.

The new Roman Catholic church of St. Baithius, at St. Johnston, Derry, is progressing to completion.

Additions are being made to Killiney Church. Mr. Symes, architect; Mr. Millard, builder.

Six houses of a very superior class, and with handsome oriels carried up two storeys in height, and filled with plate glass, are being erected by Mr. Crosthwaite at Kingstown.

The Board of Public Works are raising a portion of the wall on the eastern pier at Kingstown, so as to protect the shipping in the harbour from the force of easterly gales.

An apsidal chancel has been recently added to Ballyshannon Roman Catholic church, after plans by Mr. M'Carthy, architect. It is handsomely decorated with panels, figures, and scroll-work. The side altars are also enriched with enamel, and the splays of the windows coloured. Stained glass, from the establishment of Messrs. Barff and Co., has likewise been introduced into the windows over the side altars.

It is proposed to erect a vicarage at Killeroran, in the diocese of Elphin, county Galway, and the owner of the soil, Mr. D. H. Kelly, has given nearly five acres of land in perpetuity, as also £100 subscription, for that purpose.

A line of tramways is to be laid down in Cork, on the patentee's own responsibility.

A new church is to be built at Kilcock, Co. Kildare; Mr. M'Carthy, architect. It will be about 120 feet long by 60 feet wide.

The new Ulster Bank at Belfast has been opened for the transaction of business. Full particulars of the design have already appeared in this journal.

The proprietors of the Royal Victoria Hotel, Killarney, are about erecting on a magnificent scale and in a commanding position another hotel structure. The present building will also be partially raised, and architecturally decorated.

A new church, to be dedicated to St. Ignatius, as also extensive schools and clergyman's house, are to be built in the town of Galway, according to plans by Mr. J. J. M'Carthy, architect.

William Smith O'Brien has taken a site for a marine residence at Liscrona, on the estate of Major Armstrong M'Donnell.

A new Presbyterian church is to be erected in the town of Wicklow, according to plans by Messrs. Hay, architects, Liverpool, who designed Sandymount Church.

Repairs and alterations are being proceeded with at the church of St. Saviour, Limerick. The interior is being formed into nave and aisles; an apsidal chancel, and tower with spire are also being added. Mr. M'Carthy, architect; Mr. John Ryan, builder.

Major M'Donnell, New Hall, has given down his name for £1,000 towards the erection of a hotel in Kilkee, on the style of Gresham's commodious establishment in Kingstown. In the same town two new houses are to be built by Miss M'Manus.

An addition is about to be built to Castlecomer Convent, after plans by Mr. M'Carthy, architect.

The new male and female model schools erected by the Board of Works at Parsonstown have been completed, at a cost of nearly £2,000.

The plan of the new church of St. Mary's, Guidore, recently consecrated, is after the form of a Latin cross, consisting of nave, chancel, and transepts. The extreme length of the nave and chancel is 112 feet; transepts, 40 feet each. The walling is of local grey granite rubble work, except the chancel, which is of cut stone, and is surmounted by a cross, beautifully carved. The walls are 30 feet high, pierced by 15 windows of considerable height, of 2 lights each. The eastern, or chancel window, is 25 by 10½ feet, intended hereafter to be filled in with tracery and stained glass.

The new church now in progress of completion at Taghadoe, Co. Kildare, is a parallelogram in plan, with nave 58 feet 6 inches by 21 feet, chancel 18 feet by 15 feet; tower on spire (75 feet high) at north-west angle, and sacristy at south side of chancel. Open timber roof, single lancet lights in flanks, triple ditto in east end, and two-light ditto with circle in the head at west end. The upper part of spire is of timber, and slated. The interior is provided with open benches, stained and varnished, Caen stone altar, by Purdy and Co., of Dublin. Mr. M'Carthy, architect; Mr. Beardwood, builder.

A new house and offices are about being commenced at Avoca Avenue, Blackrock, for George Stormont, Esq. Mr. Louch, architect; Mr. Strahan, of Rathfarnham, the builder. Expenditure about £1,300.

RAILWAY MEMORANDA.

The directors of the Midland Great Western Railway (as may be seen by our advertising columns) are about at once proceeding with the construction of the Liffey branch line.

The extension of the Dublin, Wicklow, and Wexford Railway is being worked in sections at various distances between the Murrough of Wicklow and the populous town of Rathdrum. It will branch off from the present main line some distance beyond Killoughter, and little short of the town of Wicklow, bending round by the village of Rathnew, and then taking a direct line for Rathdrum. Nearly a thousand men are employed on the works. Mr. Thomas Edwards is the contractor, Mr. W. R. Lefanu, the engineer. It is quite hoped that the extension may be open as far as Rathdrum by next summer.

Mr. Hill, C.E., estimates the construction of the Clara and Portumna Railway at £5,000 per mile, exclusive of a bridge over the Shannon to cost about £10,000. The surveys are being proceeded with.

A large staff of engineers is at present engaged in preparing the surveys and plans for the projected railway between Newry and Downpatrick.

Arrangements are in progress for surveying the long projected line of railway between Roscrea, Nenagh, and Birdhill.

Messrs. Bright and Smith are the contractors for the Castlerea and Claremorris extension railway.

The Marquis of Clanricarde and others are favourable to a proposed railway from Parsonstown through the county of Tipperary to the Shannon, opposite the town of Portumna.

From 1,200 to 1,500 navvies are employed on the Cork and Youghal Railway.

The viaduct which connects the Ballymena and Portrush Railway with the Derry and Coleraine line has been finished, thereby insuring through journey by rail between Belfast and Derry.

Review.

Facts and Fallacies of the Turkish Bath System. By Dr. Haughton. London: Simpkin & Marshall. Edinburgh: John Menzies. Dublin: W. Robertson.

FOR some time past one of the most engrossing topics for public consideration has been whether or not the introduction of the Oriental bath system into these countries would be attended with salutary effects, and while some were talking and arguing vociferously against it, its votaries were practically assuming the initiative, and we find them now dispersed throughout the kingdom in various classes of buildings, from the least pretentious to the most imposing. Perhaps, therefore, a conclusive proof in their favour is, their extensive adoption and appreciation by the public, and for the opportunity thus afforded those who have derived benefit therefrom are mainly indebted to the energy of "our author," who has devoted himself to the cause with a commendable zeal. The treatise before us is of a more comprehensive character than that previously noticed in this journal, opening with a reference to the prejudices displayed by "certain leading members of the medical profession towards the employment of dry air at a high temperature for bathing purposes," the Doctor advocating that "up to the present date baths *without moisture* have been almost exclusively used as remedies." Unwilling to assume an authority on a matter of which we have had no practical experience, we must leave the question of the "dry air" and "the moisture" respectively for decision by the faculty; but as the usual principle of construction is one in which our readers are more or less interested, we quote the following plan of Count Rumford's from the pamphlet:—

"Let a small building be erected, fourteen feet five inches long, and nine feet wide measured within, and seven feet high, and let it be divided into equal rooms of nine feet long, and seven feet wide each, by a partition wall of brick, four and a-half inches wide, or equal in thickness to the width of a brick Let the outside walls of this little edifice be *double*, the two walls being each the width of a brick in thickness, and the void place between them being likewise of the same thickness, viz., about 4½ inches. In order to strengthen these *double* walls, they may be braced and supported one against the other, by uniting them in different parts by single bricks laid across, with their two ends fixed in the two walls. Instead of a floor of boards, these little rooms should be paved with 12 inch tiles or flat stones laid in such a manner on thin parallel walls (4½ inches in thickness) *as to form horizontal flues under every part of the pavement.* At the end of the rooms opposite to the door, a *bathing-tub* should be placed, and in the other a caned sofa. The boiler, which need not be made to contain more than six or eight gallons, should be well set in brickwork, and well covered over with bricks, to prevent the loss of heat which would result from any part of the boiler being exposed naked to the cold air of the atmosphere. This boiler should be fitted up by means of a ball cock, so as to feed itself regularly with water from the neighbouring reservoir. The boiler should be furnished with a safety-valve, opening into the open air, and with a tube for conveying steam into the bathing-tub. This tube, which may be a common leaden pipe, about half an inch in diameter, should be wound round with the list of coarse cloth, or with any warm covering of that sort to confine the heat. This steam tube should rise up perpendicularly from the boiler to the height of eight or ten inches above the level of the ceiling of the bath-room, and should then be bent towards the building, and made to enter the roof of it, and then to descend perpendicularly through the ceiling of the bath-room and enter the bathing-tub. Its open end should reach to within an inch of the bottom of the tub, and a little above the level of the top of the tub there should be a steam-cock, by means of which the passage of the steam through the steam-tube, and into the water in the bathing-tub, may be regulated, or prevented entirely, as occasion may require. There may be a short branch, six or eight inches long, inserted into the steam-tube just described, which branch will serve for admitting steam into the room *when it is designed to be used as a steam or vapour bath.* This short branch must, of course, be furnished with its own separate steam-cock. The smoke from the (closed) fire-place of the boiler must be made to circulate under the pavement of the two rooms of the bath, in the flues constructed for that purpose, before it is suffered to pass off into the chimney. The chimney should stand on the outside of the building, and be made to lean against, and be supported by the wall of the building. There should be a damper in this chimney. . . . If it be required to heat the two rooms in a very short time—the one with vapour and the other with dry air, equally warmed and perfectly free from all disagreeable smells, this may be done by the following simple contrivance:—Let a cylinder of very thin copper, about eight inches in diameter, and five feet in length, be placed horizontally under the sofa in the dressing-room, and let the steam-pipe from the boiler be laid into it, with another pipe for carrying off the water resulting from the condension of the steam in it. By admitting steam into this tube the air in the room will soon be warmed, without any watery vapour being mixed with it; and by admitting steam into the bath-room, and allowing it to mix with the air of that room, a vapour-bath will be formed, and in a very few minutes will be ready for use."

The able and comprehensive manner in which Dr. Haughton treats his subject entitles him to much commendation.

As an evidence of the business done by the Great Northern Railway Company of England in "coal," it is stated that the postage of the circulars announcing the transfer of the department to an independent manager cost £125, and the time of twenty-six female clerks for a fortnight to fold and address the envelopes. Total number of circulars issued *per post—thirty thousand only!* How many by delivery, deponent knoweth not.

Mr. Barlow proposes to construct an aerial railway over London, on the suspension girder principle, with spans of 1,000 feet, and maintains that it would not exceed in cost £150,000 per mile.

Miscellaneous.

The opening of the recently erected free public library at Liverpool has been celebrated with much *eclat* and a splendid banquet. Upwards of 4,000 volunteers marched in procession through the town. Lords Brougham and Stanley, Sir R. Peel, the Bishop of Chester, and Mr. William Brown, at whose expense of £40,000 the buildings were erected, were amongst the speakers. A statue of the munificent doner, and from the chisel of Mr. M'Dowell, was unveiled on the occasion. We are proud to say that Mr. Brown is "an Irishman," having being born in Ballymena in 1784, and having amassed a colossal fortune, has given this great proof of his philanthropy in disbursing it.

Some workmen at Nottingham recently turned up out of trenches for foundations of a new building a quantity of warlike, religious, and other implements, which are believed to have belonged to the inhabitants of Britain before the Roman invasion. They were purchased by an antiquarian.

The British Association for the advancement of Science will assemble in Manchester in 1861; Mr. Fairbairn is appointed president. A preliminary meeting has been held, and a guarantee fund list opened.

It is stated that the Board of Public Works is about causing a number of houses to be pulled down at Fortyfoot-road, Kingstown.

New water works are proposed for the town of Tralee.

The death of Mr. Jonathan Forster, the oldest engineer in the north of England, was announced last month. He was engineer at Wylam Colliery when experiments were made which ended in the adoption of the locomotive.

During the recent restoration of St. Peter's Church, in the Isle of Thanet, a curious piece of panel sculpture (in alabaster) of the Crucifixion was discovered.

The competition continues open till the 1st December for the prizes which "The Architectural Museum" (at South Kensington) has offered for good example of modelling, metal work, wood carving, of cartoons for painted glass, and of coloured decorations.

At the last sitting of *the Academy of Sciences*, M. Wothley, of Aix-la-Chapelle, sent in some specimens of a new process for enlarging photographs taken on collodion, either by solar or electric light. M. Wothley states that he arrives at these results by a series of manipulations, constituting almost a new art. By means of a heliostat he directs a broad pencil parallel of rays upon the negative impression. The light, in passing through, forms a wide cone of diverging rays, which casts the enlarged image on a sheet of prepared paper. The impressions thus obtained may be of almost any dimensions; M. Wothley has produced some 8 feet by 5. The exposure to the light lasts about 25 minutes. For washing and fixing the impressions he employs various dexterous manipulations, rendered necessary by the large surface to be operated upon.

One of the great water pipes conveying the water from Loch Katrine to Glasgow burst recently, inundating the village of Maryhill, destroying gardens, avenues, &c., forming rugged channels in the streets, and carrying away kerb-stones, &c., before the progress of the water was even partially stopped.

Mr. Hobbs, the famous opener of locks, having taught the British public that there is really no such thing as a lock proof against being picked by an artist, is now about to return to his native country, there to spend in easy competence the remainder of his days.

A new arrangement of screw propellers tried a short time since on the Serpentine is said to have been very successful,—the model, of only three tons burden, towing two barges laden with 90 tons of stone in shallow water at the rate of three miles an hour, with 20lb. steam pressure on the boilers.

A novel application of the electric light was made recently at Shaffhausen, on the Rhine, in the illumination by five lamps of the celebrated cataract there. The effect is said to have been wonderful, and greatly enhanced when coloured glass was employed.

A steel plated shot-proof steam vessel, 400 feet in length, is now being built at Chatham Dockyard for the Government. She is to have Armstrong guns of the heaviest metal and the longest range.

Mr. Howe, the inventor of the sewing machine, has, after much opposition, succeeded in obtaining a renewal of his patent in America.

An experiment to substitute steel for iron in boilers has failed, it being found that the expansion and contraction of the former is much greater than the latter.

A rifle bullet takes upwards of three seconds to fly 900 yards, and nearly eight seconds to fly 1,800 yards.

Mr. John Greacen, jun., of New York, is said to have invented a means for preventing the emission of smoke from the funnels of locomotives, and has arranged that the tubes of the boiler are combined with reversible funnel connections, conveying the smoke to the rear of the train, and thereby obviating much discomfort to the passengers.

The screw propeller was described and sketched by James Watt in a letter written in 1770.

The proposed great hotel at London-bridge is *not* to be built, as the directors have accepted an offer of the London and Brighton Company of £30,000 for their lease of the premises, with the choice of another site, to which access will be given, refused in the former instance.

A Good Drawing Pen.—We can speak somewhat confidently after three months' experience of a new drawing pen forwarded to us by the inventor, Mr. Stanley, mathematical instrument maker, of Great Turnstile, Holborn, London. Its chief merit consists in the strength of the under nib, which in most cases is so constructed as to yield to the slightest pressure against the square, and consequently produces a line of unequal thickness, but by the pen in question that defect is completely rendered impossible. Our attention has also been directed to a new form of T squares manufactured at this establishment, and which are considerably wider at the stock than at the extremity, ensuring a much greater steadiness of motion than those ordinarily in vogue.

New Street for Calcutta.—The opening of a new street between Jaun Bazar and Dhurumtollah, the breadth of which is to be thirty-six feet, has been sanctioned; the estimated cost of this is 20,000 rs. Also, it is proposed that the portion of Sudder-street which lies between Madge's-lane and Chowringhee-road, should be widened to 50 feet, and that a good and convenient entrance from Sudder-street to the Small Cause Court should be made; the cost of this improvement is estimated at 44,000 rs.

A Curiosity.—A subscriber in a northern town forwards us the following paragraph, copied *verbatim* from an architect's specification, and says, he never knew the *quality* and *dimensions* of workmen to be provided for in a specification before:—"All materials and *workmen*, that the inspector may consider not in accordance with the terms of the specification, in *quality* or *dimensions*, are to be removed on notice off the company's premises by the contractor, and proper materials supplied by the contractor, and also efficient workmen."

American-fashioned Steamers for Lough Erne.—We learn that the Erne Company propose placing on this lake (the "Windermere" of Ireland) steamers on the same model as those on the River St. Lawrence, combining great speed, light draught of water, good carrying qualities, with luxurious saloons, and cheap fares. On the St. Lawrence they are under 200 feet long, the locks of the canals only admitting that length; but on the Great Lakes and Hudson River they are from 350 to 500 feet, their beam usually being from one-ninth to one-eleventh of their length. On the Hudson are the fastest and finest river steamers of the world, attaining a speed of 25 to 28 miles per hour; some of their saloons are luxuriously furnished, being from 300 to 400 feet long. With the same fuel and equal cost, they can carry four times the number of passengers.

Novel Aqueduct Bridge.—The city of Washington, in the United States, has made a noble effort to supply the capital with pure water. An aqueduct bridge is one of the most important features in the engineering works. It was constructed to satisfy the double necessity of furnishing both the capital and the neighbouring city of Georgetown with water, and as a means of communication between the two places. It is constructed of iron, and crosses a rapid stream, known as Rock Creek. Its single arch measures 200 feet across, and is formed of two rows of pipes, of 50 inches internal diameter, resting on massive pillars of masonry. This is one of the boldest and most ingenious engineering undertakings of the day.

Baths.—As an addition to a house while building, nothing is so useful as a bath-room, for in these days of economy in almost everything, economy in health is becoming so well known and appreciated, that the desire for the means of health and cleanliness increase with knowledge; and all who can afford the luxury of a bath will enjoy it. Therefore, houses having this convenience, will certainly more easily let where such a convenience exists. The bath-room from time immemorial has been one of the most sumptuous luxuries of the east; and has existed in Europe for centuries, but has been confined to the few. The wonderful cures effected by the agency of water directed the attention of Mr. Bulwer Lytton to the establishment at Malvern, where he was so successfully treated, that he afterwards gave a little work to the public, expatiating on the benefits of the system in general, and the efficacy of private baths in particular. No sooner is a want established than skill is brought to bear upon it which rarely fails to produce the desiratum required. Mr. Phillips, of Skinner-street, Snow-hill, London, has manufactured a gas bath, displaying a great amount of ingenuity and skill which is worthy of every credit; neatness is combined with good workmanship and moderate prices. This bath can be heated in the short space of half an hour, an advantage of incalculable benefit in case of sickness, independent of its general use. The cost of heating this great convenience is quite nominal, 2d. It has also a linen warmer. We would recommend all builders to inspect this bath, and satisfy themselves of its great merit.—*Builder's Weekly Reporter.*

THE THEATRES.

French Plays.—During the last month the Zouaves, who founded the theatre at Inkermann, have been performing for a brief period at our Theatre Royal in some *petite* comedies. They are clever no doubt, but save for the associations connected with their theatrical career would scarcely prove attractive. Mr. Walter Montgomery, a young actor of considerable ability, but whose *forte* is tragedy decidedly, has also completed a brief engagement. Public expectation was greatly raised by the English and American press respecting Mr. J. Drew, a delineator of Irish character, now performing, and we were led to hope for a prototype of "Power." While awarding that gentleman approbation for what merit he *does* possess, we must frankly state, that he is not an Irish diamond of the first water. It may be fastidiousness, but we believe that actors *in this line* travel too far beyond the boundary of consistency, and seek to please by caricaturing rather than by genuine drollery. We live in too *progressive*, too *educational* an age to reconcile vulgar expressions, and a forced brogue, not to be equalled in the wilds of Connemara, with the position of a gentleman in society. We allude to *The Irish Ambassador*, and more *generally* than *specially*. In other characters the remark is, perhaps, not applicable to same extent, nevertheless in *all* to a *degree*. In plain truth, however, the delineation of Irish character as at present popular, is neither nationally nor individually creditable.

The Queen's Theatre.—If variety *be* charming, those who desire it have abundance to partake of in this favourite place of amusement, where comedy, tragedy, and music alternately hold their courts, and receive the approbation of an admiring multitude. The lessee, a host in himself—though his managerial occupations preclude his frequent appearance in public—invariably secures the best available talent from the London boards, and amongst those who recently appeared were Miss M. Oliver, Miss E. Jacobs, Mr. J. Clarke, and Mr. J. L. Toole, one of the most popular *comiques* of the day.

BANKRUPT BUILDERS.

Gustavus Hudson, of 47, Capel-street.

George Robinson, builder, Dalkey (was brought up for final examination on the 23rd ult. The assignees did not oppose, and admitted that the bankrupt had given a satisfactory statement. The case was ordered to stand over for a week pending the vouching of certain accounts).

Acknowledgment.—We acknowledge to have received from George Francis Train, Esq., patentee for Europe of "Street Railways," a full report in pamphlet form of the proceedings and banquet on the occasion of the opening of the *first* line at Birkenhead.

W. WARNE AND CO.

CALL the attention of Engineers and others to their PATENT MINERALIZED and VULCANIZED INDIA-RUBBER, in Sheets, and for Valves, Washers, Railway Buffers, Bearing Springs; Hose Pipes (delivery and suction), Flexible Tubings, Driving Belts, and to their improved Anglo-American FLEXIBLE CANVAS and INDIA-RUBBER PACKING, for Steam Joints and Piston Rods.

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These Mats consist of Tubes of India-Rubber, of various configurations, placed vertically in contact with each other, and are far more efficient than any other description of Mat. No ordinary wear can sensibly affect them; they thoroughly clean the feet like a brush, and the dirt removed falling through the cells formed by the tubes, is not carried by the feet on to the floors and passages, which are consequently kept perfectly clean; and by removing the Mat, the accumulated dirt is easily swept away. They are also made with backs.

The Mats never clog, require no beating, and are readily cleansed by water. Unlike all other Mats, water in no way injures them, and it neither lodges on or is absorbed by them. Indestructible by damp or wet, these Mats, made to any shape, size, or thickness, are especially suitable for uncovered passages and out-of-door purposes.

The invention is peculiarly applicable for Mats for Baths, Conservatories, Laundries, Sculleries, Ships, Steamers, Omnibusses, Carriages, and Seats, also for Churches, &c.; and for Scrubbing Brushes for Decks, and Wooden and Stone Floors, and for Housemaids' Mats.

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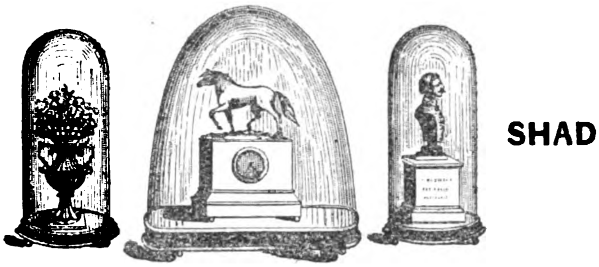

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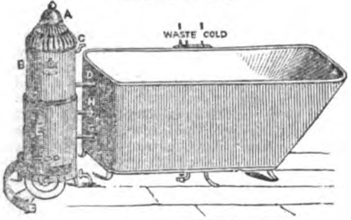

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This artistic and complete Burner is the most economical ever introduced, and is the admiration of all scientific men, on account of the various qualities it possesses.

First—It purifies the Gas by filtration, and allows no more Gas to pass through the Burner than is absolutely required to give a full, clear, and brilliant light.

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THE Lands of FOXROCK, GALLOPING GREEN, and KERRYMOUNT, are now being laid out for

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A large number of lots have been already let, some of the houses are nearly finished, and others in progress. Omnibuses will shortly ply daily between Foxrock and Kingstown for bathing, shopping, &c.

Lease for ever. Landed Estates Court title for most of the property; the rest is held direct from the Ecclesiastical Commissioners.

N.B.—Bricks, Stone, Sand and Lime on the property. Lithographed maps, showing the new roads, &c., may be had from

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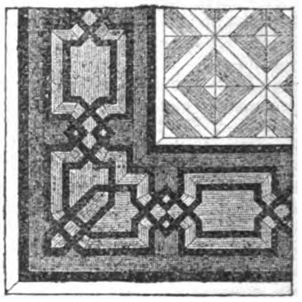

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ASPHALTIC ROOFING FELT, a light, clean, economical, and durable roofing, price 1d. per square foot. Samples and instructions may be had gratis in answer to letters from any part addressed to MAURICE BROOKS, IRONMONGERY, GLASS, & ROOM PAPER WAREHOUSE, SACKVILLE-PLACE.

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For Pumping, Grinding, Chaff Cutting, Sawing, or for Driving other Machines. This valuable invention is strongly recommended to the Nobility, Land Owners, and Farmers of Ireland. It is already extensively used in England and the Colonies; and the most satisfactory references can be given. For draining land it is invaluable; it has the following advantages over the steam engine—it costs nothing for fuel; will work safely day and night with occasional attention; it is easily and cheaply erected and kept in repair; a boy can start it, stop it, or alter its speed.

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AN ADDITIONAL WAREROOM, for the better display of a large and varied collection of Marble Chimney Pieces and Fire Grates, has been added.

MAURICE BROOKS,
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The Dublin Builder.

Vol. II.—No. 24.

OUR THIRD YEAR!

Under circumstances highly pleasing, and influenced by feelings of sincere gratitude for the patronage and encouragement extended so far to the proprietor of this journal, we—as usual on the *completion* of one volume and prior to the *commencement* of another — take occasion to address a few observations relative to the *past* and *future* of our mission. When, at the corresponding period of the year 1859, we devoted a chapter to a similar purpose, we were on the eve of an important change—one, which if unsuccessful in its result, might have proved most disastrous—we allude to the introduction of *illustrations!* but cheered by your kind and encouraging voice, which constantly whispered in our ear Richelieu's motto of "Never say fail," we entered on the additional responsibility, and now—as all people will after a difficulty has been surmounted—we regard the event with much gratification. To it mainly must also in justice be acknowledged the rapidly-acquired popularity of the journal, the important advertisement display, and a largely increased circulation throughout the kingdom. At the time alluded to we promised that this department should be conducted "in a style commensurate *with resources at command*;" and with some confidence we now ask your opinion has it been so? That a *young* journal cannot *afford* to cope with old-established professional cotemporaries in the excellence or variety of its illustrations, or command the same extensive staff of eminent artists, we freely acknowledge; however, far from adopting an apologetic tone, we submit, that if a comparison be instituted between the manner in which our task has been fulfilled in *our* infancy, and others in *theirs*, or with "*the attempts*" of Irish journals that preceded us, we may in truth stand upon *our* merits without apprehension of suffering thereby. Avoiding a critical and tedious disquisition, or without indulging more than is legitimate in the egotistical, we refer with some just pride to the manipulation of the wood engravings in Nos. 13, 14, 18, and 20 respectively; all of which, but the two last especially, elicited much volunteered commendation at both sides of the Channel, and were pronounced—although *Irish* works—to be fully equal to the highest London standard.

Desirous, therefore, to render further facility for the display of Irish talent, we have placed several new subjects in the hands of our engravers, Messrs. George A. Hanlon and William Oldham, and faithfully promise our patrons that they shall, by the excellence of their production, materially contribute to the character of the Dublin Builder as an illustrated periodical. At the suggestion of valued friends we stepped somewhat out of the beaten path in presenting *lithographic* illustrations, but were pleased to find that they met with an encouraging reception. In Nos. 16, 19, 21, 22, and 23 were included supplementary lithographed sheets illustrating various buildings particularised in the Index, for the production of which we sought the best available local assistance, and believe that the gentleman to whom we entrusted their execution, Mr. W. Morrisson, fulfilled his task most creditably.

Honesty and independence of spirit have been our guiding stars in the conduct of the editorial department, and faithful observance of the motto, "merit to him to whom merit is due!" has alik characterised our criticisms of the deeds of friends and strangers. We have sought to combine in each publication instruction, variety, and originality—how far we have succeeded in doing so creditably it remains for you to determine; and though the responsibility has mainly devolved on the proprietor, acting in the double capacity of *financier* and *litterateur*, we must nevertheless, with all due respect, acknowledge the occasional assistance of a couple of valued contributors. It is our determination to adopt a similar course as long as we may be permitted to guide the helm; and should our effort to *maintain* the unanimous approving sentiments — substantially evidenced as having been so far *obtained*—prove successful, we shall be afforded additional subject for congratulation; and should even those strictures which, in the performance of a public duty, we are occasionally compelled to impose, raise up a *minority* of foes, we shall confidently fall back on the overwhelming *majority* of our friends, and console ourselves with the conviction so significantly expressed in the familiar quotation, *Mens sibi conscia recti.*

We are now on the eve of increased responsibility—viz, *fortnightly* publication; but "growing with our growth, and strengthening with our strength," we as cheerfully encounter it, as we have done others previously, especially as the public voice desires it, and that we are assured the same kind and generous spirit which has *hitherto* maintained us in a less important undertaking will steer us clearly through the difficulties of *this*. Unthinking minds may have chided us silently for our slowness—for not rushing recklessly into overwhelming expense; to rejoice for a while in congratulations for our "enterprise," and then consign ourselves to contemptible oblivion. But we have adopted, as results prove, the more prudent course,—we preferred to creep before we essayed to walk; we have invited friends to extend a helping hand to guide us through our childhood, and even *now*, though casting off the swathes of infancy, we cannot afford to dispense with our generous guardian—*the Public.* Still we most anxiously look for a continuance of—nay, for *extended*—patronage, and on our part no effort shall be wanting to render the journal in every respect a credit to this country, as with every sincerity we acknowledge that the English professional organs are to theirs. Various causes, amongst others the following, which we may briefly enumerate, prompt us to this step: first, because the majority of our subscribers being professionals, or otherwise connected with scientific and artistic matters, anxiously seek in a class periodical for the *earliest* intelligence of news, and reports of proceedings of institutes identified with their pursuits; and secondly, that to establish an exclusive organ, equal facilities should be afforded in the advertisement as in the editorial department in the matter of *engineering* and *building* contracts especially. To each of these most important considerations a *monthly* journal offers impediments; in the former, by publications of more frequent issue obtaining by a lengthened period precedence in recording "news," which afterwards becomes stale and second-hand; and in the latter, owing to the awkwardness of date, preventing the advertisement pages being adopted as extensively as they would be otherwise. To our minds even a *fortnightly* issue is not sufficient, and when we find ourselves justified in taking the additional step of publishing it *weekly* we shall not fail to adopt it. In conclusion, we must offer one word more of acknowledgment for *past* favours, and reiterate our hope that the continued patronage of friends and the public will ensure for us a prosperous *future.*

NEW CATHOLIC CHURCH, SAINT JOHNSTON, COUNTY DONEGAL.

This structure, which was commenced on the 4th of April, 1857, is now nearly completed, and will be consecrated on the 9th inst. The site is in front of the railway, as it passes from Derry to Strabane and Enniskillen, reposing quietly on the banks of the gently gliding river—

> "Where, in delightful streams,
> The Foyle, the darling of the ocean, flows."

And where, at each returning tide, this noble and majestic river, at its widest expanse

> "Hastens back so merry,
> To join the briny sea at Derry."

The church is built in the mediæval style; all its windows have *scoisson* arches. The plan is in the form of a Latin cross, and comprises in its arrangements, nave, transepts, chancel, porch, and sacristy, with a bell gable over the chancel arch. In the bell tower there is provision for two bells, which will be made of cast steel—the one to summon the congregation, and the other the *sanctus bell.* The entire length of the church is 109 feet 5 inches, and its greatest breadth 56 feet 5 inches, and from the ground floor to the apex of the roof, 50 feet. The character of the exterior is simple, and altogether free from unnecessary ornamentation. Its principal light is obtained from traceried windows in four gables or extremities of the cross. In the interior the chancel arch forms an important feature, the central part of which rises from pillared corbels of marble, with sculptured heads of the Apostles SS. Peter and Paul. The arches leading to the side chapels, which are placed in the north and south transepts, have plain soffits, relieved with polychromy. From the chancel arch six steps of polished stone lead up to the high altar, which has all the requisite arrangements of sedilia, piscina, credence shelf, aumbry, reredos, &c. The high altar is built of Caen stone, and rests against a reredos of the same beautiful material, from the *atelier* of Messrs. Barff and Co., Dublin The panels of altar and reredos are enriched with mosaic and enamel work, containing suitable monograms and ecclesiastical emblems. The reredos is divided into seven compartments, the central one rising higher than the others, and forming a canopy over the tabernacle, terminating in a cross. The bosses are carved into beautiful pieces of fruit, foliage, and flowers, on either side of the altar, supported on corbels, are elegantly executed carved figures, in Caen stone, of the Blessed Virgin Mary and St. Joseph. The roof of the church is open timber work, planed and rabetted with Gothic principals in the chancel, having their spandrils pierced with trefoil, and supported on struts resting on stone corbels, containing memorials of the Passion. The chancel roof is after being stained and varnished, in imitation of oak. The walls of same have been grounded with two coats of oil paint, to prepare them for future ornamentation. The chancel floor is laid with Minton's encaustic tiles, of various colours. A large space at the west door, and in front of the chancel, and all the passages in the nave and transepts, are filled in with Staffordshire red, blue, and buff quarries, the tiles next the chancel being of an octagonal form. The benches are stained and varnished. All the windows are filled in with tinted cathedral and stained glass, in lead sashes. The west window consists of four lights or bays, and is executed in tinted glass, with coloured borders. In the large circle of the tracery is the representation of an angel bearing a shield, with the holy name; in the smaller circles are monograms of St. Patrick and St. Columbkill, whilst in the upper circle is appropriately introduced the tiara and keys of the Sovereign Pontiff. The south transept window is of three lights, in the centre one of which is a full-length figure of St. Baithin, the patron of the church. He is dressed in the costume of a mitred abbot, having been second abbot of the monastery of Iona in Scotland, and the immediate successor and relative of St. Columbkille. In the other lights and tracery are sacred emblems and monograms. The north transept contains a beautiful design. In the centre light is a figure of St. Peter taken in a storm at sea, with the waves beating furiously against the sides of the ship, full of peril and danger, when a star suddenly appears, throwing its rays upon him and alongside the anchor, the emblem of hope. The saint is represented stretching forth his arms with joy on seeing it, and beneath the motto, "*Ave Maris Stella.*" From the top-mast is seen floating in the breeze the pennant, with these words, "*Regnum Dei et justitia ejus*"—"Seek first the kingdom of God and his justice." On either side is the lily, the emblem of purity, and the *Cœur de Marie*, and in the tracery are monograms and emblems connected with the life of the Virgin. The east window contains three lights, and is filled in with tinted glass of a geometric pattern, with ornamental coloured borders. In the tracery are introduced emblems of the Blessed Sacrament, the cusps being filled in with trefoil. The lancet windows in the chancel contain representations of winged cherubs. The stained glass has been all supplied by Messrs. Barff & Co., of Potter's-alley, Dublin, church decorators. A side altar has been erected in the east end of the north transept, richly ornamented in colour and gold. The centre panel contains a *Pieta* in *alto relievo*, with adoring angels on either side. The reredos is all of enamelled work, in blue and gold, with a very appropriate and beautiful design. This altar has been also supplied by the Messrs. Barff & Co. There is some carving on the spandrils and corbels of the west window, executed by Mr. Doherty, of Derry, a native artist. The entire masonry and tiling of this church was executed by Mr. Samuel M'Elwee, builder. Mr. E. W. Godwin, architect. There has been expended on its erection, up to the present time, upwards of £2,000, and £400 more are required.

Florence has decreed a statue to Dante. It is to be executed by Enrico Pazzi of Ravenna, and must be completed before the end of 1865.

A letter from Turin says—"Florence is making preparations for a grand exhibition, which is to take place next summer, and which is to bear the name of the 'Italian Exhibition.' The principal towns will co-operate by sums of money. The city of Florence gives 100,000 fr.; the Provincial Council of Florence, 30,000 fr.; Milan, 20,000 fr.; Leghorn, 10,000 fr.; and Pisa, 7,000 fr."

It is intended to apply next session to alter and enlarge the provisions of the act passed in the 58rd year of the reign of King George III., relating to Fitzwilliam-square.

LAW REPORTS.

Amongst the cases entered for hearing at sitting after the present Michaelmas Term we find the following, relating to disputes connected with our province:—John Farrell, builder, *v.* James Bolger; work and labour: Edward Henry Carson, architect, *v.* James Tyrrell; work and labour.

O'Reilly v. *Brennan.*—The arguments in this case, a new trial motion, have concluded. The action was brought by a builder to recover compensation for work done for the defendant at Bray. Mr. R. Armstrong, Q.C., was heard on behalf of the defendant in showing-cause against the conditional order. Judgment reserved.

BANKRUPTCY AND INSOLVENCY COURT.

In re J. F. Carson, a Bankrupt.—The bankrupt had been engaged in the timber trade in this city. The matter recently came before the court on application to re-open the final examination, which the late Judge M'Cann refused to pass, and the bankrupt was now four years out of business. Judge Berwick said that in looking over the schedule it appeared to him that the failure of the bankrupt was brought about by circumstances that might occur to any trader. He would not now, after the lapse of four years, refuse the final examination.

BANKRUPT.

John Kelly, of Ballymahon, Co Longford, builder and contracter.

INSOLVENT.

William Lynch, of Queenstown, carpenter.

ARCHITECTURAL MUSINGS.*

THE ORIGIN OF THE ORDERS.

Of erst, where orient summer warms,
  The gods with mortals blending,
Engendered grand and graceful forms,
  Supreme and never ending;
Poets climbed Parnassus high,
  And heroes cross'd the borders,
While angel artists cleft the sky,
  And shower'd down "the Orders."

A giant race in Dorus then,
  Of mind and mettle massive,
Fought like Titans, felt like men,
  Yet calm withal and passive.
The first descending shaft they clutch'd,
  They raised a stern recorder—
A work of art, of time untouch'd,
  The Herculean Order.

Anon, in dear Ionia, art
  With purer incense breathed,
And yearning for a nobler part,
  A glorious scroll she wreathed;
Robed with grace, from earth upborne,
  The world did accord her
That regal head-dress she has worn,
  The queenly Matron Order.

Then Corinth's inspiration shone,
  A quickening impulse giving;
Sculptors carved her *dead* in stone,
  And lithographed her *living*.
Conceptions, serial and sublime,
  With flowers were culled to border,
The *chef-dœuvre* of all time,
  The chaste Virginal Order.

Heirs of Greek and Roman sires,
  Brother artists, scan the story,
How the Goth has raised his spires
  From the *debris* of your glory.
Back to your Pagan prototype,
  And let our art awarders
Adjudge aright, and then outwipe
  The *fungi* on the Orders.

C. C. H——Y.

WOODLAWN LIGHTED WITH GAS.—The above splendid residence of the Right Hon. Lord Ashtown—the extensive buildings connected with which have recently been completed—has been lighted with gas. Messrs. Edmundson and Co., of this city, were employed to carry it into effect by means of their patent Gas Apparatus. The same firm have recently completed at Moore Abbey large additions to the gas works which they had previously erected for the most noble the Marquis of Drogheda.

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* We desire to note that the compositions under this title are by a *working carpenter*, whose *animus* being evidently rightly directed, we insert them from motives of *encouragement*, and not as contributions of high poetic merit. (ED.)

RESUMÉ OF PROGRESS.

IN the fulfilment of our mission, it has been our constant care to present the readers of this journal with a periodical record of the various improvements—or constructive works, whether improvements or *not*—which have been in progress, not only in the metropolis, but throughout Ireland; it, therefore, appears suitable that we should—prior to the commencement of our *third* annual volume—glance over the pages of the second, which this number completes, and refresh the memory of our readers with a brief compendium.

Referring to the intelligence presented from the provinces, we must, as a preliminary, *again* make special mention of the courtesy of the several Irish companies—the Midland Great Western, the Great Southern and Western, and the City of Dublin Steam Packet; as also of the London and North-western, commanding the main artery from this metropolis to the world's emporium of science, art, and commerce—who, with a kindness not only to be appreciated by ourselves as an individual compliment, but by the public, which thereby acquires what might have been otherwise unobtainable, placed their respective lines at our service.

Keeping within the extended circle which the above title comprehends, we may note, that in the early portion of the current year we devoted considerable space to the special consideration of the all-important and all-engrossing topic, "THE WATER SUPPLY," as also in subsequent numbers to a detailed record of the various lengthened corporate discussions thereon, the evidence adduced before, and the able and conclusive report of, the Royal Commissioner, Mr. Hawkshaw, C.E. So far the questions of *quantity*, *quality*, and *feasibility* have been set at rest by the selection of the Vartry project, and it now remains for the citizens to contribute liberally towards the heavy outlay to be incurred in procuring a wholesome and abundant supply. Somewhat akin to this, "the drinking fountain movement"—which almost amounted to a universal *furore*—was extended to our metropolis and some of the provincial towns, effecting the philanthropic purpose in a degree, but unhappily not combined with that amount of artistic application for which great facility is afforded in such subjects. Desirous, however, that the fault of the public here should not lie in want of *good* example, we at some difficulty procured and presented various illustrations of such structures, executed with approval elsewhere. The mania has now partially subsided, and let us hope that architects will be thereby afforded more *leisure* for judgment in their designs, and that appropriate and artistic adaptations may be plentifully substituted for the present varieties of "mural slabs," partaking very largely of "churchyard fashions."

In the department of ecclesiastical work our chronicle has decidedly preponderated, and it is highly gratifying to observe that a complete revolution in taste and skilful arrangement of structures for the worship of the Most High, by all persuasions, is palpable throughout. Excepting in some remote districts, where probably professional services were, owing to limited funds, rather difficult of attainment, the barn type of church structures is being rapidly displaced by those of more orthodoxical fashion; but even there, may be found occasional recent tracings from the architect's hand, *par example* in a wild and somewhat difficult of access neighbourhood, situated in the Co. Mayo at Ballaghadereen and Charlestown, whither, *en route* to Ballina, Castlebar, &c., our steps were directed in July last. Of this class, perhaps one of the most—if not *the* most—important subjects for consideration is the restorative work now in progress at our venerable St. Patrick's Cathedral, suggested and matured through the munificence of a wealthy and philanthropic citizen, Mr. Guinness. Professionals naturally regard, and justly so, with interest any interference with a time-hallowed structure like this, especially if not directed by competent supervision; and communications—which we felt in justice bound to insert—were addressed to this journal, remonstrating on the misguided course pursued by the donor in not employing, *ab initio*, a qualified architect; nevertheless, though exception is taken to the guiding principle, due honour is cheerfully awarded from all quarters for praiseworthy spirit and intentions. We have already expressed *our* opinion explicitly on this abstract question, and we need not, therefore, dwell on it at present; but we presume, that as that gentleman has so much identified himself with the structure alluded to, he is equally prepared to become the recipient of *responsibility* for the result, as *merit* for the intention.

Still referring to this peculiar branch, we may remind the readers of this journal that our *chief* illustrations have comprehended some very noteworthy subjects, amongst which we may enumerate the wood engravings of Limerick Roman Catholic Cathedral (No. 13), Cookstown Parochial ditto (No. 19), SS. Peter and Paul's ditto, Cork (No. 20), together with lithographic views of the new Molyneux Church and Asylum (No 16), of the approved designs for St. Andrew's Parochial Church (No. 21), of Holycross Church, Tramore (No. 22), Laon Cathedral (No. 23), and others.

The aspect of our streets is certainly such as we must offer congratulations upon, whether in the improving architectural exteriors or our shop fronts, the widening of pathways, the removal of dilapidated structures and the substitution of a better, more tasteful, and more permanent class, the pavement and sewerage operations, and moreover the greater regard for sanitary considerations manifest throughout. Occasionally personally judging by contrast with other towns, not only in Ireland but throughout the kingdom, we have no hesitation in saying that Dublin is progressing in a ratio much greater than is generally imagined. Look to our public or our private streets, and compare not only the number of tenantless dwellings of 1860 with those of 1850, but see the enormously increasing value of property at every side—the south side especially; business houses in our *now* leading thoroughfares bringing large fines and heavy rents, which not very long ago were available for a comparative trifle, for an alleged reason of decline in the locality; antiquated and stunted façades paling before "ye moderne architects," and *municipal* progress almost immeasurable must be admitted. For one district the most comprehensive municipal improvements were confined to the neighbourhood of the Four Courts, where old and dilapidated structures, narrow lanes, &c., have been displaced to make room for a suitable addition to that building, and for the extension of Church-street, thereby ensuring a direct and spacious thoroughfare from our line of quays to the Broadstone (M.G.W.) terminus.

That the all-important desideratum of fitting and commodious *markets* will follow in the wake of progress we doubt not, but as the question is discussed more fully elsewhere, we abstain from dwelling on it in this chapter. With the exception of the National Gallery, the Kildare-street new Club-house, Harcourt-street Terminus, the Commercial Hall, St. Saviour's and St. James' Churches, it has not been permitted us to chronicle any other public work, excepting those already mentioned in this notice. Referring to railway extension, we believe it not improbable that at no very distant period the rapidly increasing traffic of the Dublin and Wicklow Company will necessitate important works at their Westland-row Terminus; and we may also note with pleasure that the long contemplated Liffey branch line is in actual course of construction, the contract having been recently disposed of to Messrs. Moore, brothers. What may follow from the completion of this we will not now state, though "*in our mind's eye*" we see a comprehensive scheme "looming in the distance." The practical application of horse tramways to our streets and thoroughfares will soon form an important item for consideration. It is said that a new bridge *will* be built at the Customhouse, that Carlisle-bridge *will* be either widened or rebuilt more spaciously, that the North Wall-quay *will* be extended, and another new graving dock built, but as these matters are still in "the womb of futurity" we must only await their advent with patience.

Wending our way hence to the suburbs, a new field for our notice—too extended, however, for this sketch—opens before us. Our record has embraced, at least to a considerable extent, particulars of chief items in the neighbourhoods of Rathmines, Rathgar—now virtually a wing of the city—of Kingstown, Dalkey, and Bray—all spreading with wonderful rapidity. Again at the north side, Clontarf, slower by a thousand degrees than the preceding, *yet* improving.

A passing word to the provincial towns, and we have done. We visited Belfast, Cork, Galway; in "progress" the former bears away the palm—her architectural appearance in structures either of public or a commercial class proclaim that her professors may fairly compete, when opportunity is afforded, with their *confreres* in any other town in the kingdom. The Ulster Bank—though not the work of a local practitioner—is nevertheless the most important recent acquisition to the town; moreover, sanitary measures receive special attention, though yet far from perfect. Cork is *slow*—very *slow*, considering the characteristic acumen of her people, and the world-famed ability of her art professors. *Two* public works—viz., the rebuilding of St. Patrick's-bridge and the new church of SS. Peter and Paul, with a couple of less important character, may be said to comprise the extent of her architectural undertakings. Slop and filth are prevalent, and her council should look to it, if they value health and longevity. Of Galway we should prefer to regard her probable *future* than her *present* reality, and therefore, with the intention of specially resuming a record of her progress when opportunity is afforded, we close.

This time twelvemonths we again purpose, God willing, to renew our periodical *resumé*, and if permitted to do so under equally gratifying circumstances, it will afford additional proof of the *value* of our mission.

THE HISTORY OF ARCHITECTURE.

(Read at Liverpool Architectural Society.)

The paper for the evening was "An historical and critical review of the various styles of architecture that have been practised in the world from the dawn of art to the beginning of the present century," illustrated by a coloured chart of the history of architecture; by Mr. Samuel Huggins.

He commenced by saying, that though the secretary's circular promised an independent paper illustrated by the chart, he had thought it best to reverse their relationship, and make the paper an illustration of the chart, which latter represented the origin and various successive transformations of the architecture of the Greeks, involving the rise, chronological sequence, relationship, &c., of the principal styles that have been practised from the dawn of art to the present time. It was embellished by various chronological tables: one, of the greatest ruling powers; another, of the principal architects; a third, of the great typical edifices in each style; and a fourth, of great events having an influence on architecture, which latter he had found so numerous as to show that, if the history of architecture was not identical with the history of the world, it was at least an appendage to human history, and organically developed out of it.

He began with the Egyptian style, the origin of which was lost in the night of time beyond the ken of historic record. To it belonged the oldest buildings on the face of the earth, irrespective of the Pyramids, which, though sublime objects, could scarcely be considered as architecture at all. Unlike the subsequent styles, which invariably manifested progress for a certain portion of their career, the course of Egyptian was one of decline, the oldest buildings being the greatest and purest in style. The Temple of Karnak was the oldest of temples, and perhaps the sublimest building ever reared by human hands. The Egyptian and Assyrian were the Adam and Eve of the architectural styles of the world. The Egyptian gave to the Greek some of its most beautiful elements and sublime characteristics, and shadowed forth the Doric order, while the Assyrian suggested the Ionic.

After describing the Assyrian style, which was chiefly illustrated by palaces, the remains of which had been, within the last few years dug out of the earth, he went on to the Persian, a style almost identical with the Assyrian, and which continued to flourish at Passargadæ and Persepolis till the fall of the Achæmenian dynasty and conquest of Persia by Alexander the Great.

The style of the early inhabitants of Greece was the Pelasgic, which, under the Dorians was there mingled with Egyptian and Assyrian elements till it grew into the Hellenic, or true Greek, the first appearance of which was at Corinth, under the Cyselides, in a form almost as massive as that practised in the valley of the Nile. This originated the archaic age of Greek art, which was followed by the more perfect age of Pericles. Of the style, as it existed at this time, he would only say, that every increase of knowledge went to confirm the belief that it was the most pure, noble, and perfect architecture that ever existed—an architecture in which the most intellect and refinement of feeling was embodied, and that involved the subtlest graces and excellencies ever expressed in stone. The noblest example of the style—the Parthenon embodied more intellectual beauty and æsthetic perfection of form and detail within the same compass than any other building in the world.

The period at which such architecture was produced, both classicist and mediævalist must allow to be the most illustrious epoch to which we could point in the history of architecture. As might be expected, it was otherwise illustrated; and the genius of architecture did not reach to so distinguished an eminence unaccompanied by her sister arts; not only by sculpture and painting, which were then in their zenith, but by poetry and "Divine philosophy." The Homeric period of the Grecian epic was long past, at the time in question, but it followed close upon that of Pindar and the Greek lyric muse; and it was contemporary with the glorious dramatic era of Æschylus, Sophocles, Euripides, and Aristophanes; rendered still more illustrious by the pure doctrines and bright example of the greatest philosopher of antiquity, who was then living in Athens—Socrates; while it heralded the philosophic age of Plato and Aristotle, and the no less brilliant era of Demosthenes and Isocrates.

The two styles, Greek and Etruscan, flowed together to form the Roman, into the defence of which, against recent depreciation, he warmly entered. The Roman style in the time of Augustus, its great period, was practised from the shores of the Atlantic to the Black Sea and Persian Gulph, and all round the Mediterranean, save Egypt. With the exception of the Egyptian, it was the only style of the civilised world; and, notwithstanding all that had been urged against it, he thought it was not unworthy of its great extent of practice. St. Paul's Cathedral, London, was Roman architecture as the Romans used it; and neither the Greek nor the Etruscan alone could have embodied such a composition, and no Romanesque, in which the two styles were fused into one, in the manner it was said the Romans should have united the styles, could have attained to half its grandeur.

After describing the style of the middle Persian Empire, which had an important bearing on subsequent styles, he entered on a description of the Christian career of architecture. Under the influence of Christianity, its hatred of all associations of Paganism, and its new requirements, the Christian Romanesque was generated, which style was no sooner formed than the Byzantine commenced its separation from it. The Byzantine style, as Hope says, originated in a wish on the part of the architects of Constantinople, after its separation from the Western Empire, of giving to the architecture of Christianity a form wholly different from that of Paganism. The Byzantine was the style of all nations of the Greek Church, or that remained of Christian in the East, and did not embrace the faith of Mahommet. After giving a full description of the style which, in course of time, became divided into several distinct branches, European Byzantine, Western Asiatic Byzantine, Armenian Byzantine, and Georgian, the latter coming down to near the present time, he went to the Saracenic group of styles, which were developed out of the Byzantine—viz., the Persian, the Syrian, the Egyptian, the Spanish or Moorish, and the Indian and Turkish; of which styles he gave an interesting description, characterising them as the most elegant and refined styles that have been anywhere practised, that had a great influence through the medium of the Crusaders on the decorative development of the Gothic. It was devoutly to be hoped, for the sake of the general interest of architecture in the world, that the increased intercourse with Europe would not further interfere with the practice of these styles, and prove an extinguisher of so much that was beautiful and poetic. Returning to the main stem of the history, he entered on the subject of the Gothic styles. From rude attempts of the various tribes of barbarians, who overthrew the Roman Empire, to imitate the edifices of ancient Rome in the erection of Christian churches, an entirely new system was originated, called Gothic, which for a while was all one nebulous chaotic mass. But in process of time it consolidated, branched out, and spread with the faith which called it into existence, into the different countries of Europe, where it exhibited local varieties according to the character and energies of the different races who adopted it. As the vernacular languages of modern Europe pushed themselves through the Latin as the exponents in each particular country of the popular thought, so in like manner the Gothic styles of architecture made their exit from the Roman. Of these Gothic styles, the Lombard was the first that became formed into an independent style, the German was the next, which was the finest of the round Gothic styles, and the one most worthy to stand as the representative and typical style of the class. He described the career of Gothic in France, England, Spain, Belgium, Scotland, and Ireland, and traced them through all their different periods to the time when their course was arrested by the Reformation and revival of classical art and other causes. He meant no disparagement to the Gothic system when he expressed his belief that it never could have come to us but through the artistic darkness and barbarism of the middle ages—for none but men who knew nothing of classic canons of art, and on whom Greek and Roman tradition had no authority, could have made so bold a departure from the architectural style which at the time was all but universal as the Lombards and other Gothic tribes made in the sixth and following centuries. Reverence for their great predecessors would never have suffered Roman artists to take sufficient liberties with the proportions of the Greek ordinance for the creation of a style so different in spirit and principle of composition as the Gothic. We were indebted to an outburst of barbarism in the fifth century, which destroyed the civilization of the ancient world, and plunged

Europe for ages into mental gloom, for the greatest system of architecture that had arisen since the Greek; and to the rise of a false prophet in the seventh, propagating his doctrines by the sword, and carrying desolation over the fairest countries of the globe, for another, which, if not so great, was still more elegant and refined. He went into a critical examination of various minor styles—Romanesque and mixed styles, such as the Sicilian, Italian, Gothic, Moresco, Neapolitan, and others; and then entered into an account of the revival of ancient architecture, the first dawn of which was in the 13th century, and traced the course of the modern Italian stream of art through the great period of the *cinque cento* to the present time. In conclusion, he said he should not have given so much attention to the subject but for the conviction that a knowledge of the development and history of styles was greatly assisting, if not absolutely necessary, to a right understanding of the principles of architecture.

The chairman having conveyed the cordial thanks of the committee to Mr. Huggins for his very interesting paper, Mr. Hay suggested that it should be published along with the chart, and expressed his opinion that together they would be the most important contribution to archirectural literature that had ever been made (applause).

Mr. Audsley said the paper Mr. Huggins had just read would be a hand-book for every architect in England.

The Chairman announced that the paper for the next meeting was by Mr. G. A. Audsley, on "Illumination and its Application to Modern Art."—The meeting then separated.

THE BATEMAN BANQUET, GLASGOW.[*]

THE Corporation, magistrates, and water commissioners of Glasgow entertained at a magnificent banquet in the Corporation Galleries Mr. Bateman, C.E, the engineer in chief over the Loch Katrine Water Works, as a token of their appreciation of his ability in carrying to successful completion his important task.

The Lord Provost, who occupied the chair, remarked that "the earliest works in which Mr. Bateman was engaged were in Ireland, and afterwards in England in the introduction of water into Blackburn, Kendal, St. Helens, Halifax, Wolverhampton, Stockport, Macclesfield, and other places, as well as Manchester. That in 1856 he undertook the charge of the Glasgow Water Works, surpassing not only all those named, but all similar works in the kingdom for grandeur and magnificence."

Mr. Bateman acknowledged the compliment at considerable length, and in the course of his statement he alluded to James Watt, and asked "what dead or living man can compete with him as a universal benefactor? The discovery, or rather the practical application of the steam engine, justly due to him, has done more for the civilisation of the world, for the interests of humanity, for the propagation of Christianity, and the maintenance of peace, than any other discovery that has ever been made; and though no man may claim so high a pedestal in the temple of fame, others of your sons, as Henry Bell, John Rennie, and Thomas Telford, have contributed in no small degree to the progress and prosperity of the age in which they have lived." And again referring to William Fairbairn—"a man he is proud to call father-in-law"—he pronounced him to be "unequalled in the present day for the originality of his genius, and for his contributions to mechanical science—distinguished in public for the extent and profundity of his researches, and in private for the excellence and amiability of his character." He then briefly sketched the history of the great project just brought to an issue, and detailed how in December, 1852, he "had the honour of being called in to advise with the Corporation" the various preliminary enquiries of the projects then under consideration, and his conclusion that Loch Katrine was "the best source of supply," but his disclaiming being the "originator of the idea." Describing the impediments that had to be surmounted, and the nature of the works, he said that "the country consists of successive ridges of the most obdurate rock, separated by deep valleys, in which it was very difficult, in the first instance, to find a way. No roads—no houses—no building materials, which would ordinarily be considered essential to the successful completion of a great engineering work for the conveyance of water—but it was a question of the geological character of the material which at once determined me to adopt that particular mode of construction which has been so successfully carried out. For the first 10 miles the rock consisted of mica, schist, and clay slate, close retentive material, into which no water penetrates, and in which, consequently, few springs of water are to be found. This rock, when quarried, was unfit for building purposes—there was no stone of a suitable description to be had at any reasonable cost or distance—no lime for mortar—no clay for puddle—and no roads to convey materials. Ordinary surface construction was, therefore, out of the question; but I saw that if tunnelling were boldly resorted to, there would be no difficulty beyond the cost and time required in blasting the rocks, in making a perfectly water-tight and all-enduring aqueduct—there would be no water to hamper and delay us in the shafts and tunnels, and little would require transporting through the country but gunpowder and drill iron. The aqueduct may be considered as almost one continuous tunnel. As long as the work continued in the primary geological measures we had no water, and even after it entered the old red sandstone, and where it subsequently passed through trap rock, there was much less than I expected, so that our progress at no part of the work was ever materially interfered with by those incidents which usually render mining operations costly and uncertain. The length of direct tunnelling on the Blairhulacan contract is about 4½ miles, the remaining length consisting of open cutting, afterwards arched and covered in, and aqueducts. The cost of materials used in blasting the rocks amounted to £13,934 11s. 8d., or about £2,000 per mile; and though the other contracts, on an average, were not as expensive, they, on the whole, amounted to about £30,000 for such materials. At the picturesque village of Sebastopol, as the miners call it, at the head of Loch Chon, several hundreds of the workpeople were accommodated. Provision stores, reading-rooms, a schoolhouse and church, and a resident medical man and schoolmaster were also provided for them. Happily, the deaths from accident, notwithstanding the dangerous character of the works, did not amount to half a dozen. All the works have been completed in less than four years from the commencement; and the rapidity of their execution, the success which has attended them, and the accuracy of their construction, are mainly due to the admirable manner in which my assistants and the contractors have jointly discharged their duty. To the resident engineers, and my principal assistants, I owe my special thanks, and not less to the men immediately under the inspectors of the works." Alluding to the extra cost of the works, the speaker reminded the company that the estimated expense for supplying *twenty* million gallons per diem was £540,000! but that the actual cost—viz., £700,000—produced *thirty* millions at least, and when slight alterations are made in some of the mills *sixty* millions will be obtainable. This is believed to be owing to the smooth glassy surface given by an internal coating of coal pitch. After referring to the saving effected by the purity and softness of the water in domestic articles, such as tea, coffee, soap, &c, Mr. Bateman concluded his most comprehensive and instructive speech in the following terms:—"I assure you I shall carry away agreeable associations—much that it would be pleasant to look back upon, and many friendships which I hope to retain. I leave you a work which I believe will, with very slight alteration, remain perfect for ages, which for the greater part of it is indestructible as the hills through which it has been carried—a truly Roman work; not executed, like the colossal monuments of the East, by forced labour, at the command of an arbitrary sovereign, but by the free will and contributions of a highly-civilized and enlightened city, and by the free labour of a free country. It is a work which surpasses the greatest of the nine famous aqueducts which fed the city of Rome; and amongst the works of ornament or usefulness for which your city is now distinguished, and will hereafter be famous, none, I will venture to say, will be counted more creditable to your wisdom, more worthy of your liberality, or more beneficial in its results than the Loch Katrine Water Works." He concluded by proposing "Prosperity to the City of Glasgow."

CHURCH STEEPLES AND LIGHTNING.

M. OCTAVE Pauwels, professor in the college of the Holy Trinity, at Louvain, in Belgium, has called attention to the frequency with which church steeples are struck with lightning. On February 19th, in less than two hours, and in an extent of 160 kilometres, eighteen steeples have been struck by lightning and burned. During the nights of April 14th and 15th, 1718, the lightning struck twenty-four steeples in Lower Brittany, in the territory between Landernau and St. Paul de Leon. It is a remarkable fact that those steeples which contained bells suffered the most. On the 11th of July, 1819, while the bell was ringing for a funeral, the lightning struck the church, killed nine persons on the spot, and wounded eighty-two. In thirty-three years, three hundred and eighty-six steeples have been struck in Belgium, and one hundred and three bell-ringers have been killed. Arago maintained that these facts only proved that bells rendered the steeples in which they were, more liable to be struck, and that it was by no means demonstrated that a great noise caused buildings to be struck which would otherwise have escaped. A distinguished *litterateur*, M. Méry, even maintained that prolonged discharges of artillery could make a cloudy sky clear. Professor Pauwels very reasonably urges that every method should be taken to protect steeples, since their prominence alone render them more liable to be struck. Then, too, the construction of churches in Belgium is such that in case of a shower the bell-rope becomes damp, and thus is made a better conductor, so that the electric fluid passes immediately down it and makes the bell-ringer the first victim.

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[*] Over since last No. from want of space.

FORTNIGHTLY ISSUE!!!

In accordance with previous notice, Subscribers and Advertisers are respectfully informed, that on and after the 1st of January, 1861, The Dublin Builder *will be published on the* FIRST *and* FIFTEENTH *of each Month, or, in case either should fall on Sunday, on the day preceding.*

Advertisers will favour with their orders referring to a Fortnightly, *not a* Monthly *issue as heretofore. All Accounts will be furnished terminating with the December Number, previous to commencement of the New Series, and attention is requested.*

Illustrations.—*The Editor will consider all subjects submitted for illustration.*

Vol. for 1860.—*Perfect Copies of the Vol. for* 1860, *with Wrapper and Index, may now be had at the Office, on payment of* 4*s.* 6*d*., *or per post,* 5*s.* 6*d.*

STREET ARCHITECTURE IN DUBLIN.

With a desire to record in a more especial manner than by mere notice the various works that are being executed in connection with the street architecture of this metropolis, we present herewith illustrations of two recently-erected shop-fronts for Messrs. Cherry and Shields, of Upper Sackville-street, paper manufacturers, &c., and Mr. George Tickell, of Mary-street, upholsterer and cabinetmaker, respectively. The former displays the lower portion of the establishment—which has a frontage four storeys in height in this leading thoroughfare—it alone being of an architectural character, after designs by Mr. Jones, architect; Mr. Pennefather, builder. The latter, which represents the entire façade, is also by the same architect; Mr. Whiteacre, builder; and has been erected at a cost of some £1,500. Our engraver has other illustrations of a similar class of subjects, metropolitan and provincial, in hands, which shall be presented in due course.

SUGGESTED ASSOCIATION FOR ARCHITECTS' ASSISTANTS.

A correspondent who subscribes himself "Sketch" addresses the following letter to the editor of this journal:—

"Sir,—Please give insertion in your invaluable publication to what must be the sentiments of not a few of a class, in whom I am sure you must take a lively interest – the architects' assistants of Dublin. It seems strange that in this city where the members of my particular branch of our profession number so many, no association of any kind has been formed for their mutual edification and improvement, especially when we consider how successful such associations have proved in London and in other cities—English and Scotch. Must it not, under existing circumstances, be probable that we shall fall far behind our contemporaries of these favoured cities? and will it be said of us that we have ourselves to blame?

"I feel prompted by these considerations to beg of *you* to aid us by bringing about the formation of such an association, at least by inserting this letter, which may be effectual in inciting some person better qualified than me to do the subject justice."

Our correspondent will, we are sure, do us the justice to believe that we would be the last to throw cold water upon a movement proposed for the benefit of any branches of the profession; but the suggestion now thrown out as regards Dublin would seem to be replete with impracticability; first, because the number of architectural *employees* is quite insufficient to maintain independently such an association; secondly, assuming that they even were sufficiently important numerically, we question the likelihood of a unanimity of purpose—a kindredness of spirit—so essential for the well-being and permanency of all similar undertakings; and thirdly, we apprehend that the *minority* of the profession—the assistants—will hardly achieve what the *majority*—the masters—seem to have hitherto found impracticable. As an amendment, however, to the proposition we would move, that "in any professional institute or association that may hereafter be formed, the claims of the architects' assistants—who shall be deemed worthy of admission—to occupy a suitable position at the meetings, should be duly considered."

OFFICIAL VANDALISM.

We are much concerned to see that our truly handsome post-office structure—the *chef-d'œuvre* of the late eminent architect, Francis Johnston, R.H.A.—is being tampered with externally, and in its most prominent feature, by the post-office authorities, for the purpose of acquiring an additional space of some 8 feet in front. As if in dread of public expression of opinion, the contemplated change was kept a profound secret until *all* was *decided on*, and the contractor at his work. There is, of course, *now* no time for remonstrance, but we are still left the alternative of *protesting*—which we do in unqualified terms—on the barbarism of the innovation, and the destruction of one of the chief features of the noble portico—viz., the inner vestibule or arcade. With that excellence of arrangement that always characterised the plans of the distinguished architect in question, this recessed space was evidently *specially* designed, as well for architectural effect as for a relief to the thoroughfare, of which the portico actually forms a portion. The dispensing with such space, therefore, *may* prove an acquisition to the post-office, by enabling the receivers to be extended, but it will be at the sacrifice of *public convenience* to a serious extent. Who that has passed in the vicinity of this building at those periods limited for post, has not witnessed the *crushing, jostling, and squeezing,* that takes place? but now, with considerably diminished space, an increasing rush of people, and the necessities of a populous thoroughfare to be likewise provided for, we prophesy that the annoyance will be increased ten-fold. It *may* be in contemplation to extend the pathway outside the columns, and disfigure the street. Probably we shall next hear that the portico is doomed to be built up *altogether!*

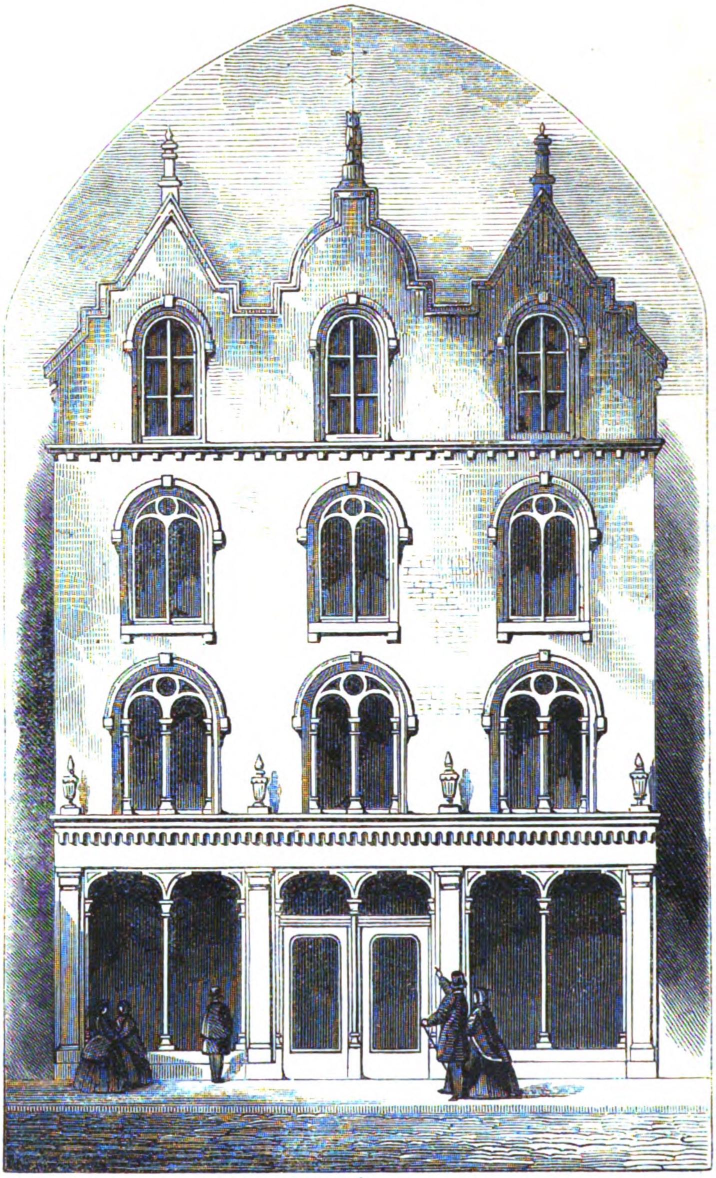
REMUNERATION TO PROFESSIONAL WITNESSES.

Anomalous as is generally the position of an architect in regard to his *legal* rights for professional remuneration, it is peculiarly so in the matter of attendances at court by subpœna. Occasional cases of course present themselves, wherein he may be enabled to make his own terms, or even where the considerate spirit of a client will relieve him from the trouble by volunteering a consistent offer; but as a general principle, and in the absence of these advantages, an architect experiences extreme difficulty in obtaining a more special regard from a taxing master, from whose *veto* we believe there is little chance of redress, than any other non-professional individuals—the value of whose time and services are estimated alike by the learned functionary. A *subpœna* is all powerful in its character, and equally applies to the most accessible or the most remote distances in our island; if disregarded, attachment for contempt may follow, and we need not remind our readers of the responsibility attendant thereon. It happens to have been our lot to have personally noticed some instances, not only of hardships to the witness, but flagrant injustice and abuse of authority on the part of the rigid administrators of the law, but of a recent one in particular we would make special mention. A member of the profession in Dublin, enjoying a remunerative practice, and to whom of course time was equivalently valuable, was required by subpœna to attend a trial relative to a building case, and give evidence on which the result mainly hinged, in a town only 150 miles distant, and occupying *fifteen hours'* travelling time alone for *each* journey. Owing to circumstances now unnecessary to detail the period that elapsed from his departure to his arrival was *only* ten days, and for this the taxing-master—of course duly considering time, services rendered at court, and inspecting disputed works, hotel and travelling outlay—most graciously awarded to this *mere* architect a sum of *five pounds!* and for expenses *three pounds!* total eight pounds!! *or about the costs out of pocket, if so much!* In attending court in the metropolis it is much the same. Architects in vain say they are entitled by the rules of the profession to £3 3s. per diem *(where is the institute to maintain the right?)*, but if a whimsical taxing-master say 10s. 6d. per diem as the *legal* allowance, where is the redress?

KINGSTOWN WATER WORKS.

It has been announced by public advertisements that application will be made to parliament next session for a bill to enable the construction of the several works required for the more effectual water supply of this highly-important township, and which comprehend the enlargement of the Carrickmines reservoir, the abandonment of the Foxrock reservoir, provided for by the Act of 1859, the varying of the line of conduit, and the formation of one from a point 350 yards south of the stream running into said proposed Foxrock reservoir, to the junction of the Carrickmines and Cabinteely roads, &c.

STREET ARCHITECTURE IN DUBLIN—SKETCH No. 1.



NEW WAREHOUSE, MARY-STREET.—Mr. George Tickell, Proprietor; Mr. Jones, Architect.

PROPOSED NEW MARKETS.

At length the initiative has been assumed in endeavouring to rescue this metropolis from the palpable disgrace it has hitherto been labouring under as regards "market accommodation," and a company is *about* to be established, with special Act of Parliament, "to erect and maintain *two* new general public markets and market places," for the north and south sides respectively. It is proposed that the one should occupy a site adjoining Cole's-lane, in the Parish of St. Mary, and the other in the vicinity of the Castle, and Parish of St. Bridget. The importance of such a project for the sanitary welfare and the comfort of our citizens cannot be too highly estimated, and we have every confidence in the promoters developing the scheme, in all its details, in a manner which will redound to the credit of the city and its corporate authorities. In earlier numbers of the Dublin Builder we drew attention to the desirability of such a step, and now that preliminaries have been actually commenced, we shall not fail to chronicle the progress of the movement, and illustrate the structural arrangements.

The patentee of Breach's fire-escape apparatus has been exhibiting it at the Rotundo for several days in succession.

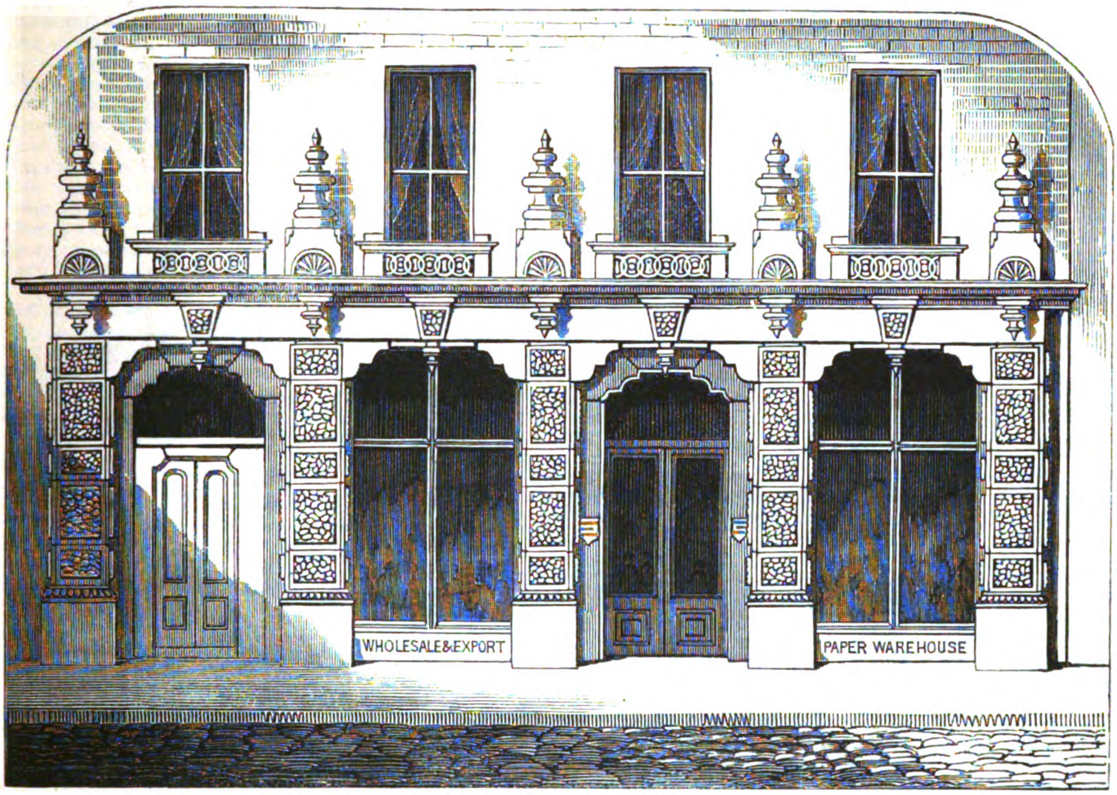
THE NORTH WALL NEW GRAVING DOCK.

A correspondent takes exception to a paragraph in last number with respect to the capacity of this structure for docking the Kingstown and Holyhead steamers, and says, "it is amply large to dock much larger steamers than those you mention, being 400 feet long, 80 feet wide, and 23 feet deep. The reason that the *Leinster* was not docked was, that they were afraid that the floats of her paddles would come against one of the broad altars, unless the vessel was trimmed to a nicety, and to settle the matter a trifling alteration is being made in the dock." We are also reminded that the cost was £63,768 9s. 10½d., instead of £100,000. [The paragraph in question was a quotation from another journal, and did not emanate from this.—Ed.]

OBITUARY.

We regret to have to record the death, which took place on the 25th ult., of Mr. William Moyers, of South Richmond-street, an old and highly-respectable builder, who during his lifetime was engaged on numerous important contracts.

STREET ARCHITECTURE IN DUBLIN—SKETCH No. 2.



NEW SHOP FRONT, UPPER SACKVILLE-STREET.—Messrs. CHERRY, SHIELDS, & CO., Proprietors; Mr. JONES, Architect

THE SLIGO TOWN-HALL.

GOVERNMENT has promised a contribution, from the Reproductive Loan Fund, towards the erection of the new town-hall in Sligo. A considerable sum will also be raised by subscription. Mr. M'Donough, M.P. for the borough, gave £100; the Mayor, Henry Lyons, Esq., £50; the ex-Mayor, Mr. M'Carthy, and Mr. Woods, each £20. At a meeting of the Corporation on the 15th ult., the Mayor proposed that other buildings, such as the post-office, the excise-offices, &c., should also be grouped with the town-hall, and stated that a plan had been prepared. Mr. Woods objected to looking at any plan at present, and said he lately saw an application for payment for one that *was not worth one penny;* that they should get the united intellect of the kingdom, and let the successful man be paid fairly. A discussion then took place relative to the responsibility to to be incurred by the Council in entertaining any plan from a local architect. Councillor Woods said the site ought first to be decided on, and would give £40 for a prize. The Mayor said £20! would be quite enough, and Councillor Phillips suggested £10!!! Mr. Caldwell, jun., architect and builder, entered the room, with a plan to submit to the Council. Mr. Woods objected. Mr. Caldwell said, "I do not intend to charge you anything for the plan; I brought it merely to enable you to form a proper opinion as to what a town-hall should be; (to Councillor Woods) *I fear not competition.*" Councillor Phillips—"I feel proud that we have men in Sligo capable of furnishing us with plans." Mayor—"If we shut out Mr. Caldwell *it will be very wrong.*" Councillor M'Carthy—"I move that Mr. Caldwell's plan be accepted." Seconded by Councillor Phillips. Plan accordingly placed on the table. Councillor Woods—"You will find that the feather end of the wedge is now got in!"

We are pleased to see that the committee appointed to distribute the Taylor Fund have, in consideration of the commendation of the judges, awarded to Miss Mary Alment for a landscape in oils of "a roadside in summer" (Stillorgan), and to Mr. Henry Crowley for a view of "the town and harbour of Wicklow," each a prize of £3. These pictures were favourably noticed in our review of the works sent in competition, and were not amongst the *original* prize works.

LICENTIATES IN ENGINEERING, T.C.D.

TRINITY TERM, 1860.

Examination for Diploma—Benjamin Patterson, William Crawford, Robert Duke, Pemberton Tudor, Herbert Ribton, Richard Symes, Robert Denny.

Special Certificate in Chemistry and Geology, Practical Engineering, and in Practical Mechanics and Physics—Benjamin Patterson.

Special Certificate in Practical Engineering, and in Practical Mechanics and Physics—William Crawford.

The contract for the new railway station at Foxrock, on the Bray line, has been given to Mr. John Cunningham, the builder of the Harcourt-street Terminus. It is to be completed for opening on or before the 1st of next May.

Mr. Colclough has completed an extension of his Coach Factory in Duke-street. The contractor for the work was Mr. Rosborough; superintending architect, Mr. Gribbon.

Scribblestown House, Co. Dublin, is being fitted up as the residence of the Dowager Lady Clanmorris, extensive improvements thereto being in progress under the inspection of Mr. E. P. Gribbon.

Messrs. Alex. Thom and Sons, the eminent government printers, have just completed an addition to their extensive buildings in Abbey-street. Architect, Mr. E. P. Gribbon; builder, Mr. Andrew Halston.

Messrs. Milner, of Phœnix Works, Liverpool, have offered a prize, to be competed for by the students of the Architectural Association in that town, for the best full-sized designs for doors for their safes, of the respective sizes of 28 in. by 22 in. in one leaf, and 66 in. by 54 in. in two leaves.

The old established foundry of Messrs. S. Vincent and Son, in Church-street, has had the front portion recently rebuilt, with a façade of unique and imposing character, which is well seen from the Quays since the removal of the houses for the extension of the law courts. This building reflects credit on the tasteful proprietors together with their architect, Mr. Gribbon, and builder, Mr. S. H. Bolton.

The Dublin and Wicklow Railway Directors, responding with a characteristic liberality to the request of the inhabitants of Kingstown in the vicinity of Albert-road, have determined on establishing a station at that point, which is midway between Sandycove and Dalkey.

STREET DISFIGURATIONS.

We desire to direct the attention of the City Surveyor to the unsightly projecting shop-front now erecting at 34, Great Brunswick-street, and to enquire if it is to be permitted to *remain* so. It extends beyond the general range of buildings in that important thoroughfare some four feet, and though it may be a general assumption that the base course of the area railing defines a boundary, it has nevertheless in a recent instance in this city been held not to do so; and the owner of a house in Merrion-square, after incurring much expense, was compelled to remove a similar obstruction, though not interfering with the pathway. Does not the same law—if any—apply alike to all streets within the metropolis?

The Metropolitan Building Act (London), 8 Vic. c. 84, sch. E, referring to "*projections*," says:—"In streets or alleys of a less width than 30 feet, *any shop front* may project beyond the external wall to which it belongs for five inches and no more; and every cornice of any such shop front shall project 13 inches and no more; and in any street or alley of a width *greater than thirty feet*, any shop front may project *ten inches and no more*, and the cornice may project for *eighteen inches* for the external walls but *no more*." That the excellent provisions of this act do not apply to Ireland is much to be regretted; nevertheless, here is a precedent, and why should not our corporate authorities, who are endowed with certain powers, at once follow it?

KILKENNY ARCHÆOLOGICAL SOCIETY.

At a recent meeting held in the society's apartments—the Rev. Charles A. Vignoles in the chair—several new members, including Lady Orde, Mr. Hill, architect, Cork, &c., were admitted. The treasurer's accounts for the year 1859 showed a balance of £87 odd in favour of the society, arising from "an unusually large number of life compositions," and despite the legitimate income being reduced more than £20 less than previous years, owing to defaulting subscribers. It is proposed, from prudential motives, to hold the meetings quarterly, instead of bi-monthly as heretofore. The Revds. James Mease and Graves, Lord James Butler, and Rev. Philip Moore respectively presented donations, and Dr. Prim exhibited an ancient illuminated patent "of English Liberty," from King Henry VI., in 29th year of his reign, to Thomas, grandson of William O'Neill. A fragment of the great seal of Ireland was attached to this document. Mr. Prim presented a copy of *Saunders's Newsletter*, of September 1, 1798, as did Mr. Waters one of *The True-born Irishman*, of March 13, 1804. Dr. Hemphill presented a Nuremburg jetton, found in that town.

FIRES!—PROCRASTINATION!

The proverb that "delays are dangerous," seems to have been fully verified by an event occurring in this metropolis during the last month, wherein, owing to a flagrant neglect of precautionary measures for the fearful casualty of *fire! three* human lives were lost under circumstances most painful to contemplate. As already notified by our cotemporaries, a fire broke out on the morning of Sunday, the 11th ult., in the old Kildare-street Club-house, and almost in a twinkling the valuable contents of the building, excepting the plate and wines, were totally destroyed; an event, however unfortunate, would nevertheless be reconcileable as a commercial loss, were it not for the calamitous accompaniment of *death* to our fellow-creatures. The *notorious* defectiveness of the water supply, the *miserable* exhibition of bungling at the engines and hose, the absence of system and of a *head* to conduct the operations, were most apparent, and before the engines were rightly at their work, half, if not more, of the building was destroyed, and three wretched inmates reduced to shapeless charred masses. As may have been expected, the morning journals, *after the fire*, teemed with suggestions—some evidently dictated by truly philanthropic notions, others savouring very strongly of a desire to appear in print; the citizens and their corporate representatives still discuss "the propriety" of providing a sufficiency of fire-escapes and a qualified brigade; but pending the suiting of "the action to the word," fires *again* occur, property is destroyed, and *people lose their lives*. Let us hope, however, that some practical energy of purpose may be forthwith infused by these fearful examples into the authorities, and that Dublin will soon have the same facilities for lessening the destructive results of fire, both to life and property, as have London, Manchester, Liverpool, and other towns. While referring to this painful event, we take occasion to testify our unqualified admiration of the heroic conduct of Mr. Hughes, the book-keeper of the club, who, by a superhuman effort, reached the roof, climbing by a spout to the granite cornice, at a height of some 60 feet from the ground, and, in the face of the roasting flames, dragged two females after him, and thereby saved them from *certain* death at the almost *as certain* risk of his own life. The glorious act has been gracefully acknowledged by the Viceroy in a personal visit, and we doubt not that a *substantial* reward of merit will be accorded by the public to one who may well be designated "a hero of an age."

THE COMING EXHIBITION OF 1861.

As already announced, an exhibition of works of Fine and Decorative Arts will be held early in May, 1861, in the Agricultural Hall of the Royal Dublin Society, and the following syllabus of the departments has been issued by the committee:—

1. Paintings by the Ancient Masters.
2. Paintings by the Modern Masters.
3. Water-Colour Drawings.
4. Engravings and Etchings, Ancient and Modern.
5. Sculpture, Casts, and Models.
6. Architectural Models, Photographs, and Drawings.
7. Carvings in Wood, Ivory, &c.
8. Works in Wax and other Plastic Materials.
9 Painted Glass.
10. Textile Fabrics.
11. Ancient and Modern Glass Wares.
12. Ancient and Modern Pottery.
13. Drawings and Engravings Illustrative of Wall Decoration.
14. Furniture.
15. Ornamental Works in Metal.
16. Photographs.

PROCEEDINGS OF ARCHITECTURAL BODIES.

The Royal Institute of British Architects held the first meeting of the session on the evening of Monday the 5th ult., Professor Cockrell in the chair. A letter from Mr. Tite, M.P., offering a permanent annual prize of *ten* guineas to be given in books or money for the best set of sketches in the Italian style of architecture (of Palladio Sonsovino, Vignola, Inigo Jones, Sir Christopher Wren, Perrault, &c.), for such buildings as churches, town-halls, railway termini and stations, public offices, &c. A vote of thanks was accorded to various donors. The subject of architectural examination was then referred to, but on the motion of Mr. Godwin the consideration was postponed till 10th instant. Another meeting was held on 19th ult.

The Architectural Association commenced its sessional labours with great *eclat* on the 25th October, when Mr. Roger Smith, president, delivered, in presence of a large assemblage of members, visitors, and ladies, an inaugural address, embracing a comprehensive resumé of "the occurrences and features of the past twelve months that are of general interest to the profession;" a glance at "the battle of the styles;" at some recently erected architectural works, especially the northern school of St. Martin's in the Fields, and the new church in Margaret-street; a notice of Sir Christopher Wren; of the three metropolitan architectural societies; the subject of architectural examinations; the deaths of Earl De Grey, Sir Charles Barry, Messrs. Stephenson and Brunel; the relations between the association and the institute, &c. Other meetings of this truly energetic and praiseworthy body have been subsequently held.

At the Architectural Society of Liverpool on the 31st October, Mr. James M. Hay, president, in the chair, the council awarded a prize to a drawing made of West Derby Church from actual measurement. A discussion then followed on the subject of the voluntary professional examination, and a communication, of which we give an extract, was read from Mr. H. P. Horner.

"As regards the peculiar character of our profession, it must be remembered that it is essentially a *fine art*, while dependent for the *realization* of its conceptions on mechanical means; but the conceptions themselves, which constitute the art, are primarily independent of these means, though in so far concerned with them as truthful and consistent physical structure must ever wait upon sound and satisfactory architectural design. This admitted, and a competent theoretical knowledge of the principles of construction on the part of a designer being thus supposed (and without this he could scarcely design at all), it seems to me, that the practice of architecture takes its place with that of the other kindred arts, sculpture and painting, and can no more be made the proper subject of a license or diploma than could these."

The chairman, in the course of some pertinent remarks, stated that—

"This examination will compel the student to undergo a long and tedious preparation; for, although architects generally may be more or less acquainted with these subjects, it is a very different thing to be called upon to answer every question at a moment's notice; and the best men may not always be the most successful in their answers. Still the result will be to improve the education of the architect."

Moreover that—

"The greatest care and caution must be adopted in introducing the system—liberal treatment and fair play—so that the minority excluded may neither be formidable in numbers nor ability. Anything like stringent measures or severity at the outset will defeat the object aimed at."

Mr. Boult thought "there was an inconsistency in Mr. Horner finding fault with the curriculum because it did not embrace any test of fine art in architecture, and then saying that such a test was impracticable," and moved resolutions in favour of ' the diploma."

Mr. John Hay and Mr Wightman followed on same side, and Messrs. Frank Howard, Andsley, and Callihan in the *negative*. Mr. Wightman proposed and Mr. John Hay seconded the following resolution, which was carried *nem. con.*:—

"That the local examinations, especially the elementary ones, be conducted under the auspices of the respective local architectural societies."

[*Where is the local architectural society for Dublin*?—Ed.]

The Glasgow Archæological Society has also met and elected office bearers, of whom Mr. James Smith, F.R.S. (of Jordanhill) is president; Mr. John Honeyman, jun., architect, honorary treasurer; and Mr. W. Ewing, honorary secretary. The president presented a few particulars relative to the "Pre-Historic Antiquities of the west of Scotland," and Mr. Smith read a paper on the old church at Renfrew.

The council of the Institution of Civil Engineers, London, offer premiums for the following new list of subjects, viz.—

On the Effect of Sluicing, in removing and preventing Deposits at the Entrances of Docks on the Coast and in Tidal Rivers.

On the Measure of Resistance to Steam Vessels at high Velocities.

On the Form and Materials for Floating Batteries and Iron-plated Ships (Fregates blindees"), and the Points requiring Attention in their Construction.

On the Initial Velocity, Range, and Penetration of Rifled Projectiles, and the influence of Atmospheric Resistance.

Description of Street Railways and Carriages, as used in the United States of America, in Paris, and at Birkenhead, with the Results.

On the application of the Electric Telegraph to Railway Train Signalling.

OLD AND MODERN ESSEX-BRIDGES.

In the year 1676 Sir Humphrey Jervis began to build old Essex-bridge of the stones of St. Mary's Abbey, and the structure then consisted of five semi-elliptical arches and two smaller semicircular ditto at southern end. The carriage-way was 20 feet 5 inches in width, independent of a pathway about 9 feet 6 inches wide, and the summit of the pavement was 26 feet 8 inches above low water mark. An equestrian statute of King George I. occupied a pedestal at the western side, resting on a special pier. It is related that about eleven years afterwards a violent storm, at E.S.E. point, arose, causing the Liffey to overflow the streets and ascend to the parlour floors of the houses. At this time a hackney-coach happened to be passing over the bridge, and a pier was carried away by the floods, precipitating coach, coachman, and horses, all swept down to the watering-slips, the man clinging to the box as long as he could, but was drowned in the current. In 1751 the repair of the bridge was so bad that for nearly four months it was closed to public traffic, until the late Mr George Semple, architect, accidentally meeting Mr. Prior at dinner at the then Archbishop's of Dublin, was, owing to the representations of that gentleman to the Lord Mayor, induced to undertake its temporary repair. This task was accomplished successfully in ten days, at a cost not exceeding 100 guineas, the estimated sum. We may here digress to mention, that at this period Mr. Semple was engaged in building Patrick's Hospital, two houses for the Rev. Dr. Leigh in Capel-street, one for the archbishop, another for Colonel Ram at Gorey, &c. Subsequently, however, the requirements of the city demanded the total rebuilding of the bridge, and prior to engaging on that important work, Mr. Semple went to London to procure the best books on bridge building, plans, &c., and he describes his "indignation and sorrow at finding an art of such public utility so shamefully neglected." In commencing preliminaries for the foundations of the new bridge, various impediments presented themselves, owing to the composition of the bed of the river, and other causes, which, to use the architect's own words, "threatened to frustrate his intentions of building a bridge that should last as long as the little adjacent mountain called the *Sugarloaf*, as he had determined." Again, referring to the want of practical example in the laying of foundations, and being obliged to have recourse to books for information as to the *modus operandi*, he says, "They told me to form an *enclosure*, but as well might they tell a man that to measure time he must make a clock." In May, 1752, the architect again went to London to procure advice and utensils, and was greatly disconcerted at finding that those engineer friends from whom he sought information relative to the use of the coffer dam, not only were unable to give him any, but assured him the method "would not answer his purpose." In this state of disappointment he relates, as a significant coincidence, his accidentally finding, at Dover Hill, a leaf out of a schoolboy's book, with the following caution:—"*The more positive thou art, the more derided wilt thou be if thou miscarry.*" However, nothing daunted, and collecting *all* the information he could obtain, he returned to Dublin, *via* Liverpool, accompanied by some labourers. Without particularizing all the details connected with the construction of the foundations, we may state, that they were effectually formed, the chief impediment being a strong boiling spring at the north side, that for a length a time defied all skill, but was finally vanquished. Once these primary obstacles were overcome, all went on smoothly, and on the 1st of November, 1754, the centres for the two southerly and for the centre arches were being put up. On the 8th of May following the Lord Mayor and Sheriffs drove over the bridge, and on the 10th it was open for public traffic, in two years and eighty days since the old was closed. The superstructure affords a carriage-way of 31 feet, with pathways at either side, 8 feet wide, and has balustraded parapets. The total length is about 200 feet, and there are five water-ways, the centre being 46 feet, the two adjoining 41 feet, and those next the abutments 36 feet span. Considering the circumstances attending the erection of this structure, it must be conceded that Mr. Semple displayed much ability.

RESTORATION OF ST. MARY'S CATHEDRAL, LIMERICK.

Our readers have been already apprised through the columns of this journal that the venerable relic of antiquity, the subject of this notice, and one of the few that Ireland can boast of, has been in course of restoration, under the directions of Mr. Slator, architect. The following particulars, quoted from a correspondent of the *Guardian* will be read with interest:—

"The Cathedral of St. Mary, Limerick, has strong claims upon all who venerate our old solemn ecclesiastical buildings, as well as on the lovers of art and the antiquary. As a specimen of early Gothic architecture, it is of the most perfect in the kingdom. Founded in the year 1172, it was erected upon the site of the palace of O'Brien, King of Munster, who gave up his castle and grounds for the purpose, his descendant, Bishop Donagh O'Brien, subsequently endowing and enlarging it at his own expense. Since the time of its erection the main features of the building have changed but little; and at this day the simple beauty of its proportions, its solid unadorned walls, its massive square piers and lofty roof extending for more than a hundred feet unbroken by line or arch, suggest feelings of calm repose and rude simple majesty, which we seek in vain in the highly-decorated works of a later and more perfect style of art. The peculiarities of its architecture present many features of interest to the antiquary. A square tower crowned with battlements rises to a height of 120 feet, and is stunted in the very centre of the façade directly over the western entrance, being supported inside by three broad pointed arches, springing from massive pillars. These latter are continued up to the nave, supporting arches of the same characrer, while the clerestory windows, which open on a narrow stone gallery, are of the *rounded* style. (?) The basement storey of the tower thus forms the principal entrance into the cathedral. Two narrow aisles into which the various side chapels open, the north and south transepts, and a chancel, complete the interior of the building. It is only within the last few weeks that the true proportions of this interesting and beautiful edifice could be seen or appreciated. The perverted taste of the last century, which erected a wooden screen in the Temple Church and defaced the interior of our noblest cathedrals, sadly disfigured this one also. Most of the arches were filled up with brick or woodwork, one-third of the church was cut off by a huge glazed wooden screen, over which the organ was placed, galleries were erected in the transepts, and all that depraved taste and ignorance could do was done to change and disfigure its original beauty.

"These abominations have now happily been swept away, and there now remains a rough but majestic shell, which to the eyes of the uninitiated, seems almost a ruin. The main roof has been entirely renewed, a handsome east window erected, and the chancel and choir are being properly restored, under the skilful directions of Mr. Slator. The square pews have been everywhere removed, and are being replaced by open benches. The old stalls of Irish black oak, with their quaint and curious carvings, are being now surmounted with appropriate oak canopies, and the greatest exertions are being made to complete the restoration of the entire building in a worthy manner. A large sum of money has been collected in the city and neighbourhood, which is by no means wealthy. Much, however, remains yet to be accomplished before the cathedral can be reopened for service. . . . . Its beautiful peal of bells, carried off some centuries ago from an Italian convent, are well known for the romantic story connected with them; and their sweet musical chimes harmonise well with the memories enshrined in this noble and venerable relic of the past."

The Council of the National Association for the Promotion of Social Science have unanimously accepted the invitation of the Royal Dublin Society to hold their next annual congress in Dublin.

Building societies are now important institutions. It seems from a statement made by Mr. Tidd Pratt that there are now about 2,000 of them in existence, and that their paid-up capital is not less than £8,000,000.

ART CONNOISSEURS.

Under this title the *Architects' and Mechanics' Journal* (New York) has a graphic article, which doubtless numbers of our professional readers will peruse with much pleasure:—

"We some time ago had the honour of a visit from an art connoiseur, *par excellence*, who was in search of a design for a house he was about to build upon a grand and expensive scale. The architects of New York were, of course, quite inadequate to meet such notions as his; so, while in Europe he had got several designs, some in Paris and some in London, in addition to those he had already obtained at home. Was his idea to select one complete design out of this host of suggestions? Oh, no! that would have been sensible and by far too modest. He knew more about beauty than all the New York, London, and Paris architects put together He had selected a portico from this, a cornice from that, a bay window from another, and so forth; then got some very inferior hand to 'draft' him a hodge-podge out of all those varied and incongruous materials, in all sorts of styles, to suit his own ignorant whims. If the reader ever heard of what is called a 'Dutch concert,' in which, at a given signal, a dozen voices strike up a dozen different tunes, varying in solemnity from the 'Old Hundreth' to 'Yankee Doodle,' he will understand us when we say this design was to the eye what such a concert is to the ear. The combination did not quite please him after all; so he came to us to spice it a little for him. We did so by entirely ignoring the whole of the suggestions presented to us, and, while tacitly agreeing with all his absurd notions, artfully contrived to throw them, one by one, to the winds, and worked away as originally as we would under any other circumstances. It was ludicrous to mark the coolness and self-complacency with which this gentleman, as he watched us draw line after line, appropriated to himself every little scintillation of thought as it came fresh from the workshop of our brain. We made breaks, recesses, and projections where none existed; we altered the shape, size, character, and number of the openings; made round things square, and square things round. To avoid monotony, we threw in ornamentation here and cut it out there. 'Very good, indeed!' ejaculated the connoisseur, as each feature revealed itself; 'I'm glad our ideas agree so exactly. I had it just like that, but was induced to change it.' Instead of the great uncouth cornice he had, we designed one entirely different in size and shape. Strange to say, that was the very cornice he had told one of his architects to put. We cut off a long row of useless and costly balustrading to the cornice of his entire building, and gave him a visable overhanging slate roof, as more in keeping with a country house. We thought *that* a rather marked change, at any rate Not at all; that was precisely the roof he had always advocated! In short, when the design was complete, he rubbed his hands in great glee, said it came up exactly to his notion, and went off as proud of *his* performance as if we had been a mere looker-on in the whole transaction, and he the architect. What became of the design we neither know nor care. It was for a locality too distant to affect our reputation or temper by the cruel caricaturing to which we knew it would be subjected in the hands of such an art patron."

THE KILKENNY BROOCH.

Some time since the Rev. James Graves exhibited before the Kilkenny Archæological Society a magnificent ancient Irish fibula of extraordinary size and rare type, which had been discovered in the course of the previous summer; and of which illustrations, drawn and engraved on wood by Mr. Oldham, were displayed in a vol. of the Society's Transactions. The following particulars collected therefrom will be read with interest:—

"It was found, he said, by a labourer in the parish of Killamory, county of Kilkenny, and evidently had not been deposited in connexion with any burial, as it rested, without being enclosed in any cist, or connected with any other remains, on the yellow-clay subsoil beneath the vegetable mould of the field. For size, beauty of ornamentation, and bold, yet elegant design, this brooch was, perhaps, the finest of the rare class to which it belonged. The material was white metal, parcel-gilt on the ornamental portions. It was much tarnished from oxidation. It was irregularly circular, the diameters being 4½ by 5 5-16 inches. The lower or ornamental portion was crescent-shaped and flat, measuring 2½ inches across its broadest part. The annular portion was 7-16ths of an inch in thickness. The flat or lower part was bordered by four monstrous couchant animals, such as are often figured in ancient Irish monuments and sculpture; of these, the two which form the external border had birds' beaks. The fibula was pseudo-penannular, the artist having the type so designated in his mind's eye, but allowing the ends to be connected by two bosses, embraced by the jaws of the monsters just described, and by a band with interlaced ornament, leaving two perforations across the broadest part of the crescent. On each side were two sunk or panelled ornaments, measuring respectively 9-16ths and 10-16ths of an inch square, and set lozenge-wise, from the sides of which the metal was slightly bevelled off in four facets. These depressions were filled up with delicate filigree-work in gold wire, or silver wire heavily gilt. The filigree ornaments consisted of a boss in the centre, surrounded by eight small coiled nobs within a circle of twisted wire, outside of which was also a square of twisted wire, with coiled nobs in the angles. Where the ring joined into the crescent portion of the fibula were two large bosses set with glass, the latter inlaid with white metal. The bosses measured 12-16ths of an inch in diameter, and projected 7-16ths of an inch. On the back the ring of the fibula ended in two monsters' heads in low relief; and on the flattened portion were two irregularly formed rectangular ornaments in low relief, each bearing, within a border ornamented by dots, a monster having a strong resemblance to those which are to be found in such numbers in the illuminations of the 'Book of Kells.' At the base of the crescent was a small but strong loop, probably serving to hold some contrivance to fasten the pin, which was wanting in the security attaching to the pins of penannular brooches. The pin was of very unusual form: it measured 12 inches from head to point; the head was flat and rectangular, the breadth at top 12-16ths of an inch, at bottom 10-16ths of an inch, and the height 1¾ inches. It was attached to the fibula, at the back, by a strong loop. This loop was disengaged at its lower end, seemingly to allow of its being bent back to remove the pin from the fibula at pleasure. In a socket, which was of one piece with the head, and finished with a beaded ornament, was fixed, by two rivets, an acus, 10¼ inches long. Where joined to the head, the acus was ¼th of an inch thick; in the middle it swelled out to a diameter of 5-16ths of an inch, and tapered to a blunt point. The metal of the acus seemed to consist of a core of pewter, covered with white metal. The head of the pin was ornamented by a border, consisting of two monsters, with heads at each extremity. the jaws embracing bosses. At the insertion of the acus was a boss set with glass, the latter inlaid with white metal. In the centre was a sunk panel, with filligree-work, similar to those on the fibula; it was ½ an inch square, and set lozenge-wise, the metal bevelled off in four facets from its sides. The fibula weighed 11 oz. 3 dwts., and the pin 4 oz 9 dwts. troy weight. The acus of the fibula had been broken by the spade of the finder. He should add that on the back of the fibula there was incised an Irish inscription, apparently to the following effect:[*]—Or ar Ochirmac—'A prayer for O'Chirmac.' These characters were inscribed with a pointed tool or graver, and, although partially concealed by oxidation, showed quite clear and sharp when examined by the aid of a magnifying-glass, with the exception of the last three letters, the back of the brooch being there much filed or scratched. Both the character of the letters and the formula of the inscription would be seen to be as old, at all events, as the year 1050, and the occurrence of the legend proved also that the brooch was in the possession of some person *after* the use of hereditary surnames became prevalent in Ireland,—thus establishing the fact that the brooch was *in use* about the middle of the eleventh century. But this was not the most interesting point connected with the legend. Dr. Petrie ('Inquiry into the Origin, &c., of the Round Towers,' pp. 280–82) had proved that the beautiful and highly ornamented doorway of the parish church of Achad-ur or Freshford, in the north of the county of Kilkenny, must have belonged to the period alluded to from the fact of its bearing two ancient inscriptions running round the inner arch, both containing patronymics One of these legends commemorated the names of the chieftain and his wife by whose munificence the sacred structure was erected. Now, it was a most important fact that the same name occurred on the Kilkenny brooch also. MATHGMAIN U CHIARMEIC caused the church to be built, and OCHIRMAC seemed to be the name on the brooch—both identical with the modern form Keerwick, a surname still common amongst the peasantry near Freshford, and also in other parts of the county of Kilkenny under the form of Kirby, and the patronymic of one of the Leinster clans descended from Fergus Luascan, a son of Cathair More, monarch of Ireland in the second century ('Book of Lecan,' fol. 96 *b*). Both the church and the brooch were excellent specimens of Irish art, and Kilkenny might be proud of them. He (Mr. Graves) thought it extremely probable that the workmanship of the latter might be assigned to the same period as the architecture of the church; and he hoped it was not going very far into the realms of conjecture to suppose that this brooch might have secured the mantle of the chieftain, Mahon O'Keerwick, when he stood by and saw Moholmoc O'Cencucain carving the quaint monsters which, as on the brooch, served as ornaments to the western portal of the church. It should not be concealed, however, that the legend on the brooch might have been *graved* on the metal of which it was composed long subsequently to the actual period of the manufacture of the antique; or that it might be intended to commemorate the name, not of the owner, but of the maker. In any case he believed the occurrence of such a record was unique. Mr. Graves stated that he trusted this fibula would ultimately be secured for the Museum of the Royal Irish Academy. The pattern had already been 'registered' for reproduction by a Dublin jeweller, and by his (Mr. Graves's) suggestion had been named the 'Kilkenny Brooch.'"

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[*] This interesting fact was discovered by Mr. Clibborn, Curator of the Museum of the Royal Irish Academy, whilst examining the antique with a magnifying-glass.

Notes of New Works.

A new dwelling-house is proposed to be built at Ballybrack for the Hon W. C. Dobbs; Messrs. Lanyon and Lynn, architects.

A Wesleyan Methodist Chapel is about to be erected at the village of Blackrock, on the upper road to Kingstown. Style—Transition from decorated to perpendicular Gothic. The builder is Mr. Thomas Creaser, of Drogheda; the architect, Mr. Tarleton. The size is 62 feet by 36 feet, external measurement; 50 feet to apex of gable from ground level.

A new dwelling house, faced externally with cut stone, and to cost over £6,000, is being built for Arthur C. Innes Esq., Newry. Mr. M'Curdy, architect; Mr. Beardwood, contractor.

A new church and convent are to be built at Kenmare. Tenders to 25th inst.

The Ecclesiastical Commissioners have advertised for tenders to repair the church of Lowtherstown, county Fermanagh.

Extensive alterations, &c., have been commenced at the mansion of Harristown, county Kildare, for John LaTouche, Esq. Mr. M'Curdy architect; Mr. Beardwood, builder.

Alterations and additions are about to be made to the gaol at Longford.

The directors of the Bagnalstown and Wexford Railway Company have advertised for tenders to this date for works at Ballywilliam Station.

The new Roman Catholic church of Ballymena was dedicated on the 11th ult.

The new Zion Chapel and schoolhouse at Rathgar, near the high road to Roundtown, are conspicuous objects. At the north-east is a tower, with pyramidal spire in red and blue tiles alternately, and terminated by a weathercock. At the south-west angle is a belfry, capped by a cone of whitish colour.

The works at the Prince of Wales's Hotel are carried out under Mr. Curdy's (not Mr. Nagle's) directions; also those at Messrs. Curry and Shield's, the Royal Insurance Office, and Mr. Donegan's, the eminent watch manufacturer, Dame-street.

The new cathedral church of Ballaghadereen—already described in this journal—was opened and solemnly dedicated on the 11th ult. Messrs. Hadfield and Goldie, architects.

The Commissioners of Bray Commons are about having sundry improvements contracted for, according to plans by Mr. Frith, C.E. Tenders to 1st of January.

The new Roman Catholic church of St. Mary, at Thomastown, being erected from designs by Mr. M'Carthy, architect, is ready for roofing.

The Orphanage recently erected at Glasnevin for the Society of St. Vincent de Paul, after designs by Mr. J. S. Butler, architect, Mr. Meares, builder, has been opened. The building has been already described in this journal.

The Imperial Hotel, Derry, is about to be enlarged, after plans by Mr. M'Curdy, architect. Tenders to 4th inst.

The dedication of the new church of St. Malachi's convent, Dundalk, took place on the 15th ult.

A new wing is being erected to the Royal School, Dungannon, adjoining the Armagh road, which will nearly double the accommodation of that edifice. Mr. M'Curdy, architect; Mr. Wm. Geatens, of Dungannon, the contractor.

Turkish Baths are being erected on Dr. Barter's principle in Sligo, and the first stone has been laid by Miss Jane Lyons, daughter of the mayor.

The new building recently erected in connexion with the convent of Letterkenny, presents an extension façade with tower at west end, and comprises spacious school-rooms, dormitory, cells, chapel, &c. Expenditure about £1,600.

The ground floor windows of Messrs. Kinahan's new front, already noticed, are being fitted up with patent self-coiling shutters, by Messrs. Clark, and Co., of Gate-street, Lincoln's Inn, London. The same firm are also fitting the new mart in Drogheda (Mr. Lyons, architect), and a large establishment in Cork (Mr. Scott, architect), with the same invention.

A new organ, manufactured by Messrs Telford, has been fixed in the Mariners' Church, Kingstown.

Messrs. White and Son, of Dublin, have recently erected an organ in the convent of Westport, and are engaged on another for the cathedral of Galway.

A bronze statue, with drinking fountain combined, is to be erected in Cork, in honour of the late Alderman Fitzgibbon.

The committee of the Limerick Pery and Jubilee Loan Society offer a premium of 5 guineas for the best design for a public fountain.

The new railway bridge at Coleraine has been opened.

It is proposed to construct a railway 12½ miles in length, and forming a junction with the Parsonstown and Roscrea branch of the Great Southern and Western Railway at the Parsonstown Station, to meet the River Shannon half a mile short of the town of Portumna.

We have heard that the tender of Messrs. S. and F. Buxton, of Leeds, for the construction of the Carrickfergus and Larne railway, recently accepted by the directors, was £12,000 below that of well-known contractors in the province.

A new line of railway is proposed to connect the two most important business points of London, viz., the Bank and Charing Cross. The communication will be effected in *five minutes.*

Bray.—Eight dwelling-houses are being built at the end of the Esplanade (which they face), next the harbour; Mr. Joseph Kelly, proprietor, who has also somewhat recently completed, in same neighbourhood, two others, with red brick fronts and cement dressings, after a tasteful design by Mr. Carson, architect. Messrs. Todd and Findlater are respectively building a terrace of eight houses, with one-storey oriel windows and cantilever roofs, on the Strand; Mr. D. C. Ferguson, architect; Mr. Potts, builder. In the town a block of business premises, with dwelling-house, is about being built; Mr. Lyons, architect. Two terraces of important dwelling-houses are in course of erection on Quinsborough-road, on the opposite side to the terrace recently built by Mr. Dargan, after plans by Mr. Wilkinson, architect. Various other works of a domestic character are also in course of completion here, and progress is manifest in all directions. The railing erected along the Esplanade is by Messrs. Morton and Co., of Liverpool, the patentees of various patterns of wire strain fencing. The Earl of Meath's claim to be lord of the manor has been admitted. Portions of the commons have brought at a recent sale prices averaging from £1,000 to £1,500 per acre, and will be laid out in building sites, 125 in number, together with a public park of ten acres in extent, a square of three acres for markets and a fair green. The Commissioners have realized £9,000 by the sales, to be expended, after deducting expenses, in further improvements. What a revolution has been effected here in a few years! and another is sure to follow.

Review.

On the Construction of Horse Railways, &c. By Chas. Burn, C.E. London: John Weale.

We have said so much already through our columns on this subject, that we fear to weary by repetition; we therefore can only glance at the pamphlet before us, which advocates the adoption of this principle of locomotion both for branch railways and street traffic. Amongst many other suggestions, evidently emanating from a practical mind, fully qualified to treat the subject in all its bearings, we find one peculiarly noteworthy, and to this effect:—"That it would be desirable to have the *gauge* of street railways *the same as for locomotive* railways (especially in London), as we deem it not impracticable that goods from one railway terminus could be transported on the trucks during the night through the streets of the city to another, and by that means free the streets, in a great measure, during the day from the cumbersome and unsightly goods vans." If for this purpose alone, the application of horse railways would unquestionably prove a desideratum, but we believe the principle to be capable of much greater extension, and hope soon to see it suitably adapted in our own city, as well as in the provinces.

The statuette model, by Mr. J. H. Foley, R.A., sculptor, after which the Goldsmith statue for Trinity College, Dublin, is to be formed, is now on view at the Museum of the Royal Irish Academy.

Dr W. K. Sullivan commenced a course of lectures on chemistry at the theatre of the Royal Dublin Society on the 12th ult.

The Directors of the City of Dublin Steam Packet Company, in their recently issued report, allude to the fact that although the Lords of the Admiralty arranged three years ago to provide for the accommodation of the service at Holyhead, the works have not *yet* been commenced. In same document the speed of the new steamers is thus estimated:—The Leinster, 20½ statute miles per hour; the Connaught, 22 miles per hour; the Ulster nearly the same, and the Munster somewhat better.

The Northern Architectural Association of Newcastle have passed a resolution recognising the desirability of a general alliance of the institution of architects, in order that combined action might be taken if any question should arise affecting the interests of the profession. The Liverpool Architectural Society will be happy cordially to co-operate in the attainment of the proposed objects.

Miscellaneous.

Report on Patents.—The Commissioners of Patents appointed under the Patent Law Amendment Act, 1852, have just made a report of their proceedings for the year 1859. The number of applications for provisional protection recorded within the year 1859 was 3,000; the number of patents passed thereon was 1,976; number of specifications filed in pursuance thereof was 1,897; the number of applications lapsed or forfeited, the applicants having neglected to proceed for their patents within the six months of provisional protection, was 1,024. The progressive stamp duty of £50 was paid, at the end of the third year, on 604 patents (out of 2,000), and 1,396 became void. The additional progressive stamp duty of £100 was paid at the end of the seventh year on 207 of the 604 patents remaining in force at the end of the third year, and 397 became void. Consequently nearly 70 per cent. of the 2,000 patents became void at the end of the third year, and nearly 90 per cent. became void at the end of the seventh year. All the provisional, complete, and final specifications filed in the office upon the patents granted under the Act since 1852 have been printed and published in continuation, with lithographic drawings accompanying the same. Printed certified copies of the specifications filed in the office, as also certified copies of patents and of the Record Book of assignments of patents and licenses, with copies of such assignments and licenses, have been sent, in continuation, to the office of the Director of Chancery in Edinburgh, and the Enrolment Office of the Court of Chancery, in Dublin, pursuant to the Act of 1852, and the Act of 16 and 17 Vict., c. 115. The work of printing the specifications of patents under the old law, 12,977 in number, and dating from 1711 to 1852, having been completed, short abstracts or abridgments of specifications, grouped under the different heads of invention, are being prepared, and many have been published; for example, abridgments of the specifications of patents relating to the propulsion of vessels, commencing in the year 1618 and ending 1857, nearly 1,000 inventions, have been published in one small volume at the price of 4s. Other series are in the press, and it is intended to publish at the rate of eight or ten series in each year, completing the work in five or six years.—*Mechanics' Magazine.*

Redtapeism.—It is stated by the *Engineer* that "cases have been known of the whole 14 years' duration of a patent having been expended in unproductive correspondence with Government officials, who, however, adopted the invention as soon as the inventor's patent rights expired. Of these, one, in 1847, wrote to the then Secretary of War, who wrote to the Adjutant-General, who wrote to the late Duke of Wellington, who wrote to the Clothing Board, who wrote to the Secretary at War, who wrote back to the inventor, communicating nothing practical as the result of nearly two years' deliberation and procrastination on the part of 'the circumlocution office.'"

The Builder Lord Mayor Elect of London.—Alderman Cubitt is to be Lord Mayor of London for 1861. From 1810, when he commenced his apprenticeship, till 1851, when he retired from business, having amassed a princely fortune, he has been identified with building pursuits in connection with the great house of Cubitt and Co. The alderman was born at Buxton, in Norfolk, in 1791, and served four years in the navy. Though now in his 70th year, he is said to have an active mind and much capacity for business.

Do Railways ever Wear Out?—Mr. Herapath, Editor of the *Railway Journal*, at a meeting of the West Flanders Railway Company, made a remark which will surprise many people. He affirmed, on the authority of one of the ablest railway engineers in England, that rails do not sensibly wear out, unless at the stations and places where there is "skidding." Experiments have been made by taking up rails which have been subjected to the ordinary wear from passing trains, and it has been found that even after 12 months' constant use they have not appreciably diminished in weight. This proves that they could not have been worn sensibly, and the same fact has been demonstrated after rails have been used for a series of years. Near stations, to be sure, where there is much sliding and slipping in consequence of the application of the brakes, there is much wear evident, but this results from slipping friction and not rolling.

Westminster Bridge.—A return made by the First Commissioner of Works shows that since July, 1856, when the report of a committee stated that £50,000 had been expended upon Westminster Bridge and the approaches, there has been a further sum of £196,283 laid out upon the bridge, and £36,919 upon the approaches. The engineer, Mr. Page, reports that he expects to be able in January next to give possession of the piers and abutments of the new bridge to Messrs. Cochrane and Co., who have contracted to complete the iron work of the second half of the bridge in nine months; their work, therefore, according to their contract, will be done by the end of October, 1861. In that case, allowing time for the foot pavement and roadway, the new bridge may be expected to be completed about Christmas, 1861. The width between the parapets will be 84 ft. 3 in.

Architectural Criticism in America.—Describing a jeweller's store recently erected on Broadway, N.Y., a local journal says—"This new establishment may be called 'The Diamond Palace of Broadway,' for if the most consummate elegance, united to elaborate decorative skill, have ever culminated in magnificence and beauty, the store is entitled to that high distinction. It may confidently be said, that up to the present time no more gorgeous or elegant building has been erected on Broadway. Indeed, there are many persons who, having been great travellers and good judges, have not hesitated to say, that this establishment not only excels all its predecessors in this country in solidity, elegance, and in beauty of decoration, but that there is no similar establishment in the old world which can in any way vie with its elaborate and artistic arrangement. Of all the stately structures, magnificent in their white beauty and solid strength, which have leaped into existence on each side of our great thoroughfare at the waving of the Money-King's wand, none has equalled the new diamond and jewellery store above described, and so purely classic; each of its columns is a thing of beauty, with chiselled plinth, abacus, pedestal, capital, and shaft. Passing beneath the dome, and through the great ebony door—lighted by panes of glass, whose like in size and quality New York has never before imported—to the stainless floor of the first storey, you are dazzled at once by a maze of marble counters, glass cases, and mirrors, massive chandeliers in bronze and gold, with glittering pendants; by the gleam, glare, and starshine, which make the scene more like the interior of the Arabic Cave of Lustre than the five-storey trading-place of a modern American firm. Perhaps no building has been erected in our city, since the Custom-house was built of solid granite in every part, which is so well calculated, from the massiveness of its foundations and the thickness of its walls, to resist fire, burglars, and the ravages of time, as the magnificent structure we here describe. And yet, with all the depth of vault, and ponderous inner safes, it is so fairly fashioned without and within, that its great strength and solidity is lost sight of, and the whole effect produced to the eye of the beholder is that of an airy, magical structure, the abode of the sylphs and the gnomes, which may dissolve like the phantasma of a cabilistic mirror when the hair that holds the keystone is snapt in twain."

Antiquity of Stencil.—In the "Philosophical Transactions" for 1838 we read that Procopius, in his "Historiæ Arcana," says the Emperor Justinius, not being able to write his name, had a thin, smooth piece of board, through which were cut holes in the form of the four letters J V S T, which, laid on paper, served to direct the point of his pen; his hand was guided by another. Possibly, this way likewise has given the hint to the first of our cardmakers, who paint their cards in the same manner, by plates of pewter or copper, or only pasteboard, with slits in them in forms of the figures that are to be painted on the cards. Such is the art of stencil, which has been applied, in our time, to decorating the walls of rooms, as well as to the marking of linen.—*Timbs' Curiosities of Science.*

Comparison of Speed.—The ordinary rate of speed, per second is as follows:—Of a man walking, 6 feet; of a good horse in harness, 12 feet; of a good sailing ship, 18 feet; of a reindeer in a sleigh on the ice, 24 feet; of a race horse, 72 feet; of a hare, locomotive, and hurricane, 84 feet; of sound, 1,092 feet; of a cannon ball, 1,344 feet; of the earth's rotation at the equator, 1,521 feet; of the earth's velocity in its orbit, 98,132 feet, or near 19 miles; a ray of light travels 200,000 miles in a second.

TENDERS

For the first portion of the Roman Catholic Church, Birkenhead: E. Welby Pugin, architect, of the firm of Pugin and Ashlin. Quantities supplied by Mr. Marples.—

London Building Company	£4,625
Sherriff	4,471
Farrell and Ledger	4,120
Glaister	3,451
Yates	3,411
Watts	3,383
Waters	3,322

[Note.—The Editor of this journal would feel much obliged by members of the profession adopting the same course as the gentleman above-named, by *sending* lists of tenders for publication.]

Theatre Royal.—Mr. and Mrs. Kean's engagement is a *something* worth recording, but no room is left for *criticism* on their merits. In the higher walks of the drama such perfection is attained by Mr. Kean, that a slight regret *may* be experienced that he would condescend to the inferior melodrama, such as the impersonation of the *Corsican Brothers*, however much he may have peculiarized it with his own identity. Not one whit less refulgent, and with a consummation of gracefulness, tenderness, and energy of passion respectively combined, shone his excellent partner—a lady whose professional attainments have always elicited admiration, and whose personal attributes in private life always commanded respect. What a contrast to the subject of our last notice!—the *classical* and the *ludicrous!*—but comparisons are odious, and we abstain. In theatrical *parlance* we may announce, that for "merry Christmas" novelties—unquestionably more attractive than any preceding year—are in preparation.

Thomas Brawn Manufacturer of

ECCLESIASTICAL AND DOMESTIC MEDIÆVAL METAL WORK,

IN SILVER, BRASS, AND WROUGHT IRON;

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METAL READING DESKS, LECTERNS,

Pulpit Lights, Coronae, Chandeliers, and Standards for Gas and Candles,

SPIRE AND GABLE CROSSES,

And every description of GAS FITTINGS—Candlesticks, Lamps, Branches, and Branch Candlesticks, &c.

T. B. begs to inform the Clergy, Nobility, and Architects in general, that he has been practically engaged for upwards of 14 Years in the Execution and Manufacture of Mediæval Metal Work, from Drawings of the most eminent Architects.

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FOR EVERY DESCRIPTION OF PUBLIC AND PRIVATE BUILDINGS, FARM BUILDINGS, HOTHOUSES, CONSERVATORIES, WAREHOUSES, MARKET-HOUSES, SHIPS' CABINS, RAILWAY AND PRIVATE CARRIAGES, BELL TURRETS, ALSO FOR VENTILATING SHAFTS, ETC., ETC. (PERFECT VENTILATION GUARANTEED.)

Patent Self-Shadowed Glass,

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PATENT PRESSED GLASS CLOCK DIALS FOR CHURCH AND OTHER CLOCKS,

Transparent in any Colours,

FOR ILLUMINATING BY NIGHT, AND HAVING A SOLID OPAQUE APPEARANCE BY DAY.

All that can be desired is obtained, and the saving of cost in Re-gilding, Scaffolding, &c., is effected, the Dials being permanent. The additional cost depends upon their size and amount of decoration. The Price will bear comparison with the ordinary Clock Dials at present in use.

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MOORE'S PAMPHLET ON "VENTILATION" FREE BY POST FOR TWO STAMPS.

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TO BUILDERS, DECORATORS, CONTRACTORS, ETC

Genuine White Lead, best manufactured Zinc Paint. Pure Raw, Boiled, and Refined Linseed Oils. Fine American Turps, Rosin, Pitch, and Stockholm Tar. Ground Paints of all colors, Patent Dryers, Red Lead and Putty. Gold Size, Torch Oil, Coal Tar. Black, Red, Pine, Oak, and Copal Varnishes. Unadulterated Colza, Petroleum, Phenola, Photogen, and all Lamp Oils. Superior Olive, Lard, and Sperm Oils, for engine use. White and colored Cotton Waste. Best Glue, Russian Tallow, Cart Grease. Paints to any color, mixed ready for use, in small and large quantities, to order, well adapted for the country and exportation. Export orders promptly executed, with goods of *best quality*.

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CALL the attention of Engineers and others to their PATENT MINERALIZED and VULCANIZED INDIA-RUBBER, in Sheets, and for Valves, Washers, Railway Buffers, Bearing Springs; Hose Pipes (delivery and suction), Flexible Tubings, Driving Belts, and to their improved Anglo-American FLEXIBLE CANVAS and INDIA-RUBBER PACKING, for Steam Joints and Piston Rods.

SOLE MANUFACTURERS OF THE
NEW PATENT MINERALIZED KAMPTULICON,
AND OF THE
MINERALIZED INDIA-RUBBER SOUNDLESS CARPET CLOTH,

Combining Extreme Flexibility, and consequent non-liability to cracking; Durability and Impermeability to Wet; warmth to the feet and softness to the tread.

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These Mats consist of Tubes of India-Rubber, of various configurations, placed vertically in contact with each other, and are far more efficient than any other description of Mat. No ordinary wear can sensibly affect them; they thoroughly clean the feet like a brush, and the dirt removed falling through the cells formed by the tubes, is not carried by the feet on to the floors and passages, which are consequently kept perfectly clean; and by removing the Mat, the accumulated dirt is easily swept away. They are also made with backs.

The Mats never clog, require no beating, and are readily cleansed by water. Unlike all other Mats, water in no way injures them, and it neither lodges on or is absorbed by them. Indestructible by damp or wet, these Mats, made to any shape, size, or thickness, are especially suitable for uncovered passages and out-of-door purposes.

The invention is peculiarly applicable for Mats for Baths, Conservatories, Laundries, Sculleries, Ships, Steamers, Omnibusses, Carriages, and Seats, also for Churches, &c.; and for Scrubbing Brushes for Decks, and Wooden and Stone Floors, and for Housemaids' Mats.

All Mats are marked W. WARNE and CO., Patentees, London. Orders received at the London Warehouse, 9, GRESHAM-STREET WEST, E.C.; or at the Factory, TOTTENHAM, N, MIDDLESEX.

The Dublin Builder.

VOL. III.—No. 25.

INDEFINITE SPECIFICATIONS—DONALDSON'S BOOK.

IT is no unreasonable assumption that two-thirds the disputes—and they are legion—that arise between builders and their employers, are directly traceable to the provisions and wording of specifications—where they at all exist—in connection with building works. Some would-be economists, who ignore the architect's capacity, and have full confidence in their own cleverness and the builder's integrity, are quite content to commence operations without a specification, and with a simple agreement, embodying nothing—frequently without either—and affording an excellent opportunity for enjoying to all intents and purposes that questionably prudent hobby, as the sequel—"a trial at law"—usually proclaims. On this class, however, it is outside our present purpose to dilate *in extenso*, and therefore we confine ourselves to the simple consideration of the character of those documents furnished by architects, descriptive of the various materials, scantlings of timber, the several qualities of artificer's work, and the numerous other provisos relative to an intended contract work. In a former number of this journal, and under the title of "Undefined Foundations, Architect Umpires, Party Walls, and Uniform Measurement," we enumerated some of the inconsistencies which frequently present themselves in specifications, and owing to which, and the uncertainty of "law," either the proprietor or the builder is invariably victimized. To these we need not again refer. The honest tradesman is better disposed to enter on his work with a *stringent* specification to guide him in his calculations and duties than a *lame* one, which he foresees will at winding up cause much trouble to both proprietor, architect, and builder, and involve a large additional outlay for extras before the work can be completed conformably with the apparent intentions of the architect. However, it is clearly a builder's policy *not* to interfere with an architect or his *intentions*: he has to deal only with the documents before him, and suggestions or interference would more probably provoke a rebuff than be received graciously.

Architects as a class invariably, and very properly, desire to maintain supremacy from first to last in their associations with a building work, and no reasonable member of the fraternity will find fault with a builder for adhering to the letter of his engagement. To the client, however, an incomplete specification may prove disastrous, as he finds himself hurried *de necessitate* into an additional outlay on which he did not calculate; and, moreover, was led to regard as an impossibility, from the presence of that protecting clause, that "no extra work will be paid for unless ordered by the proprietor or his architect." But he, too late, finds himself in the happy (?) position that the architect, seeing the *necessity* of various additional works, had exercised his professional prerogative, and ordered them to be executed. The builder refers to his contract drawings and specifications, which he proves to the proprietor do not contain any provision for *a single item* included in the "extra little bill;" moreover he has the architect's authority, which is empowered to be given by the quoted clause in the specification, and delicately suggests the *desirability* of "an amicable settlement." Whether the pleasant and prudent alternative of making "a virtue of necessity," or the unpleasant one of confiding the settlement to "his attorney," is to be subsequently adopted, the discrimination of the proprietor can alone determine. Our readers connected in any manner with the building profession must at once admit the fidelity of the picture—"a plain unvarnished tale"; and numerous members of that extensive community called the Public will, from their *experience in such matters of art*, add an approving sentiment. We need scarcely cite special examples of the various litigations which periodically occupy the time of gentlemen of the long robe, and excite much interest amongst those inside our pale; the principle as regards *each* is equivalent, and the foregoing remarks equally applicable. With the double view of enlightening those who embark in building works as to the consequences of defective specifications, and of placing in a position, for the reference and guidance both of the profession and the junior aspirants, examples of trusty documents used in various important works, and again of suggesting a general form—a skeleton reminder—embracing the heads of the various departments of work, and capable of adaptation to *any* class of building, the Professor who so ably and worthily presides over the architectural class at the London University has produced a book in two volumes. Donaldson's specifications have lain admittedly too long before us unnoticed, and doubtless with the contents and characteristics of the book the majority of our professionals are by this time familiar, and have derived advantage therefrom. The Professor prefaces as follows: "The construction of a specification is *very simple.* It will generally be found that a great portion of the same particulars exist in all contracts, unless modified by some special local circumstance, or influenced by some peculiarity as to the class and destination of the edifice." It then enumerates the constituent parts of a contract, viz.:—"1st, the legal obligations; 2nd, the drawings; 3rd, the specification." And amongst other matters premises "*that any damage to the adjoining premises is a usual contingency to be provided against.*" "Consequently these items *need not appear* in the *body* of the *specification;* and as they refer to all the trades, prevents its being encumbered by useless repetitions." Again, another paragraph attracts particular attention, and refers to the drawings and specification, viz.:—"The architect should have two sets—the one, signed and forming part of the contract and numbered, to remain in his office; the other—which may be tracings—to be on the building, in the possession of the clerk of works, and *accessible* to the contractor for verification from time to time." "Moreover that *he* is *entitled to require by the contract that the builder should make at his own cost the copy which he will want for his own use.*" Referring to architects to public boards, the Professor suggests "that an architect cannot be *too elaborate* or *cautious* when having to do with a stranger or person of doubtful reputation, as sometimes happens in the case of *open competition* for public bodies. These boards are less cautious as to the character of the contractor, than anxious to secure the *lowest amount*, trusting to remedy any defect by the stringency of the contract and *elaboration* of the specification,—forgetful even, that with these precautions a wide door is still left open for *fraud* and *bad work* by *unscrupulous* men." The Professor tells some home and well-timed truths in the above remarks, and which all more or less bear on our subject; but we must certainly take exception, considering the practice in Ireland, to the right of an architect *charging a contractor* for a *working copy* of the plans and specification. A wide door is indeed *here* left open for fraud and *sub rosa* understandings, for which, once money transactions commence between architect and builder, peculiar facilities are palpably offered. The right to repair damage to adjoining premises is regarded by the Professor as such a *legally admitted fact*, independent of any special provision in the specification, that we must express a wish it had been previously established *here*—or that it even were so now—and a vast amount of trouble and expense in litigation might have been saved. Amongst the numerous specifications included in this work, the only one having reference to Ireland is that of the Omagh Lunatic Asylum, for which the late William Farrell was architect; the quantities as measured by Messrs. Thomas Turner and Patrick Kerr respectively are also given. The very voluminous specifications of the Houses of Parliament and New Royal Exchange, together with numerous others of architectural and engineering structures of various characters and styles, erected after plans by Barry, Angell, Scott, Bunning, Ferry, Tite, Wyatt, &c., architects; and Stephenson, Page, Brydone, Simpson, &c., C.E's., are comprised in these works, altogether presenting a compilation of most valuable documents, with, in some instances, an accompanying illustration.

In publishing this valuable work the author selected an old and highly respectable firm—Messrs. Atchley and Co.—enjoying an extensive influence amongst the profession at home and abroad, and which is "half the battle" in the victory of any such undertaking, however famed and popular the author.

THE POLITICS OF ART.

INASMUCH as art is peaceful, and is nourished in the bosom of happy prosperity—a symbol of dignified and thoughtful repose—it seems grateful to turn to it in these days of political commotions and troubles, to find consolation in its serenity, and instruction in its deliberate eloquence.

We build galleries, and bring together in them the choicest fruits of that Tree of Life, the human soul. We gather exotics from the old world, the works of old masters and new, of ancient Italian schools and modern French and Flemish. We cull choice bits of poetic truth from domestic studios, and hang them up to ripen in the public heart, and fructify there in gentler manners, purer habits of life, and more refined and elevated ideas of our relations with the handiwork of the First Artist. It is good for us to get away from the bustle of the streets and the noisy dangerous rumours of the world, and enter these quiet academies of art. Their stillness is the fountain of intellectual peace, the source of the profoundest harmonies.

This is the political economy of art. Its "service is perfect freedom," under the protection of the laws of divine unity; and every man is instinctively open to impulses from it of good or evil tendencies, according as the artistic expression in picture, statue or building is good or bad. It is impossible to estimate the amount of moral influence such things have over our conduct; but that it is very appreciable is evident from the fact that every excellent human work, whatever that work may be, is excellent both in a subjective and an objective sense.

"It blesseth him that gives and him that takes.
'Tis mightiest in the mighty."

It is quite unreasonable to suppose that the Creator has implanted for nothing in the human soul the almost divine power of conceiving a beautiful idea through any of the avenues of intelligence, and in any way expressing it, whether by words or things or acts. Every man is an instructor for his fellow-men in proportion to his capacity for such conception and such expression. Thus the laws of moral reciprocity are constantly at work. And if we hold a man to be a benefactor to his kind who originates and carries into execution any work which has for its object the improvement of his fellows—as Garibaldi, or the signers of the Declaration of Independence, or Howard, or Watt, or Fulton—we should regard with no less respect those, the depths of whose humanity are disturbed by an equal "joy of elevated thoughts," even though the outward expressions of these thoughts cannot be measured in their excellence by any definite and practical attainments of enlarged political liberties and improved mechanical science. The conception of Shakspeare or Michael Angelo is at least as godlike as that of Watt or Washington, and the resulting poetry or art on the one hand is of as much value to the well-being of mankind as the resulting steam-engine or political liberty is on the other. If the springs of action lie equally deep in the powers of the human mind, the results, whether considered practical or theoretical, are equally blessed.

Therefore art is as necessary to the solving of the great problem of human destiny as politics. It is in fact itself a great, though usually unrecognised, political agent, acting indeed not directly to diminish our taxes, or extend our franchise, to improve and defend our liberties; but going behind and beyond these things, civilizing, expanding, refining the human mind to the better appreciation of true freedom, and to the more profound insight into its nature and necessities.

But it is not for every one to retire to the stillness and sanctity of galleries of art to learn this great lesson of civilization. It is not every one who can do this, and many would not if they could. Such persons, however, do not avoid the subtle influences of art; rather are they more sensitive to them, because these influences come unawares in their daily walks, intruding into vacant spaces of thought, ever working unseen and unsuspected. If art possesses any element of political or moral power, architecture is certainly its most potent and democratic agent in these respects. A man enters a gallery of art forewarned and forearmed. He involuntarily encases himself in an armour of criticism, and thus too often becomes obstinately invulnerable to the fine attacks and stratagems of the artist. Every educated man is expected to be a good critic of a picture, and he feels the necessity of bearing out his education, and indulging in more or less of the slang of the studio, signifying nothing. But the learned and the unlearned walk the same pavement in Broadway. The lawyer, the merchant, the clerk and the mechanic proceed to their business down town and return to their homes in the evening, quite unsuspecting that they have been unguardedly sowing in their breasts the seeds of good or evil with every glance at buildings on the right or left.

If our readers think we have made a rash statement, we beg them to follow us kindly a little further.

The poet Keats said:

"A thing of beauty is a joy for ever,"

meaning that its very beauty renders it immortal in the work of felicitating and comforting the human heart. A good poem never dies. It passes from lip to lip, from heart to heart, on a mission of peculiar grace, appealing to each man's individuality, and opening to him a new vision of delight, or surprising him with the apotheosis and glory of an old and familiar thought. Its beauty is its life. So with a statue or picture. If indifferent in sentiment or execution, it encumbers the earth—is neglected and forgotten. If inspired with a beautiful idea, it is never idle. There is some part of every human being to which it may appeal with peculiar emphasis. It forms part of the joy of his existence. It becomes incorporated with his being, and if it is ever forgotten in its actuality, it is ever present in its essence, ever re-occurring in that indefinite feeling of content and gratitude which makes every intellectual being competent to appreciate and more or less desirous of attaining to some future state of utter beatitude. A work of art is, in fact, the love of God, which, in some especial form, has entered into the heart of a man, and has been humanized and materially expressed by him, so that we, his fellow-creatures by human sympathy, may be made to understand some part of divine Providence which otherwise we would have suffered to pass unnoticed and without its peculiar blessing. It seems to us that this does not admit of a doubt. And the converse of the proposition is true likewise. A work of error and bad taste is in some degree an evil for ever. It constantly corrupts, as a "thing of beauty" constantly elevates.

Art is a republic, as literature is. Its basis is Integrity, and its strength is Union. If the laws of its beautiful unity are broken, and it is divided against itself, it falls. From this republic of art there may be secession as disastrous as that from a republic of states. No panic ensues indeed, and Wall-street is undisturbed; but the stocks of public taste depreciate, the avenues of civilization are encumbered with rubbish, healthy credit, which nourishes true merit, is lost, and at the base of public morality, so far down that we do not suspect it, a subtle influence is set to work undermining and weakening, and when the fall takes place we wonder what caused it.

True architecture is not merely the strict observance of certain fixed academical rules of proportion, but it is founded upon laws of much larger application—those of truth and beauty. An architectural offence therefore is not, as is often supposed, a mere rebellion against certain conventional rules only appreciable by architects. Every man in viewing a work of architecture, if he brought to bear on it the judgment of common-sense (which, strangely enough, he rarely does), would arrive at a just valuation of its merits or demerits. As it is, here in New York public favor instinctively tends towards expense. The more costly an edifice is the better. Admiration is in proportion to the dollars spent upon it. This may be mercantile, but it is very foolish and very dangerous. We appeal from this tendency to the sober good sense of the people. Stones, hammered and carved elaborately in the rash license of treason against art, have no longer sermons in them for our good. The mason may pile them up very skillfully in our sight, but there is no health in them. They are lies. And an elaborately builded lie set up in the streets is a continual shame to those who countenance it, and a debauching influence in the eyes of the public. Judging instinctively as they do, and as we fear they always will, they create them standards of taste; and to build well according to such standards is impossible. To build well, in fact, under such circumstances, is to throw pearls before swine.

A picture which is untrue to nature and degraded in treatment may be turned with its face to the wall, may be removed as something contaminating and unhealthy. But a bad work of architecture looks a century in the eye, and the people cannot but stare back at it.

"Till, seen too oft, familiar with its face,
They first endure, then pity, then embrace."

—*New York Architects' and Mechanics' Journal.*

Our contemporary the *Agricultural Review* pronounces the establishment of Messrs. Austin, in Westmoreland-street, to have been "recently rebuilt in a style not to be surpassed by any similar establishment in London."

The engineers and firemen employed on lines in the neighbourhood of Newcastle-on-Tyne have commenced a movement for reducing the hours of labour.

New barracks, said to be handsome, lofty, and commodious, but with too much light, causing a glare and excessive heat, and on a low site frequently under water, have been built at Bareilly in Bengal. General Wyndham stated that no barracks should be built in Indin except with logs covered with canvas.

Notwithstanding the increased facilities presented by the establishment of district post-offices in London, it has become necessary to enlarge considerably the accommodation at St. Martin-le-Grand, by adding to the mail office and excavating the entire enclosure from the portico to the end on the south side, and to the kerbstone on the west, underneath the present railings. The pneumatic tube principle is also likely to come extensively into vogue. Talk of the Hills' cheeseparing! but who but Rowland Hill, the originator of the penny postage—the grandest and most successful financial scheme ever conceived—has caused this most comprehensive development of public requirements under a liberal *régime*.

FINE AND ORNAMENTAL ART EXHIBITION OF 1861.

ACCORDING to present announcement, the first day of May, 1861, is fixed for the opening of an exhibition in this city in connection with the Royal Dublin Society, and numerous influential noblemen, gentlemen, and devoted votaries of art comprise the committee. In a previous number of this journal, however, and when the project was first being matured to a tangible shape, we expressed our conviction that the space intended to be devoted to the exhibition was far too limited, and from this we have had no reason since to deviate. Our objection may be met with the statement, that the old triennial exhibitions of the same society on the same premises, but when the accommodation and space were considerably less, were notwithstanding eminently successful—and if so, why should not this be proportionately so? In answer, we must remind those who would fain establish *that* as a reasonable argument, that once the palate has been feasted on *dainties* it will not afterwards be easily reconciled to the *coarser fare* which it previously relished; and so it is in this project, after the eyes of the very identical public who are expected to be its supporters have been dazzled with the beauties of the exhibitions of 1851 and 1853 respectively, we anticipate—we trust erroneously—that they will view with considerable apathy this comparatively paltry display. We desire not to throw cold water either on the intentions or the energies of the committee, but to advance in good time a simple suggestion. The erection of a gallery in the Agricultural Hall is at best a mere makeshift; the building is quite *too low* without making it *lower*, as this inevitably will, both in effect and reality. It answers its present purpose sufficiently well, but is not suited for the contemplated change, which we predict will abortionise it. However, with remonstrance our mission ends, and we leave the result to be judged by the public; but must remark, that it would have been more judicious to have postponed the exhibition altogether, until the National Gallery and its connecting arcade should have been completed, and the museum fully furnished, so as to form accessories thereto. That it will be highly prized by the *beaux* and *belles* of this metropolis as a fashionable lounge we have not the slightest doubt, but that the excellence of its character will attract crowds of provincial and cross-channel visitors, or moreover that the inducements offered to eminent English and Scotch manufacturers, &c., will prove sufficient to their incurring expense in forwarding contributions to the extent to be desired, and indispensable for a creditable display, we certainly *do* question. The guarantee fund, originally fixed at £5,000, has it appears increased to £9,000, and this latter sum will, it is thought, after paying all preliminary expenses, be sufficient to provide against a deficiency in the receipts. We trust, for the credit of the city, and for the satisfaction of the promoters—whatever our own private convictions may be—that instead of a deficiency, there will be a surplus when the balance comes to be struck. However, *nous verrons!*

THE ARCHITECTURAL ASSOCIATION OF LONDON.

ON the 22nd ult. an ordinary meeting was held, Mr. Blashill in the chair, when after some preliminary business Mr. Blashfield, M.A., V.P., read a paper on "the arrangement of churches," of which the following is the substance:—

What I propose to consider is—

First, the influence which our ritual, as it at present exists, ought to have on the architectural features and character of our churches, and whether we are in the habit of paying sufficient attention to this point.

Secondly, the customs, wants, and requirements of modern congregations as compared to those in former ages of the church.

The first reformed English liturgy was produced in 1549, and was followed in 1552 by a second, which is nearly identical with our present Book of Common Prayer. Since that time it has undergone several authorised examinations, and some few changes of importance have been made in consequence, but in all essential points it continues the same.

When we hear a new church discussed, the points usually touched upon are the accommodation, the cost, and the quality of the design. We hear, perhaps, that sittings are provided for 800 or 1,000 persons, and that it cost so much—very cheap or very expensive as the case may be. Then we hear the particular style adopted, the height and treatment of the roof, the richness of the decoration, and the originality, if there be any, of some part of the design, with numerous other details; but we seldom (I think I may say never) hear a church commended because the building itself, independently of its furniture, gives expression to every part and detail of our services. I do not mean broadly to assert that none of our modern churches do give such expression (though as a rule they certainly do not), but I mean to say that when such an exceptional church is met with, people do not appear really to know why they like it; they think it original and clever, but they cannot exactly say why it interests and satisfies them more than larger and costlier buildings, or why, without any copyism, the architect seems to have succeeded in catching the true spirit of mediæval architecture. Now, I think that, unless we discover the element of his success and recognise it as a principle not lightly to be infringed, we shall not make much progress in church building beyond the point to which the revival has already carried us. I suppose we have all felt, in comparing old and new churches, that there is often a deep sense of interest and continued satisfaction in exploring an old church, although it may be very plain and simple, which is totally wanting when we visit a neighbouring modern church, apparently its superior in all the usual architectural features. This is generally attributed to the charm of antiquity and the sentiment of association, and these feelings, no doubt, have their due weight. But there is something beyond this, which I believe to be the existence in the old building of a principle, apparently quite instinctive in the mediæval architect, which is too often—I cannot but think—overlooked by us. The principle I allude to may sound absurdly trite and hackneyed, but it cannot be too often repeated until it is better attended to—it is simply, *that a building should exactly express its purpose*, or, in other words, in the case of a church, that the bare walls, or actual skeleton, before a bit of furniture is introduced into it, should bear the distinct impress of every part of the ritual existing at the time of its erection, and should give expression to all ceremonies and forms of worship about to be celebrated in it. Thus it may well be regretted, in a purely architectural point of view, that we are forbidden to erect stone altars; they were removed in 1550 to make room for communion-tables; and though we may deplore, we can scarcely wonder at the measure.

The Font.—Although the orthodox, traditional, and symbolical position of the font near the western entrance is now very generally adhered to, I have heard a great many different opinions amongst the clergy as to its convenience. Amongst others, Mr. Pettit remarks, "Where the font is suffered to retain its original position, it is generally found near the western entrance, and this, without doubt, is the most appropriate spot for a ceremony denoting admission into the church; yet there may often exist sufficient reasons for placing it elsewhere. And it is of far more importance that we regard, both in position and design and the actual size of the font, the great solemnity of the rite which is administered in it, than that we restrict its locality to any particular part of the building." Wherever it is placed its position should at any rate be well defined and expressed by some modification or exceptional feature in the architecture, so that there may be a perpetual and ineffaceable protest against any future removal by a reforming churchwarden or a new incumbent.

There are, of course, numerous examples in churches built of late years in which the font is given its proper importance, and has a well-defined and yet prominent and open position given to it. An arrangement of the kind has been admirably managed in a small church in Suffolk, lately built by Mr. Scott, where a round tower (after the fashion of the peculiar round towers of that county) is placed at the west end. It is vaulted with stone internally, and forms an appropriate baptistery. But, having noticed the principle, I will not take up time by multiplying examples.

The Reading-desk and Pulpit.—Now, although these two play, if not the most important, certainly the largest part in our services, it is not often that we find one or the other treated as one of the building, or influencing its constructive details in any way. They are usually pieces of furniture which give no more impress of character to the building than the seats of the congregation. The exact position of each, and even the design, are generally not settled until the church is nearly completed; perhaps, indeed, it is fortunate sometimes in the case of the pulpit, as instances might be found where, through inattention to acoustic requirements in the first instance, a change in its position is absolutely necessary. But supposing that the pulpit is of stone and the reading-desk on a stone plinth, this is not all that is required to meet the principles we started with, unless they form part of the building. You may have stone furniture as independent of it as wooden furniture; and, with regard to the reading-desk, architects unfortunately find a great difference of opinion among the clergy: one wants a large desk looking north and west; another wishes the whole desk to face west, and a third wishes, perhaps, to read prayers from a small desk in the chancel seats, and the lessons from a moveable lectern. We have before us the well-known examples of the arrangement of the early Christian basilica, where we find this principle carried out in every point as completely as could be done in adopting a building originally designed for secular purposes to the requirements of public worship; such parts of the building as could be still used in Christian worship were adapted and what was wanting was added architecturally and incorporated in the building as far as possible. Thus the bishop and presbyters, as you know, took the places of the prætor and his assessors, the Roman altar became the Christian holy table, and a choir was thrown out into the nave, enclosed on three sides by low walls. The ambos, from which the Gospel and Epistle were read, were actually built into these enclosing walls, and thus made part of the church. The church of San Clemente, at Rome, as you all know, shows in the most perfect manner the arrangement of the early basilica. Although rebuilt in 790, it was exactly on the original plan, and it is owing to the fact of all the ritualistic arrangements being absolutely solid and architectural, and not merely moveable furniture, that we are able at this time to understand fully the allusions and descriptions of early writers.

As to the pulpit, I will just read a short extract from Viollet le Duc's "Dictionary" on this point. He says:—"In France none of our ancient churches have, as far as we know, preserved any pulpits of an earlier date than the fifteeenth century. It was customary, from the commencement of the twelfth century, in our northern churches to arrange a rood-loft at the entrance of the choir, from the top of which the Epistle and Gospel were read, and exhortations addressed to the faithful when occasion served. In every case these sermons, before the institution of preaching friars, only took place occasionally. The pulpit was then only a wooden stage, closed on three sides, and covered in front with a hanging. But in the thirteenth century preaching became a necessity, which the architectural arrangements of religious edifices were compelled to obey. Exactly to fulfil these conditions the Dominicans and the Jacobins, amongst others, built churches with two naves, one being reserved for the monks and divine service, and the other for preaching; then the pulpits became fixed and entered into the construction. They formed, as it were, a balcony projecting into the interior of the church, carried on corbelling, accompanied by a niche taken out of the wall, and generally lit by little windows. Access was gained by a little staircase contrived in the thickness of the wall." Thus we see the thirteenth century architect at once felt instinctively that when a sermon became a thing of fixed and regular recurrence, instead of an occasional address, he must express the fact in his building. It was no longer sufficient to provide a little moveable stage closed on three sides, but he must contrive a balcony, or some architectural feature, that should distinctly proclaim its original use as long as the building should stand. There is an instance of such a pulpit in the south nave of the Jacobin convent at Toulouse.

The example of ancient pulpits treated in this thoroughly common-sense manner are very numerous, but we must not confine our search after the earliest and best examples to the interior of churches: we shall find some of the best in the refectories of monasteries, used for reading to the monks during their meals.

There is still another part of our services which requires notice, and that is the musical portion. The only point about it which I wish to enforce in this division of the subject is this. As an organ is now almost an invariable appendage to a church, and is generally considered necessary to the proper and decent celebration of our service, it should impart a distinctive character to that part of the building which is destined to receive it. I am aware that this is frequently attended to in modern churches, and always I think with a satisfactory effect; I could name instances of churches where such an arrangement has always appeared to me to give the chief interest and charm to the building. In small village churches where an harmonium takes the place of an organ, a recess in the thickness of the wall may be contrived with very good effect at a small cost, and with unmistakeabie fitness of purpose.

Beyond the absolutely essential division of nave and chancel, I do not wish to occupy your time by saying much about conveniences of plan. This is a question which must depend so much upon peculiarities of site and the number of the congregation, as well as other points, that it would form a long paper in itself. Those eccentric varieties in the form of theatres and lecture-halls I need only allude to, as I hope we are all agreed that turning a church into a great auditorium is not only subversive of all proper ritual expression in arrangement, but renders it almost impossible to conduct the service in a decent and reverent manner.

Galleries.—We all know the numberless objections to these, and I suppose no one would employ them by choice, but where they become actually a necessity, which is often the case, they should certainly be located as part of the construction, and their presence should be expressed externally. Great care should of course be taken as to their height and the steppings of the seats, so that they may neither overpower the church by being too high, nor oppress the occupants of the aisles by being too low. A flat ceiling under the galleries will be found to be much better for acoustic purposes, and more satisfactory to the eye than an inclined one. There is one position, however, for a gallery which is, in some churches, almost unobjectionable from its answering two good purposes—one, that of breaking up and dissipating the sounds from the east end, and preventing echo; the other, that of clothing the conspicuous bareness of the west wall, which, in many churches, is far from agreeable.

Let us take a modern congregation of say 1,000 persons, and consider the wants and requirements we have to meet. The first thing to be noticed is that according to received notions, the seats must be fixed; and if we may judge from the serious inconveniences which attend the use of chairs where they have been tried, they are not likely to come into general use, except as a temporary expedient. The next requirement is, that all the congregation should have an uninterrupted view and hearing of the officiating minister. It may not seem at first evident that an uninterrupted view is necessary, but in point of fact nothing is so difficult or irksome as to keep up one's attention to a speaker who is unseen. This applies, of course, chiefly to preaching.

The next requirement is, that no one should feel too cold or too hot, and that there should be no draughts in the church. If the age demands warming and ventilation, we must give it them. This is a most important point, and nothing disgusts a congregation so much as finding themselves in a cold, draughty, or ill-ventilated church, where the ladies cough all the winter and faint all the summer. I wish to point out that we, perhaps, oftener than necessary, increase our difficulties, and impair the perfectness of the system adopted, by thinking it right to hide away as much as possible all the paraphernalia of chimneys, &c. For instance, I want a chimney for a vestry and one for the warming apparatus; but I am afraid of making a good stack and carrying them to a proper height, lest any one should tell me I have given my church too domestic a character. Ought I not rather to consider that when we insist on introducing domestic comforts into our churches, that fact must, under an intelligent architect, come out distinctly in the character of the building? Our congregations cannot be provided properly and truthfully with the comforts and luxuries of home without paying for it by the disfigurement—if it be a disfigurement—of their churches by domestic features.

Acoustics.—In making observations on the acoustic qualities of churches, it is not sufficient to go yourself once and try how you can hear at any particular part, as there may be many disturbing causes acting at different times; one of the best tests is, whether it is what the clergy call an easy church. Inquire of a few clergymen who have done duty there what they think of it in this respect, and you will form a truer estimate of its qualities than if you ask half the congregation. I believe it is little known how many clergymen's health is seriously impaired by having to do duty, day after day, in a difficult church. It therefore becomes, not only a question of convenience to the congregation, but of health and comfort, in many cases, to the clergyman.

It now only remains for me to touch upon our requirements as to the *musical arrangements* of a church—and here let me say that though it can scarcely perhaps be expected of a church architect that he should be a musician, yet he should make it his business to understand something of the construction of the instruments used in a church. An organ, the most beautiful of instruments when in tune, is one of the most disagreeable when neglected, and every one should know how sensitive it is to damp and draughts, in order to guard against this in his arrangements for the reception of the instrument. If there is a choir, the organ should be placed close to them, and the proper place for it is either in a side aisle of the chancel or in an organ-chamber built expressly for it, which is better. The effect of the instrument will be much enhanced and it will be kept in better tune if the walls are lined with boarding or battens, and if not in a gallery, it should always be raised on a platform some feet from the floor. The worst place for the organ on every account is in the west gallery, if there is one, and I believe organs are never now placed there in new churches. Of course, I don't contemplate the possibility in these days of an organ appearing over the altar. In small village churches, where an organ can seldom be tuned, I think myself that an harmonium is much preferable; it has the advantage of not getting out of tune, and though it has always something more or less wanting in tone, as compared to an organ, it is quite sufficient to lead the singers.

I feel that I have omitted much that might well and appropriately have been brought to bear on the subject, both from haste in preparing this paper and from a wish to be as short as possible; and I now relinquish the subject in the hope that the discussion will be taken up by some of our friends assembled here to-night.

I had intended to illustrate my remarks with diagrams and sketches which might have added interest to a dry paper; but the time was really so short that I found it impossible.

DOMESTIC ARCHITECTURE IN KERRY.

THE following particulars of a recently-erected mansion in this county are given in the local *Evening Post*, and in quoting same the *Cork Constitution* remarks that—

"Architecture seems so much neglected in this country—either there is so little taste for it, so little appreciation of its capabilities, or so little inclination on the part of men of wealth to expend the money necessary to turn them to account—that when we find a proprietor availing himself of them for his own comfort and the ornamentation of his demesne, it may be useful to some of our *building* readers to present them with examples of what may be done under judicious outlay and direction. One example we have great pleasure in presenting, as it is altogether of Cork design and of Cork execution, both architect and builder belonging to this city. The description, slightly abridged, we subjoin:—

'OAKPARK HOUSE.

'The new mansion house lately completed in Oakpark for Mr. Maurice F. Sandes deserves a word of passing notice at this moment. This house has been built by Mr. R. Evans, builder, from the designs and under the superintendence of William Atkins, Esq., architect, Cork, and is now, we believe, the most elegant and most comfortable residence among those of our country gentry—whether we take into account the beauty of its architectural design and the correctness of its execution, its internal adaptation and appliances for the comfort of its inmates, and the taste and richness of its interior decorations. The house stands on a gentle eminence in the demesne, now greatly enlarged, sloping to the south, and commanding a fine view of the western side of the Tralee and Dingle mountains, extending from Brandon Head, dipping precipitately into the sea, some twenty-five miles, until the chain sinks into lowland to the eastward of Slievemish.

'The entrance is under an open carriage porch, communicating with an inner one leading to the hall, and through an octagon conservatory, into the drawing-room. The hall is 30 by 20 ft., opening into the staircase, 30 by 19 feet, by an arcade resting on polished marble shafts, with Caen stone, carved capitals and bases; from these apartments open the principal rooms, *en suite*, all having a southern aspect. A large conservatory terminates the eastern end, to the rere of which is the library and study. The kitchen and minor apartments occupy a wing running north.

'The first floor contains spacious bed-rooms and dressing-rooms approached from an arched gallery, terminating the principal stairs, as well as a corridor leading from the back stairs. The rooms throughout are lofty and admirably lighted, those of the lower floor being 15 feet high.

'The style of architecture employed is an adaptation of the Gothic of Northern Italy to the usages and refinements of modern society. Mullions have been altogether avoided in the windows, the sashes slide in the usual manner, each being glazed with one sheet of plate glass, affording an uninterrupted view of the surrounding scenery. In the hall and two principal rooms are large bay windows, adding greatly to their size as well as appearance. The ceilings throughout are of timber, the designs varying in each room. The principal timbers are borne by carved Caen stone corbels, filled in with panelling and intermediate joists. The entire are richly decorated with polychromatic devices, heightened with gilding, &c. In the hall and porch are a number of Irish marble shafts, which give a rich and varied appearance to the entire. The chimney-pieces of white marble have been carefully designed by the architect in accordance with the style of architecture, and have beautiful backs and hearths of Minton's encaustic tiles.

'The trimmings of the doors and windows are very elaborately designed, having jambs with arched mouldings, flanked with pilasters or standards, crowned with richly-carved poppy head terminations.

'The exterior is faced with English red brick, the ornamental positions being of limestone, the angles are all finished with slender shafts, having carved capitals and bases. The heads of the windows have the ogee pointed arches peculiar to Venice, with labels and intermediate voussoirs of limestone with a pierced cusp. The plain surface of the walls is enriched by bands of limestone. The bay windows are altogether of stone, and are a very beautiful specimen of workmanship, as are also the porches.

'The kitchen, offices, and stables are all designed in the same style of architecture as the house, and have fittings throughout of the newest and most approved patterns.

'The decorations and carvings have been all carried out under the directions of the architect, by Messrs. Dixon and Taylor of this town, and reflect the highest credit upon them.

'Next year it is the intention of Mr. Sandes to avail himself of the varied capabilities of his demesne to bring the grounds into an order befitting the beauty of the house.'

"Oak Park, we may remark, is not the only recent specimen of Cork talent which Kerry contains. The new entrance to Muckross (Col. Herbert's) was designed by the same architect (Mr. Atkins), and executed in marble obtained on the demesne; the gates, of a very elaborate design, by Mr. Perrot. Col. Herbert's new chapel at Muckross, too, is after plans by Mr. Atkins, executed by Mr. Evans; as is also Mr. Leahy's mansion, in the Romanesque style, beautifully situated over the lakes; the cut stone was the work of Mr. Egan. So that Kerry owes not a little to Cork ingenuity and talent, and we are glad to see that her gentry have the spirit to profit by them, while for the town of Tralee is claimed the credit of having supplied satisfactorily the accessories for which it was applied to."

PATENT PLUMBAGO CRUCIBLES AND FARRAR'S PATENT STEEL.

THE great difficulty experienced in the development of what may be termed the chemical process of manufacturing cast steel was the rapid destruction of the pots through the use of the fluxes previously deemed necessary to change the nature of the impure metal under treatment.

The fluxes used by Mr. Farrar, however, have not this inconvenience, and by the use of plumbago crucibles, to which we shall more particularly refer presently, he produces steel with greater facility and in much less time, from ordinary wrought iron, than it has hitherto been produced from blister steel. Phosphorus and sulphur, the two great enemies of the steel manufacturer, become powerless under Mr. Farrar's treatment, or rather, we should say, his treatment causes all phosphorus and sulphur to be thrown off upon a certain heat being attained. Hence the success which has been met with by him in America, in England, and in France. In America, the Damascus Steel and Iron Company, who use his patent alone, have received the most favourable testimonials as to the value of the steel produced; in England, Messrs. Beasley and Farmer, of Birmingham, have cast gun barrels from steel made of Staffordshire iron, and declare that, from its extraordinary tensile strength, they are superior to anything they have seen; and in France a commission was appointed by the emperor to inquire into the merits of the invention, and ascertain the adaptability of the metal for steel cannon, the result of which has been to prove that a first-rate article can be made from French iron, before considered quite unadapted for the steel manufacture—the more enthusiastic of those watching the experiments actually declaring the steel better than any of that made by Krupp, of Essen.

We have stated that difficulties have arisen from the destruction of the ordinary melting pots, but it seems that the patent plumbago crucible removes every obstacle, and that their great durability renders them actually cheaper than the common fire-clay pot.

The Patent Plumbago Crucible Company, by whom these new crucibles have been introduced, have received certificates of their working which at once prove that they are incomparably superior to all others. The refiners to the Bank of England state that they work to their entire satisfaction, and that 50,000 ozs. and upward have been melted in a single 1,000 oz. pot.

The master of the Paris Mint states that each crucible runs from 40 to 60 pourings of pure metal, and can with safety be dipped in cold water, when at a red heat, and used again immediately, as if it had undergone no change of temperature. This certificate is given after having exclusively used them for between two and three years; and Mr. Christie, of the Fyenoord Works, Rotterdam, says that they never crack in the furnace, which prevents the danger of losing the liquid metals, and that he has melted 1,239 kilos., consisting of pieces of cannon and copper, in one of the patent pots, whilst to melt the same quantity of metal would have required at least seven or eight German pots.

From all the facts which we can gather, it appears that the patent plumbago crucibles are capable of melting on an average from 35 to 40 pourings, are unaffected by change of temperature, never crack, can be used until they are thoroughly worn out, require only one annealing for several days' work, and become heated much more rapidly than ordinary pots, thus effecting a direct saving of more than 50 per cent. in time, labour, fuel, and waste.

It is needless to add anything to such facts as these, which we feel sure require but to be generally known to bring the patent plumbago crucible into exclusive use amongst steel manufacturers, engineers, brassfounders, and others.

LAW NOTES.

Delany v. *Sullivan.*—Action brought by plaintiff—a builder—to recover a sum of £28 10s. for work and labour, and materials, provided for the building of a wall and out-offices at the residence of the defendant. A sum of £18 10s. was lodged in court, and the defendant pleaded that no larger sum was due to the plaintiff. Verdict for plaintiff for full amount.

Carson v. *Tyrrell.*—Action brought by an architect against his client for recovery of fees at 5 per cent. Defendant pleaded a special agreement, which plaintiff denied. Verdict for plaintiff for full amount claimed.

THE O'CONNELL MONUMENT, GLASNEVIN.

We learn that by a recent arrangement between the Cemetery Committee and the trustees of the O'Connell Memorial Fund, it has been determined that the surplus moneys in the hands of the latter shall be handed over to the former, towards the expense of erecting a new range of vaults *within* the circle. Now, after the original object of the promoters had been so successfully realized in the erection of a suitably designed and admirably executed testimonial, we should not be disposed to take exception to the manner in which the surplus cash should be disposed of, if within the bounds of reason and justice to the contributors; but we certainly do enter our *caveat* against the proposed tampering with the site on which the structure rests, and which is a very important element in the *toute ensemble* of this — apart from political considerations altogether—very important national monument. The present circle is about 250 feet in diameter, surrounded by *a fosse*, and with suitable approaches leading from the main walk to the enclosure. We believe we are correct in stating that it formed part of the original design—when this circle was laid out—to construct around the entire of the circumference a range of family vaults; at least if it did not *then* it has certainly been very generally understood subsequently that such was to be sooner or later. So far so good! but the committee now purpose diminishing the diameter of the circle from 250 feet to about 128 feet, or in other words, to construct an inner range of vaults at a radius from the axis of the monument of 64 feet 4 inches; total diameter, 128 feet 8 inches. The proceeding proclaims a parsimony which—considering all circumstances, and more especially O'Connell's association with the foundation of this cemetery—to say the least is very ill-judged, and illustrates a *give-and-take-again* principle, not redounding to the credit of a public committee. The present space was awarded as the site on which the monument should stand; it is an essential accessory to its architectural beauty; and why, after the lapse of such a time, should it be lessened? As may be seen by reference to a former number of this journal,* in which a history of this cemetery and all particulars connected therewith were given, there is abundance of space contiguous thereto available for interment purposes for very many years to come, and, moreover, at a reasonable rent—considering the proximity to the metropolis—viz., £10 10s. per acre. The arrangement in question is, therefore, quite unjustifiable, and it becomes our duty, on principle, to apprise the public thereof.

ROMAN CATHOLIC CHURCH, MOATE (WESTMEATH).

Our illustration represents the new front, with tower and spire and side aisles, added to the existing church, after designs by Mr. J. J. M'Carthy, architect. Much praise is due to the Rev. Joseph Flood for his exertions in maturing this architectural work under the usual difficulties which beset such projects. The plan of the building as intended will comprise nave, 92 by 23 feet; aisles, 8 feet 3 inches wide; sacristy and tower at west end, as shown on illustration. The nave is the original structure, and the aisles are new. The spire rises to a height of about 116 feet. The walls are of rubble masonry, and the dressings of limestone.

GEOLOGICAL SOCIETY.

This excellent Institution held its periodical meeting as usual on the 12th ult. The members assembled in the new building, T.C.D., the Rev. Professor Haughton in the chair. Mr. Mallett, C.E., presented two specimens of oolite limestone from Ballina.

The Chairman, Mr. Kelly, and Dr. Apjohn examined the specimens, and agreed that oolite limestone was common in several parts of Ireland, in some districts it was noted for its durability as a building material.

Professor Kinahan exhibited some specimens of oldhamia antiqua from Bray Head, in which the double rows and the form of the cells composing them were well shown.

The Chairman stated that the society had received a valuable donation of fossil plants from William Harte, Esq., C.E., County Surveyor of Donegal.

The Secretary read a paper by Mr. G. C. Mahon on "Mining Operations, and the qualifications requisite for a Mining Engineer."

THE ROYAL HIBERNIAN ACADEMY.

A few months ago we announced that one of the desirable results of the somewhat recent investigation into the constitution of this establishment, would be the introduction of some additional architectural members into its councils; and we learn that this very desirable end is on the point of fulfilment, and only awaits the arrival of the charter to confirm the decision. Four additional academicians, chosen from the practising members of the profession in Ireland, will be elected; who, together with the *two* present academicians, will constitute the total—viz., *six*, provided for. With extreme gratification we chronicle this fact, and doubt not that it will directly or indirectly lead—independently of its other influences in the promotion of art—to the attainment of two very desired objects, frequently impressed by the Dublin Builder as essential—viz, the securing of a respectable architectural display at the periodical exhibitions of the Academy, and the re-organization of some institute or association to guard the interests of the profession in Ireland; it being to our minds an indelible stigma on our practitioners, as a body, that none such is in active existence. The names of the nominated academicians have reached us, but we should both be premature and guilty of bad taste were we at present to announce them; the selection is, however, such as the profession generally will endorse approvingly.

NEW HARBOUR LIGHT, PORT OF DUBLIN.

The Corporation for Preserving and Improving the Port of Dublin have decided on the erection of a new lighthouse at the south eastern extremity of the North Wall Quay, and we believe it to be in contemplation to remove the present structure, as also to construct the works of which we shall speak hereafter. The new lighthouse will comprise a tower of wrought iron 5 feet 6 inches in diameter, secured to a granite base, with a projecting cast-iron cornice sustaining a gallery and surmounted by a lantern of cast-iron, with domical top and gun metal frame. It will be lighted by a central gas burner with small apparatus. The external appearance of the structure will be neat and effective, and the plans and specification have been furnished by the engineer, Mr. George Halpin. The contract has been disposed of to Mr. E. Toomey, of Phœnix Iron Works, Parkgate-street, who has executed various works under the same board.

SCHOOL OF ART—ROYAL DUBLIN SOCIETY.

On the 21st ult. the distribution of the Society's and the Taylor Prizes took place in the Lecture Theatre, under the presidency of the Lord Justice of Appeal. It appeared from the report that "two students, Maria D. Webb and Harriette E. Harman, had obtained national medallions — the highest distinction conferred by the Department of Science and Art"; also that "six had obtained the reward of department prize studentship, twenty-five local medals, eighty first and ninety-nine second prizes, exhibiting an excess of seven in the total number of prizes last year. The receipts of fees presented a deficiency of £106 18s. 6d. as compared with last year, but the circumstance was attributed to the want of a second master for the first half of the session. Of the *Society's* prizes some were uncompeted for, viz., those of £7 and £3 respectively for *figure* class, and out of a total of prizes offered to the value of £31 only about half the amount, viz., £16, was gained. In the matter of the Taylor Prizes (already reported in the Dublin Builder) it was announced that the respective judges were Sir George Hodson on behalf of the National Gallery, Mr. Catterson Smith, Royal Hibernian Academy, and Mr. Macrory, Royal Dublin Society; but that for first prizes of £13 in oil, historical, there was *no candidate*; in landscape class for £10 prize was £7 awarded; in water colour class *no candidate*; in sculpture, prize offered, £10—awarded, £5; in architecture, prize offered and awarded, £7; oil landscape, £3!!! Total offered, £47; total gained, £25!!! Furthermore, the report states that "to two students, namely, Henry Crowley and Mary M. Almont, who were favourably mentioned by the judges, the executors have awarded extra prizes of £3 each; and the Fine Arts Committee conclude their report in this department with the following significant paragraph:—

"Although the works exhibited were not, in the opinion of the judges, as conspicuous in excellense as was expected, and although none of the competitors were deemed worthy of the scholarship of £20 or upwards, which was offered as the reward of high artistic talent, the committee have no reason to be dissatisfied with the commencement which has been thus made; and they confidently hope that when the nature of the endowment shall be better known, a more extended competition, and a longer and more careful preparation on the part of the students, will be aroused and encouraged in our Irish schools of art."

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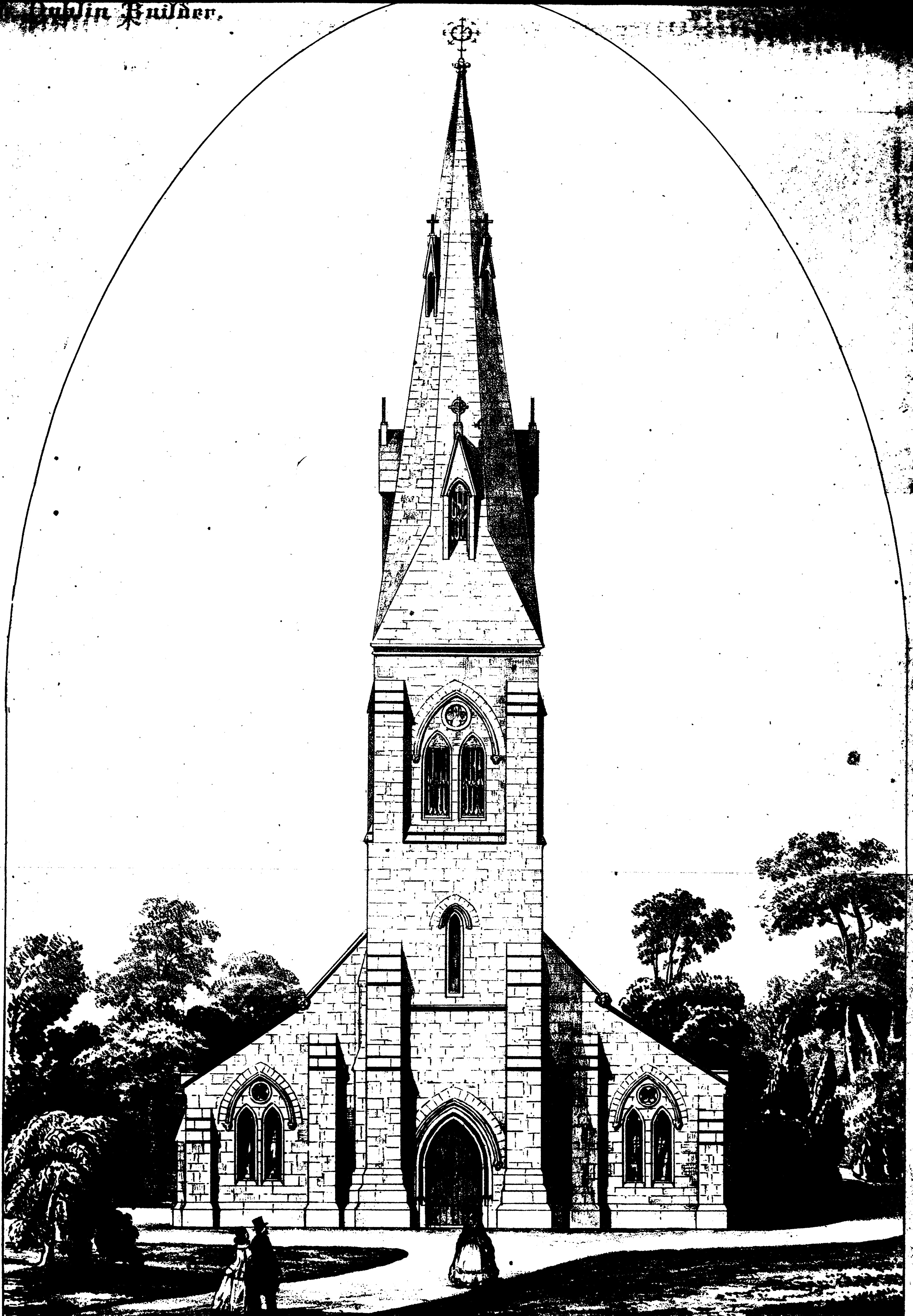
* Page 4, No. 1, vol. i.



MORISON, LITH, DUBLIN.

WEST FRONT FOR THE CARMELITE CHURCH, MOATE.

THE LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

THE POST OFFICE "ATROCITY"!

A MOIETY of the *presentation* already announced in the DUBLIN BUILDER as in store for the public, and emanating from no less important donors than the supreme postal authorities of this great kingdom, has already been unveiled, and may be viewed at *any* hour in the twenty-four with *intense* satisfaction by those who are proof against all nasty particularities in matters of art, and who can appreciate a *magnificent illustration* of "independent opposition" to a babbling multitude of know-nothings—with that noisy organ, the Press, as spokesman—under the portico of our (*once* classic) General Post Office. While in process of *manufacture* we particularized the constituent elements of this most remarkable work, and now, although only half matured, it stands out in *bold* relief before all previous *attempts* of a *similar* character; and—bestowed as it is so happily at this festive season, when "gifts" are all the fashion—it will leave an indelible impression on the minds of *at least* an important section of the public. Our feeble pen would be truly inadequate to a befitting description of its *tout ensemble*, nor indeed is it always good taste for a journalist to be too critical; but as some people—those who are always *most inconsiderately* meddling with officials, and questioning their *unquestionably* good (?) intentions about things that do not concern them—have actually had the assurance to pronounce the work in question an "atrocity," while again others proclaim it "a miracle of art," *we* should rather *not* assume the position of umpire between the two, but suggest for each of our readers to "go and see," so as to judge for himself. We may, however, remark *en passant*, that we trust there is *no* truth in the ungenerous report so industriously circulated, to the effect, that those ever vigilant professionals, distinguished for their digitous dexterity, have been impelled thither too frequently at the most *awkward* hour of *six o'clock*, p.m., when the numerous votaries at the "postal" shrine are admiringly contemplating the subject of our notice, and to the *very great inconvenience of the latter*.

THE CARTOONS OF RAPHAEL.

THE art-loving section of our public have now an opportunity of enjoying a rich and rare treat, in witnessing the original tapestries executed for the Emperor of Austria by this great master, after cartoons, and now, through the kindness of Mr. Charles Bianconi, J.P.—the fortunate possessor of these invaluable treasures—on exhibition for a charitable purpose, conjointly Protestant and Catholic, at the gallery of the (late) Royal Irish Institution, College-street.

The temporary custodianship, and the requisite arrangements for the above purpose, have been entrusted to Mr. Michael Angelo Hayes, a local artist of eminence, and moreover a gentleman much distinguished for his devotion and energy in the advancement of art. We dare not attempt to review the merits of works whose excellence defies criticism, and commands admiration which the most eloquent tongue should fail in describing, but the following brief sketch of their history (which, however, may be found *in extenso* in the catalogue) will be read with deep interest:—

These tapestries were woven at Brussels during the Popedom of Leo X., who commissioned Raphael to design cartoons therefor, and are seven in number, representing respectively, "The Miraculous Draught of Fishes," "Christ delivering the Keys to Peter," "Peter healing the Lame Man," "The Death of Ananias," "Elymas struck with Blindness," "The Sacrifice at Lystra," and "Paul preaching at Athens." After the tapestries were completed the original cartoons were for a long period disregarded, and left to moulder among the lumber of the manufactory, until taken possession of by Charles I., who caused them to be brought to England, and ultimately a gallery was built at Hampton Court by King William for their reception. The second set of tapestries executed after these cartoons were intended by Leo X. as a present to Henry VIII., and were accordingly hung up in Whitehall, and descended as a royalty to the succeeding monarchs; but after the death of Charles I. were purchased by the Spanish ambassador, who brought them to Spain, and after him remained in possession of the Dukes of Alva, until restored some few years since to this country by Mr. Tupper, our consul at Spain. The set now exhibited were executed at Arras, contemporaneously with the above, and were hung in the Imperial Palace at Vienna, until presented by the Empress Maria Theresa to Count Firmont at Milan, where they remained for many years, until lately purchased by Mr. Bianconi. We should strongly urge upon the consideration of our readers both the meritorious purpose and the excellence of this exhibition, which none should fail to witness.

PROTECTION OF LIFE FROM FIRE.

THAT "the burned child dreads the fire," and that "experience teaches," are two very popular proverbs; however it is seldom that a practical application of preventive measures follow as speedily in the wake of conviction of error, as it has done since the recent fatal occurrence at the Kildare-street Club house in this city, the particulars of which are so patent as to render repetition unnecessary. The want of a sufficiency of "fire-escapes," or perhaps, more properly speaking, the *total* absence of any such mechanical apparatus for the exigencies—nay, the periodical *certainties*—occurring in a large metropolis like this, justly called forth much indignant expression of feeling. Unfortunately, however, it was entirely confined to *verba non facta* (reversing the quotation), until one of those soul-harrowing catastrophes—which happily, at this side of the Irish Channel, "are but few and far between"—occurred, and awoke not only the philanthropic section, but the entire public to a sense of *duty*. Various meetings have recently taken place, at which this most important subject has been weighed in all its bearings; suggestion after suggestion has appeared in the daily journals (some very *original* indeed, but very questionable as to feasibility—however, being dictated by laudable intentions, we pass them by); but the practical application of energy to the task seems to have been reserved for a few gentlemen citizens, who succeeded in organizing a properly constituted body, entitled *The Royal Irish Society for the Protection of Life from Fire*, and which we are pleased to find has so far proceeded favourably with its mission, as to have secured the patronage of his Excellency the Earl of Carlisle—who, it will be remembered, took a lively interest in the sufferers from the fire above alluded to, and moreover was a substantial contributor to the fund—the presidency of Lord Talbot De Malahide, and the adhesion of numerous gentlemen of high character to act on the committee. As stated in the prospectus, we learn that "the society has ordered *four* fire escapes in addition to the one already entrusted to it by the Corporation;" and further, "that exclusive of the *original* cost of each machine—viz., £60—the annual expense of working will be about £80," figures which plead impressively the justice of a pecuniary consideration from *all* who wish *well* to the community at large; and it will be an everlasting libel on the City of Dublin if it be not voluntarily supported, especially as there is no Act of Parliament authorising the Corporation to defray the expenses out of the civic resources.

FEMALE ORPHAN SCHOOL, BURLINGTON-PLACE.

EXTENSIVE additions, together with considerable internal alterations, have just been completed to provide increased bedroom accommodation for an extra number of pupils, together with an infirmary, bathrooms, w. c., boardroom, dining-hall, laundry, drying closet, &c., at this admirably conducted and most laudable Institution. The works were carried out under the directions of Mr. M'Curdy, architect, by Mr John Nolan, of Meredith-place, builder, and at an expenditure of about £1,000.

PROPOSED ARCHITECTURAL ASSOCIATION AT MANCHESTER.

A PRELIMINARY meeting has been held by the professionals in this manufacturing emporium with a view of establishing an association, and which was ultimately resolved on, and all preliminaries, as to rules, office-bearers, &c., arranged.

MEMORIALS.

A PROJECT somewhat akin to that now on the eve of being realized in honour of the late Sir Philip Crampton, Bart., Surgeon-General, is on the *tapis* as regards the late Sir Henry Marsh, Bart., Physician-General, and Merrion-square has been spoken of as the probable site. A correspondent of the *Irish Times* also advocates the claims of the late Surgeon Richard Carmichael for a similar honour, and we would add that of Dr. Graves likewise. However, in plain truth, we must say that the Colleges of Physicians and Surgeons respectively are the most fitting repositories for these memorials, which may be regarded as strictly of a professional character.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AN ordinary general meeting was held on the 18th ult.—Mr. F. W. Porter in the chair. A donation of Owen Jones and Warren's illuminated volume, entitled "Paradise and the Peri," was announced. Allusion was then made to the deaths of the Earl of Aberdeen and Mr. Samuel Ware, both members. Mr. T. Roger Smith then read a paper on "Acoustics." Mr. Scott Russell offered some remarks relative thereto, and concluded by proposing a vote of thanks to the author, which was seconded and passed unanimously.

SAINT JAMES'S PAROCHIAL CHURCH.

THE Irish Metropolis compared with any other city of equal magnitude and importance in the kingdom, has always been pre-eminently deficient in the architectural character of her religious edifices, especially those in the Gothic style; but of late years, happily, a progressive movement—although as yet only in a positive degree—*has* taken place, and we trust that the good example thus afforded will serve to stimulate those who yet linger in the path of apathy. One of the most important recent works of this class to which in our periodical notices we are enabled to call attention, is the Parochial Church of St. James, an entirely new structure, save where partly erected on the foundation of the former building, which was quite unsuitable to the requirements of a largely increasing congregation. The Ecclesiastical Commissioners—a body which we take occasion to remark, scarcely receives one-half that share of public appreciation to which its energetic action in the matters of church restorations, preservations, and erections, justly entitle it—having determined on razing the old church and rebuilding it after more orthodoxical fashion, instructed their late architect, Mr. Joseph Welland, to prepare the requisite drawings. Those who knew that estimable gentleman and truly competent professional, could—as we did at the time—at once anticipate that the work in question would bear the *impresse* of his usual ability; and although the mind that conceived the design passed from its earthly tenement prior to the realization, we can reasonably assume—judging from our own feelings under similar circumstances—the great gratification sure to be experienced, if it now existed, at the admirable and faithful manner in which the builder, Mr. Thomas Henry Carroll, has subsequently fulfilled the architect's intentions in every detail. We carefully inspected the entire structure on the 31st ult., and unhesitatingly pronounce its execution to be such, as the most critical professional should commend. The following is a brief description:—

In plan the church is cruciform, with nave 76 feet by 28 feet, one aisle 46 feet by 15 feet, transepts 66 feet 6 inches by 20 feet, chancel 20 feet by 18 feet, robing-room and tower at south-west angle 10 feet square in clear, through which an organ gallery at west end is approached by a cleverly contrived stone staircase, and a special winding stairs for the bell-ringer is also provided in an angular buttress. The nave is approached by two spacious doorways—one at west end and another in the tower,—and is separated from side aisle by an arcade of three pointed arches springing from cylindrical piers, with moulded caps and bases, as also from chancel by a lofty and graceful arch; all of which are executed in Caen stone. An organ gallery occupies the western extremity, and is fitted with a beautiful instrument by Messrs. Bevington, of London. The roofs are of open timber work, stained and varnished, and are effective especially at the intersection of the transepts where the trusses unite. Of the furniture—which is characteristic, but comparatively simple throughout, the benches being commodious and with plain ends—we would specially note the design and execution of the pulpit, composed of Canadian walnut, as is also the lectern and chancel railing. The height from level of church to the apex is about 48 feet, to hammer beam 36 feet, and to wall plate 23 feet, producing graceful proportions. Viewing the exterior, the south elevation which presents itself towards the old entrance gateway, the position of which is, we understand, to remain the same, exhibits at one extremity the tower and spire, and at the other a wing of the transept, with the intermediate wall of aisle pierced by three traceried windows, as also the flank of chancel and clergyman's entrance porch. The roof of aisle being a lean-to, there are no clerestory windows. In features the north and south transepts are identical, each having a handsome traceried window, 19 feet by 10 feet, with a quadrilateral open in-gable, angular buttresses, and *no* finial. The north elevation is similar to the south, except that having no aisle it has tall traceried nave windows. The east end displays a great triple window with corresponding tracery—the centre open being two light and the sides single ditto, we presume intended *hereafter* for stained glass—the small gable of vestry and its three light window, also a side transept window similar to those of aisle. At western end is the entrance doorway with bold mouldings, detached shafts, and decorative iron work. A triple trefoil headed great window above same lights south nave; and the tower,—which is placed at the west angle and divided into four stages with belfry lights in each—has massive angular buttresses, and terminates with a broached spire attaining an altitude of 120 feet, perhaps, considering the level of the site, presenting the highest landmark the city can yet boast of. The masonry throughout is of Calp rubble, with horizontal beds and irregular joints; and the dressings, strings, corbels, water tables, mullions, and tracery, &c., are of sparrow picked or tooled and chiseled, or otherwise dressed, limestone from the builder's own quarries at Ballinasloe: a stone which by the way we would recommend to the notice of our professional readers. Especial care seems to have been paid to the warming and ventilation of this building, a fact which the congregation will no doubt highly appreciate, and two large and handsome stoves by Messrs. Musgrave, Brothers, of Belfast, with horizontal flues communicating with the exterior are introduced. The expenditure is about £6,000, and the sum seems very moderate for so commodious and handsome an edifice. Mr. Carty is the conducting foreman.

JOTTINGS IN CORK.

WE were pleased to see on the occasion of a recent visit to this city, more activity manifest than when we sojourned there last July, and amongst other matters note the following:—

The new Scots' Church in King-street is about ten feet above ground level; the architect is Mr. Tarring, of London; the builder, Mr. Richardson, of London; clerk of works, another Londoner. We are informed that the proceedings connected with this competition are likely to provide some work for the gentlemen of the long robe at the ensuing assizes.

The scaffolding for the erection of the portico to the Dominican Friary church, Pope's-quay, is completed, and the fixing of the columns will proceed forthwith. It is intended to finish the front according to the original design, with a hexastile Ionic portico and lanterns on the wings. The architects are Messrs. Deane, Son, and Woodward; the contractor being Mr. Scannell.

The reformatory for juvenile criminals at Upton is now ready for the reception of inmates, having been inspected by the Government official. The total cost has been £3,500, including furniture. The architect, Mr. R. Brash; contractor, Mr. R. Evans.

Extensive alterations have been made in the city club house; the entire front has been re-faced in Portland cement, and a new wing built after designs by Sir John Benson, architect; contractor, Mr. Daniel Barret.

A society has been formed for erecting dwellings for the working classes, and a plot of land taken at the north side of the city, whereon it is intended to erect sixty cottages. Tenders have been advertised for. Mr. Richard Brash is the architect.

The Messrs. Newsom are erecting a large block of buildings in Patrick-street. It is a pity that so excellent an opportunity was lost of suitably embellishing the locality, as no expense seems to have been spared by the proprietor. The contractor is Mr. B. M'Mullen. This is the structure referred to in the last number as being fitted with Messrs. Clark and Co.'s patent shutters.

The works on the Cork and Kinsale Junction Railway are being radidly proceeded with; the first five miles are entirely completed and ballasted. Messrs. Trowsdale and Sons, contractors. Two rival companies are in the field for the honour of making a railway from Cork to Macroom, 24 miles. One proposes to construct a line at the north side of the Lee, to form a junction with the Great Southern and Western at Blarney. The other is proposed to run at the south side of the river, and to form a junction with the Cork and Bandon line about two miles from Cork.

SKETCH OF THE LIFE OF RAPHAEL.

THIS sublime artist was the son of a painter named Sanzio, but of indifferent merit, and was born on Good Friday, 1482. He was employed by the Popes Julian II. and Leo X., who loaded him with wealth and honours, and the Cardinal De St. Bibiana held him in such high estimation, that he offered him his niece in marriage, but he declined this honour from an expectation he entertained, founded upon the promise of Leo X., of being made a cardinal himself. His pictures are to be found principally in Italy and Paris. That of the *Transfiguration*, preserved at Rome in the Church of St. Peter Monterio, is reckoned his masterpiece. His person was handsome, and his manners were polite, affable, and modest, though he lived in the utmost splendour. He was not only the best painter in the world, but perhaps the best architect too, on which account he was employed by Leo X. in building St. Peter's Church at Rome. This engagement prevented his acceptance of an invitation into France from Francis I., for whom he had painted a *St. Michael and the Holy Family*, and had been remunerated by that monarch with sums so far beyond his expectation, that he resolved to show his gratitude by a performance in which he even surpassed himself. This was the *Transfiguration* above alluded to, intended as a present to Francis; but he died before the picture was quite finished, and it was detained at Rome. His death happened on his birthday, 1520, when he had completed his 38th year, the consequence of his passion for the fair sex and the injudicious treatment of his physicians. His celebrated *Cartoons*, for which Louis XV. offered £100.000, were purchased by Rubens for Charles I., and brought to England, and have successively graced the Palaces of Hampton Court, Buckingham House, and Windsor Castle. A considerable jealousy existed between this artist and Michael Angelo, which sometimes manifested itself in a manner not very creditable to either. Raphael frequently exercised himself in sculpture, and excelled as much in it as in painting and architecture. A *Jonas*, of the size of life, which is deemed his *chef-d'œuvre* in this line, is shown in the Chapel of Madonna del Popoli at Rome, the cupola of which he also painted.

THE CHOIRS OF OUR CATHEDRALS.

THE Rev. Henry DeBurgh takes exception, and very justly, to the musical excellence of our cathedral choirs as compared with those of former days, and says :—

"I have frequented the College Chapel, Christ Church, and St. Patrick's, at intervals for upwards of 25 years, and have myself witnessed the decline and fall of their music. The old system gave us such men as Spray, Stevenson, Jager, Baggine, Dr. Smith, and the Robinsons (and you were pretty certain to find each of them in their places at the three services); the present system has given us —what?—Let those who go judge for themselves. I have heard them three or four times lately, but without the smallest pleasure. I go mechanically, and from old association; but the singing is very inferior and the whole system wrong. How long is it to continue?"

THE OLD ROMAN WALL ROUND LONDON.

What species of cement or mortar was used in the construction of this wall, of the wall of Severus, and generally of all our most ancient ruins, we possess no clue; but it is certain that no modern buildings have the same advantage. Our ordinary houses are ready to fall to pieces before they are well completed; and even more pretentious structures look old and decayed in a few years; especially the mortar crumbles away from the brickwork when it is scarcely dry, while, on the contrary, the cement used by the old masons soon became as hard as the stones or flints it connected. Traditions, chronicles and histories ascribe a very early date to the city wall. The metropolis, according to Simeon of Durham, was first inwalled by Helen, the mother of Constantine the great, A.D. 860. The Danes burnt London in 839, and Alfred restored it in 886. In 994 the citizens suffered siege from the Danes, closed their gates, and were defended by King Ethelred within the walls. Fitzstephen, writing in the days of Henry II., says: "The wall is high and great, well toured on the north side, with due distance between the toures, on the south also the city was walled and toured; but the fishful river of Thames with its ebbing and flowing, hath long since subverted them." In King John's reign, A.D. 1215, the barons repaired the walls and gates with stones taken from the Jews' houses, and in 1257 the walls were again repaired by Henry III. The cost of reparation was met by tolls and customs granted by the Crown. In 1477 Ralf Joceline, mayor, caused the wall to be repaired between Aldgate and Aldersgate. Alluding to this, Hollinshed writes, (A.D. 1447): "By the diligence of Ralf Jocelin, Mayor of London, the wall was made betwixt Aldgate and Cripplegate. He caused the Moorfields to be searched for clay and bricks, to be made and burnt there." He caused chalk to be brought out of Kent, and burnt into lime for the furtherance of the work. The Skinners' Company did the work between Aldgate and Bevis-marks; the Drapers between Bishopsgate and All hallows, and the wall nigh unto the Postern, Moorgate. All the companies took their part in the patriotic labor. The entire circuit of the wall was 10,608 feet, or two miles and 48 feet in extent. Think of our mighty London being hooped within a wall of two miles in circuit!—*City Press.*

Notes of New Works.

A coastguard station, consisting of eight dwelling houses for men and a chief officer's house, is to be built at Baldoyle, Co. Dublin, after plans furnished by the architect to the Board of Public Works.

Tenders have been received by the War Department in Ireland for improving the drainage at Newbridge Barracks.

A new railway station is to be built at Lisbellaw.

A new convent for the Sisters of Mercy is being commenced at Newry after plans by Mr. John Bourke, architect; Mr. William Byrne, of Newry, the builder. The expenditure will be about £4,000.

Estimates are required to this date for certain works to be executed on the Lower Commons of Bray, according to plans by Mr. Frith, C.E., County Surveyor.

The top stone of the new church of Gorey has been laid, the interior is completely finished.

A large station with goods store, &c., has been erected for the Dundalk, Enniskillen and Londonderry Railway Company at Cootehill, Co. Cavan, after plans &c., by the Company's Architect, Mr. William G. Murray. The former building comprises the ordinary internal arrangements of booking office, waiting room, station master's residence, &c.; and externally presents a tasteful elevation of early English character with two gabled wings connected by a central covered porch. Material for walling, hammer dressed random ashlar, with Cairnmore sandstone dressings. Expenditure about £2,000. Mr. John Nolan, contractor for this and various other of the Company's stations, &c., &c.

The Kilkenny Junction Railway will be speedily commenced, as preliminary preparations have been completed.

At St. Vincent's Reformatory, Goldenbridge, a second laundry has been commenced. The laundry already built is the most complete in the United Kingdom. All the operations of heating water, drying, cooking, &c., are performed by means of steam. The success of this establishment for the reformation of adult convicts has been complete. Since its foundation a second reformatory for females, under the age of sixteen, has been connected with it; but it being essential that the junior inmates should not be allowed to mix with the adult convicts, it has been found necessary to erect a second laundry, on a smaller scale. This will form a portion of a future quadrangle, about 120 feet in length, and will contain laundry, mangling, ironing, drying, stoke and boiler rooms; the drying, &c., will be performed by hot air. Cost, about £1,000. Mr. John Bourke, architect.

At the Dominican Convent, Kingstown, a similar laundry, somewhat smaller in size, is about being erected. At this convent there has, about 12 months since, been erected very extensive schools, at a cost of over £2,000; also an addition to the convent, containing large schools, dormitories, infirmary, kitchen, offices, cells, &c., at a cost of £2,200; same architect.

The Rev. Provost, T.C.D., has, we understand, disposed of a portion of his property at Dalkey, near Sorrento-terrace, and locally known as "the View" Rock, to the Government for the purpose of having a coastguard station erected thereon.

A new Roman Catholic Church is to be built at Kilcock, county Kildare; Mr. J. J. M'Carthy, architect.

The new church of St. Saviour, Dominick-street, will be consecrated and opened for Divine worship on the 15th inst.

The Ballast Corporation are about erecting a thirty tons crane on Sir John's-quay. Touching this, we may remark that complaints have reached us from some of our advertisers—English and Scotch stone merchants—to the effect that when they imported blocks of more than ordinary size to Dublin there was no crane sufficiently powerful to raise them. The necessity for improved accommodation is therefore obvious.

At the Dominican Convent, Cabra, there have been recently erected extensive additions, at a cost of £8,000, including kitchen, offices, work-rooms, community-room, chapter-room, infirmary, dispensary, &c., and 26 cells, together with a second campanile, 85 ft. in height. These, with the extensive additions of chapel, schools, &c., formerly erected, make this by far the most extensive conventual establishment in the United Kingdom. The north front presents a façade of 250 feet in length, broken into three compartments by two campaniles. Mr. John Bourke, architect.

A new church has been consecrated at Nenagh; style, Gothic, with neat tower and spire. Internal arrangements comprise nave, aisle, and chancel, affording accommodation for about 450 persons, and having appropriate fittings. At west end is a gallery, in which an organ, by Messrs. Telford, of this city, is erected. In the chancel a memorial window by Moore, of London, has been placed by J. J. Poe, Esq., in honour of the late rector, his father. Mr. Hunter, of Bandon, was the builder.

Mr. Alexander Thomas Gordon, of London, has entered into a contract with the directors of the Newry and Armagh Railway, to complete that line to Armagh.

The Committee of the Exhibition of the Fine Arts and Ornamental Art to be held in 1861 in connection with the Royal Dublin Society, are about erecting a gallery in the Agricultural Hall, and will receive tenders for same up to the 8th inst.

A new Roman Catholic church has been built at Chelsea, London, after designs by Mr. Welby Pugin, architect. It presents some noteworthy features as thus described by the *Building News*:—"The chapel is divided into three bays, with groined intersecting ribs, having carved bosses at each intersection, the principal ones representing the Sacrifice of the Mass, the Resurrection, and the Blessed Virgin seated on a throne surrounded by angels. The ribs are supported on elaborately carved caps which terminate eight Galway green columns arising from a polished alabaster base. The walls are formed of Sicilian and Devonshire marbles. The chapel is lighted from four hexagonal tracery windows which break into the upper portion of the groin. The altar is a most highly finished work, in the centre of which, and standing immediately above the altar, is the tabernacle of polished alabaster, inlaid with spars and other coloured marbles. The cresting round the arch is formed of cunningly cut passion-flowers, interwoven with conventional foliage. Above this is a throne for the reception of the monstrance, round which, and forming a canopy too, is a biscica of angels adoring and holding instruments of the Passion. In the centre of the panel will be an I.H.S. in embossed metal-work with rays and stars The cresting is formed of angels interwoven with leafage. The upper portion of the reredos is supported by marble and porphyry columns, between which are carved clusters of foliage, and the side panels are also adorned with angels. The principal portion is worked in alabaster, the altar frontal is wrought in Caen-stone. the chief subject being the Adoration of the Lamb The metal-work, we are told, is being exeuted by Messrs. Hardman, and is said to be extremely rich. The chapel is connected with the present church by means of an arcading supported by marble columns. The work is executed by Mr. Farmer, of Mead-place."

MEMORANDA IN AMERICA.

The new city hall, Cincinnati, was dedicated on the 5th ult., and is said to be a splendid building.

The public libraries in Philadelphia contain 271,981 vols., and those of the State, 467,716.

A new and splendid cemetery is to be opened near Havanna, to which the remains of Christopher Columbus, the discoverer of the New World, are to be removed and deposited in a silver urn, upon which will be inscribed, in letters of gold, the most remarkable events of his great enterprise. A bronze statue of the discoverer, in the attitude of revealing his mission, is to be placed over them.

Cast-iron buildings are very much in vogue in America; one at Milwaukee, at corner of Eastwater and Wisconsin Streets, is said to be most imposing and magnificent.

Scientific and Artistic Morceaux.

The progress of the railway works from Castlerea to Ballyhannis is said to be rapid. The permanent way from the former town to the River Suck is completed, and the bridges over that river finished; the remaining portion of the work being in a forward state.

An elegantly designed stone cross from the chisel of Mr. Fagan, who is at present engaged on two statuettes of the Queen and Prince Consort, has been presented to Gorey Catholic church by Sir Thomas Esmonde.

Paul Delaroche's last great work, "The Martyr," has been for some time exhibiting at Mr. Lesage's gallery in Sackville-street.

A pneumatic tube, for the transmission under ground of the letters, &c., from St. Martin-le-Grand to Bloomsbury district post-office is being laid. It will be two and a-half feet in diameter. We have no doubt that a few years will witness the exclusive transmission of the mails throughout the kingdom on this principle.

It is proposed to connect Regent's Circus with the Metropolitan line at Smithfield, by means of a tubular underground line of rail.

The Madras pier works are rapidly progressing. and passengers can soon be landed and embarked beyond "the surf." The profits of the boatmen will be seriously curtailed.

Some of the monuments in the Dutch burial ground at Negapatam, Madras, were erected from 200 to 250 years ago, and the inscriptions and coats of arms engraved thereon are in an excellent state of preservation, the masonry work only needing repair. It is proposed to establish a new library and reading-room at Vizagapatam.

The Emperor Trajan, at the beginning of the second century, erected a bridge over the Danube that equalled in size the Victoria bridge of the present day. It was 60 feet wide, 150 feet high, and nearly two miles in length.

The bronze statue of honour for the Guards' memorial in Pall Mall, and cast by Messrs. Elkington, Mason, and Co., of Birmingham, from cannon taken by the Guards, has been fixed in position.

Mr. Aston, *a barrister*, is the inventor of a new mode of propelling steam vessels by means of smooth discs of wood or metal immersed some two feet and driven at a high velocity.

A plan for constructing the proposed public offices in London along the river, and connecting Somerset house with Whitehall and the houses of Parliament, has been submitted to the First Commissioner of Works by Sir Richard Bromley.

The indefatigable Mr. Train is pursuing his horse tramway project with much success in London, and has obtained the sanction of several vestries.

An engraving of the Castle Chapel Pulpit, in this city, designed and constructed by the eminent firm of Hardman & Co., was given in the New York Architects' and Mechanics' Journal of the 15th December.

Steam fire engines are in America rapidly superseding the old hand machines.

The London and North Western Railway Company, in a new bill proposed to be laid before the Legislature next session, seek amongst other matters for permission "to purchase, take, hold, &c., certain land and buildings at the North Wall, Dublin, lying between North Wall, Wapping, and Mayor-streets, and Royal Canal Docks.

In the recent competition held in Liverpool for the boys' orphanage of that town, the committee have chosen the designs submitted by Mr. Pugin. The other competitors were Mr. Charles Hansom and Mr. Hughes.

Miscellaneous.

THE AGRICULTURAL WINTER SHOW.—This annual exhibition was held in the large Agricultural Hall of the Royal Dublin Society, on the 11th, 12th, 18th, and 14th ult., but the display was scarcely an average of that usual at this period of the year. Amongst the exhibitors of implements, engines, &c., we noticed Messrs. Barrett, Exall, and Andrewes, Garrett and Sons, Mr. Woods, Shekleton, Dundalk; Kennan, Dublin; John Maguire, ditto; and others, who respectively sustained their well-established reputation.

DUBLIN AND HOLYHEAD.—The Admiral Moorsom, a fine steamboat built by the London and North Western Railway Company, is being placed on this station.

DISCOVERY AT ST. DOULOUGH'S CHURCH.—Mr. Sloane, C.E., Honorary Architect to the Committee for St. Doulough's Church restoration, reports that a square-headed doorway leading to the church, and immediately beside the hagioscope, has been discovered in the prosecution of the work. Mr. S. says "this bears out the supposition of one of our secretaries (Dr. Reeves) that there was a *more ancient* building than any now standing to which the erection of the present building was made subservient, and may account for the incongruities—the levelling off of Leper's window especially."

PLEASANT FOR WOOD ENGRAVERS!—The last number of the *British Journal of Photography* contains a photograph from nature of the "Porch of Strasbourg Cathedral." It is printed with ordinary letter-press from a block produced by photography and electrotype, untouched by the graver. The invention is by Paul Pretsch, and is for illustration, such as is now in common use with woodcuts.

EXTRAORDINARY TIMBER.—Messrs. Robertson, Donaldson, and Co, timber merchants, Victoria-street, lately made a purchase at Liverpool, of two of the most extraordinary logs of timber, for size and quality, that were ever brought into the city, while they were the smallest that could be found in the cargo from which they were selected. The timber is New Zealand pine from Kauri, where immense forests, of probably a century's growth, have been discovered. The logs alluded to are of the following dimensions:—The first measures 50½ feet in length, is 26½ inches square, and contains 246¼ feet of timber. The other is much smaller; it measures 26 feet in length, is 28 inches square, and contains 142 feet. Some of the logs in the cargo were from 70 to 80 feet in length; and some idea of the immense height of the tree, as it stood in the forest, may be formed from the fact of this great length being, in many cases more than 26 inches square. The timber is of a fine hard texture, and is remarkably free from knots. The logs in question are the first New Zealand pine that has ever made its appearance in Perth.—*Perthshire Advertiser*.

JONES'S HEATING APPARATUS.—We are requested to print the following testimonial received by the patentee from Lord Charleville's head gardener:—"Charleville Gardens, Tullamore, Ireland.—To Mr. J. Jones.—Sir—I have much pleasure on being able to inform you of our entire satisfaction testing apparatus, as supplied by you in December last, for the pine stoves, lately erected by the late Lord Charleville. Your saddle boiler does its work quickly and well; we can command any amount of heat, top and bottom, and in the shortest time, throughout the whole range. I have seen several of the newly-invented boilers, and have had to do with some of them, but for hard work give me the simple, but durable and efficient saddle boiler. I must also beg leave to inform you that your plan and instructions for fixing and arranging it are truly excellent; it was so easy to my man employed in fixing the apparatus that he had the whole arranged and fixed in half the time it would have taken him had he not had your plan. With so many hundred feet of pipe, I thought at one time we should have to work our boiler very hard; I have, however, great pleasure in saying we have found it quite the reverse.—Yours respectfully (signed) JOHN ROBERTS."[*]

THE UNHAPPY HOMES OF ENGLAND.—A French author recently published a work on the condition of England, in which the revelations of socialism are astounding.

MEDAL TO DR. JACOB.—The medical brethren of this distinguished Oculist, and proprietor and editor of the *Dublin Medical Press*, have caused a bronze medal to be struck in his honour, bearing on one side a likeness of the Doctor, and on the other the following inscription:—"Arthur Jacob, M.D., F.R.C.S., Prof. of Anat. and Phys., Roy. Coll. of Surg. in Ireland. In commemoration of eminent services rendered to Science and the Medical Profession in Ireland, 1860."

LONG RAILS.—Messrs. Barningham, of Darlington Ironworks, are rolling a large quantity of rails 27 ft. long and 92 lb. to the yard. Railway companies discover that, by having strong rails and heavier engines, immense trains of minerals and goods are worked with less labour, greater dispatch, and at smaller cost. In fact, one train will do the same amount of carriage as three usually did.

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[*] Particulars may be seen elsewhere in advertisement.

THE PATENT SELF-REGULATING WIND ENGINE.—We are requested to state that one of those useful machines has been erected on the estate of the Earl of Howth, at his quarries on the high road between Baldoyle railway station and Howth. The numerous parties who have been making enquiries, or who have deferred giving their orders, have now an opportunity of seeing the Wind Engine in working order, and of judging of its efficiency.

FIRE-ESCAPES.—The old adage, "*experientia docet*," seems to have been illustrated in the recent energetic attempt to provide suitable fiire-escapes for this city, and we are glad to see that the movement has been at least so far substantially encouraged.

THE STREETS OF PARIS.—Several houses are about to be demolished in the neighbourhood of the Boulevard de Sebastopol, to continue the Rue Turbigo. That street will branch off from the Rue du Temple, near the Boulevards, to the Chateau d'Eau, and establish a direct communication between that point and the Church of St. Eustache, near the Halles. It will be about 1,200 metres long, by twenty wide. This project, added to others which are in course of execution, will have for result the complete transformation of the most densely populated quarters of the capital, where free traffic is now frequently interrupted.

IRISH ARCHITECTS IN NEW YORK.—We learn from the *Architects' and Mechanics' Journal* that "a large building, two lofty storeys in height, 60 by 100 feet, is to be contracted for and commenced during the fall. It will be in the Venetian style, with a front of Philadelphia brick and heavy Dorchester stone trimmings, 56 feet high from the ground to the top of the cornice. Mr. Chas. Mettam (formerly of Dublin), architect."

A HINT TO WORKMEN.—At a recent meeting of the National Association for the Promotion of Social Science, Lord Brougham remarked that a working man out of debt, acquiring capital, however slowly, and abstaining from stimulants, is on the road to happiness, and with a prospect of attaining it as bright as is vouchsafed to any citizen of the State, even the highest in the land.

IMMENSE GRANITE BLOCKS IN THE AMOOR.—About half a mile to the west of our encampment were heaps of rounded granite blocks, strewn over a sandy shore; also several isolated masses, varying from 100 to 800 feet in height, were standing about 60 yards from the base of the precipices. The sharp angles on all these masses had been worn away by water, and the cliffs at this part were much undermined, in some places forming recesses 40 and 60 feet deep. At one place I found a great triangular-shaped mass, 130 yards on its sides, and about 450 feet high. This was pierced through by natural arches, formed on each face, 82 yards wide, and of greater height, leaving the upper part standing on three great abutments. The scene was strikingly grand; and while I was sketching this beautiful object, the sun rose, and I beheld part of his crimson orb through one of the natural arches, giving quite a magical effect to the landscape. Nature had completed this structure thousands of ages before the monks of Crowland built their triangular bridge.—*Atkinson's Travels in the Amoor.*

CEMENTATION OF IRON.—The process by which iron is converted into steel generally consists in making it combine with a small quantity of carbon; and very frequently, owing to the brittleness of steel when tempered to the highest degree, it is desirable to give the qualities of steel to the surface only of a bar of iron. This is done by enclosing it in a box of sheet iron, filled with charcoal dust or horn shavings, tallow, &c. Here the question naturally arises, whether carbon combines with the metal under a solid form, which is scarcely admissible, or else is absorbed in the shape of some carburetted gas; and, in the latter case, it is useful to know what gas is generated in the process. On this subject M. Caron has just addressed a paper to the Academy of Sciences, in which he describes several experiments of his to show that the cementation is owing to the formation of a cyanide, cyanogen being, it is well known, a compound of carbon and nitrogen. Having filled a porcelain tube with fragments of charcoal surrounding a bar of iron, and exposed it to the heat of a reverberatory furnace, he successively caused hydrogen, oxide of carbon, azote, air, pure carburetted hydrogen, &c., to pass through the tube, but could not after a two hours' fire obtain any degree of cementation. But the case was far different when he made a current of dry ammonia pass through the tube; in that case the cementation was effected rapidly and easily; after being exposed to the fire for two hours the bar of iron being immediately tempered, then hammered to make the grain closer, and then tempered once more, proved, on being broken, to have been cemented to a depth of two millimetres. This result M. Caron attributed to the formation of the cyanide of ammonium, and further experiments confirmed this idea. M. Caron then, in order to obtain cyanide of potassium in his tube as a cementing agent, let his charcoal soak in a solution of carbonate of potash, and the experiment succeeded beyond expectation. In the same manner he obtained excellent cementations by employing soda, barytes, and strontian, under the influence of a current of air. Hence he shows that all the various nostrums used in metallurgy for cementing iron owe their efficacy to the formation of cyanides.

BRITISH BUILDING STONES.

IN an article under this title the *Builder* (London) particularizes the produce of several quarries, amongst those the following, which we are requested to note:—

"The *Dean Forest* quarries, in Gloucestershire, belong to the coal measures: their chief outlets are at Lydney, Coleford, Bream, and Yorkley. The local name of the stone is merely Dean Forest stone. Much of it is suitable for dock and railway purposes, builders, statuaries, paving, &c.; grindstones, troughs, &c. It was used in the construction of Newland Church and other old churches, in some of which the carving on the oldest graves and pinnacles is as sharp, clear, and defined as when first worked 400 years ago. This stone was used in the construction of Newport, Cardiff, Gloucester, and Swansea Docks; South Wales, Taff Vale and Western Valleys Railways; Gloucester and Berkley Canal; Gloucester Over-bridge; Folly-bridge, Oxford; Cardiff Castle, and National Provincial Bank; Marlborough and part of Llandaff Colleges; Assize Courts, interior of St. John's and Exeter Colleges, and Taylor and Randolph's Buildings, Oxford; Eastnor Castle and Whitley Court, Worcester; Langton House, Oxford (steps 18 feet long, and landings proportionate); and the towns paved with it are too numerous to mention. It is also manufactured into field and garden-rollers, pillars, &c. On Birch-hill an unlimited quantity can be obtained for ages to come. About 150,000 cubic feet were raised in one of the quarries by Messrs. Hemmingway & Pearson for Cardiff Docks, a great portion of which came from quarries now in possession of MESSRS. GRINDELL & Co Blocks of any size possible to be removed are easily obtained here, as also steps, landings, and grindstones. The Birch-hill and other kinds are sold in blocks, rough, at 7s. per ton; is pecked or scappled, at 7d. to 8d per foot cube; common building stone, 1s. per ton; flagging, from 2d. to 2½d. per foot superficial; troughs and cisterns, 6d. per gallon of 281 cubic inches; gravestones, 6d. per foot superficial; grindstones at 2d. per inch diameter, up to 2 feet high; 7 feet about £5."

THE PANTOMIME—THEATRE ROYAL.

"CHRISTMAS *comes but once a year; and when it comes it brings good cheer*," is a familiar proverb, which the happy faces of both "*old*" and "*young*" juveniles who eagerly long to see—and when seen enjoy to all intents and purposes—the Christmas Pantomime, more forcibly illustrate than any other event which at this festive season takes place. Who has not heard of "Jack the Giant Killer," of "nursery-rhyme" notoriety? and what member of that happy community commonly called "*children*"—but who in the beauty of their innocence often read worldly-worshippers, mammon-seekers, and would-be sages a wholesome lesson of *natural* wisdom—has not by this time used their best influence with *pater* or *mater familias* to allow them one peep at that "wonderful Jack," so often depicted in glowing colours in those pretty story-books? And here, so perfect is the illusion, so characteristic the scenery, so admirable the personation, of "Jack," with his seven-leagued boots, his deadly weapons, his stratagems to entrap and slay those "terrible giants," that, judging from the wondering countenances of "the little ones," credulous adults would be almost led to imagine that the "veritable Jack" was in reality pursuing his tragical career under the roof of "the Royal." Unfortunately we cannot now enter into a lengthened criticism of the merits of its production, but it may suit our purpose and that of the Lessee—who, whatever he does in the catering line he does well—to say it is the *best* pantomime, as regards scenery, music, plot, genuine drollery, appointments, &c., that has been put on the stage *here* for many years. We must also *en passant* note, that in the comic department, through a coincidence, is introduced a view of Messrs. Sheils and Scott's front in Westmoreland-street (of which the conductor of this journal was the architect), travestied, however, into a toy-shop, in which clown and pantaloon cut their usual capers.

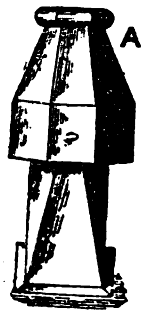
BANKRUPTS.

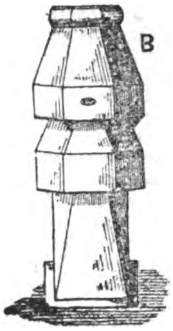
Cornelius Molony, of Tipperary, county Tipperary, builder.

John Killen, Malahide, and John Cunningham, Dalkey, County Dublin, trading in co-partnership as Killen and Cunningham, railway contractors, to surrender 8th and 29th January.

WE occasionally receive complaints from our town subscribers and advertisers relative to the non-delivery of the DUBLIN BUILDER, and as far as possible in each individual case try to rectify the error, and bring the blame home to the proper party. We must, however, remark, that in the majority of instances the fault lies at the doors of the complainants, and not with us or our *employees*, inasmuch as that frequently the journal *is* duly delivered either in letter-boxes or otherwise, and nevertheless does *not* reach the party intended. Why? it is not *our* business, but that of our *patrons*, to investigate.

HAGAN'S PATENT VENTILATING CHIMNEY-TOPS





Will cure smoky Chimneys, whether their position be under high buildings, or in the most exposed situations. They preclude the necessity of building tall chimney-shafts, or using long tubes; and they do not admit rain, or the smoke of other flues. They cause an upward current, and (their vertical stays, &c.) effectually prevent down draughts. They have no moveable parts; are silent in their operation; cannot get out of repair; and can be swept by the chimney-sweepers' machines.

1st Size (for ordinary fireplaces).... A. 30s.—B. 35s. each.
2nd „ (for small kitchens, &c.) .. A. 33s.—B. 38s. „
3rd „ (for large kitchens, &c.) .. A. 36s.—B. 42s. „

The double-head Tops B are invaluable for short flues, and very exposed situations.

Manufactured (of Strong Zinc, No. 13 Guage) and sold by H. W. GATES, 67, Westminster-bridge Road, Lambeth.

TERMS, CASH.

P.S.—The lower portion can be made any form and size, to suit any flue or fit on any chimney-pot or tube.

N.B.—If parties find any delay in the execution of their orders, they are requested to communicate with the Patentee, CHARLES HAGAN, Tower of London.

List of some of the Buildings where HAGAN'S CHIMNEY-TOPS *have cured Smoky Chimneys, and where they may be seen in use.*

St. James' Palace
General Post Office
National Debt Office
Home Office
New Record Office
Board of Trade, Whitehall
Royal Mint
Poor-law Board, Whitehall
State Papers Office
Office of Works, Whitehall-place
Paymaster-General's Office
Adjutant General's Office
Horse Guards
Tower of London
Somerset House
Registry of Seamen's Office, Adelaide-place, London-bridge
Admiralty Registry
Probate Office
Foreign Office
War Office, Pall Mall
Master of the Rolls' Chambers
Queen's Remembrancer's Office
Duchess of Kent's Residence, Frogmore Lodge
Queen's Robe Room
Earl of Portarlington's Mansion, Emo Park
His Grace the Duke of Devonshire's, Chatsworth
Lord De Ros, Strangford, Belfast
Duke of Northumberland's, Alnwick
Earl of Aberdeen's Residence, Blackheath
Hampton Court Palace
Bushy Park House
"Tolmers," Hertford, the Seat of T. Mills, Esq., M.P.
Hon. Col. Jocelyn's Residence, 14, Bolton-street, Piccadilly
Col. (Alderman) Wilson's Quarters, City Militia Barracks
Chelsea Hospital
Lodge at Carriage Entrance from Pall Mall to St. James's Park
Upper Lodge, Greenwich Park
Lodge at Chief Entrance to Victoria Park
Lodges, Battersea Park
Lodges, Regent's Park
Lodge, Kew Gardens
Lunacy Commissions Office
Statistical Branch of Board of Trade, Parliament-street
Union Assurance Office, Cornhill
Messrs. Dimsdale and Co.'s Bank, Cornhill
Hon. W. Henley, M.P., George-st., Westminster
Junior United Service Club
J. Beattie, Esq., Architect, Eden Bridge, Edinburgh
Messrs. Ashby and Sons, Builders, Bishopsgate-street
Messrs. Holland & Hannen, Builders, Bloomsbury
Mr. Geo. Myers, Builder, Lambeth
Messrs. Hayward, Builders, Gresham House, Broad-street, and Bishopsgate-street, Lambeth
Mr. Parks, Builder, Church street, Dover
Messrs. Pratt and Sewel, Builders, King's-cross

AND SUNDRY PRIVATE DWELLINGS.

Oils, Colours, Glass, &c.

MANNIN'S Wholesale and Retail DRUG, OIL, COLOUR, and GLASS WAREHOUSE,
2, GREAT BRUNSWICK-STREET.
(near D'Olier-street.)

Cattle Medicine of all kinds.

N.B.—Every article is warranted genuine, and at the lowest price.

PROPAGATING GLASSES, & GARDEN CAPS for covering Flowers. A large Stock at JOHN CARRICK'S, 5, MARY'S-ABBEY.

UNION PLATE GLASS COMPANY.

The very beautiful article of Plate Glass, manufactured by this company, can be had at the price of the lowest in the market, shipped to any Port in Ireland.

H. SIBTHORPE AND SON,
Agents for Ireland,
11 AND 12, CORK-HILL, DUBLIN.

TABLE GLASS, BOHEMIAN GLASS, PARIAN VASES, FIGURES, & HYACINTH GLASSES.
JOHN CARRICK, 5, MARY'S-ABBEY.

ROOM PAPER, in great variety, at MAURICE BROOKS', SACKVILLE-PLACE, Dublin.

GLASS SHADES—ROUND, OVAL, and SQUARE, with Gilt, Black, and Inlaid Stands.
JOHN CARRICK, 5, MARY'S-ABBEY.

JOSEPH O'LEARY, DECORATOR, Painter, Room Paper Manufacturer, and Dealer in Window Glass, and Laminated Lead for Damp Walls, No. 1, TEMPLE-LANE, Dame-street.

GREENHOUSE GLASS.

GENTLEMEN requiring GLASS for GREENHOUSES will be supplied, on the CHEAPEST terms, at P. G. DUNNE'S GLASS WAREHOUSE, 112, MIDDLE ABBEY-STREET, DUBLIN.

Plate Glass (best quality) sold at a proportionately cheap rate.

PLATE GLASS kept in Stock and supplied immediately, whereby the usual delay in ordering from the Manufactory is avoided.
MAURICE BROOKS, SACKVILLE-PLACE, DUBLIN.

WINDOW GLASS—CROWN, SHEET, PLATE, POLISHED, AND ROUGH.
JOHN CARRICK, 5, MARY'S-ABBEY.

PLATE GLASS, PIER AND CHIMNEY GLASSES, of the largest dimensions, SILVERED; and all sizes, SILVERED and UNSILVERED, for mirrors, sashes, and shop fronts.

WALTER BURKE,
91 AND 93, MIDDLE ABBEY-STREET.

MANCHESTER STAINED GLASS WORKS, NEW WAKEFIELD-STREET, OXFORD-STREET, near the BRIDGE.—Messrs. R. B. EDMUNDSON and SON respectfully inform their friends that they have erected, and are now in the occupation of, extensive premises, adequate to the requirements of their rapidly-increasing business. In offering their acknowledgments to the public for the support extended to them since their establishment in Manchester (five years ago), Messrs. Edmundson and Son assure their patrons that in increasing their facilities for business, they have secured such claim to an increased support as the employment of the highest talent in design and execution of their work entitle them.

Messrs. E. and SON feel confident that their long experience (upwards of thirty years) and earnest application to the study of Ecclesiastical design, as seen in the many windows they have executed, will be received as a pledge for the correctness of their work in this branch of art; and the fact of their being the originators of the application of permanent ornament to rough and polished plates of the largest dimensions, and the imitation of statues on polished plate-glass, render it unnecessary to refer to their success in that very pleasing branch of artistic decoration.

In conclusion, Messrs. E. and SON beg to state, that in everything entrusted to their care the strictest attention will be given to propriety of design, with that economy which they flatter themselves will lead to the still more extensive introduction of Stained Glass, both in ecclesiastical and domestic buildings.

Messrs. E. and SON beg to call attention to the Illuminated Commandments, &c., by their new process, on Plate; also to their Monumental Brasses &c.

ROBERT MACLAREN & CO., EGLINTON FOUNDRY, GLASGOW,
Manufacturers of all sizes of CAST-IRON MAIN PIPES, for Gas or Water, by an IMPROVED PATENT.
GENERAL IRON FOUNDERS, GAS ENGINEERS and WROUGHT-IRON TUBE MAKERS.

THE ARCHITECTURAL MUSEUM.
SOUTH KENSINGTON MUSEUM, W.
PATRON—H. R. H. The Prince Consort.
PRESIDENT—A. J. B. Beresford-Hope, Esq.

THE following LECTURES and MEETINGS will take place in the Theatre of the South Kensington Museum on Wednesdays:—

Jan. 9. A Plea for Polychromy. By W. White, Esq.
Jan. 23. On the Art of Engraving (illustrating the several styles) and printing Plates. By S. C. Hall, Esq., F.S.A.
Feb. 6. The Four Sisters; or some notes on the Relationship of the Fine Arts. By John Bell, Esq.
Feb. 20. On the Architectural Antiquities of Guildhall. By Thomas Lott, Esq., F.S.A.
Mar. 6. Distribution of Prizes to Artist-Workmen, and Conversazione.
Mar. 20. An Architectural Journey in Aquitaine. By E. A. Freeman, Esq., M.A.
April 3. On the Architecture of the Eleventh Century. By J. H. Parker, Esq., F.S.A.

Cards will be sent to Subscribers.

GEO. GILBERT SCOTT, Treasurer.
JOSEPH CLARKE, Hon. Sec.
13, Stratford-place, W., where letters should be sent.

ART UNION OF IRELAND.—
THIRD YEAR.

The System of MONEY PRIZES, with the right of Selection in every case by the Prizeholder.

SUBSCRIPTION—ONE GUINEA EACH SHARE.

One Chance in the Annual Distribution for each Guinea subscribed.

The next Distribution in April, 1861.

PRESIDENT—The Earl of Charlemont.

TRUSTEES—The Right Hon. Maziere Brady, Lord Chancellor; John Barton, Esq.; and the Hon. Judge Berwick.

The Committee desire particularly to impress the importance of early Subscription through the Society's Agents, or direct to the Secretary, with a view to securing good Exhibitions in Spring.

GEORGE F. MULVANY, Sec.

Copies of the Annual Reports to be had at the Offices, No. 113, Grafton-street, Dublin, or sent free by post.

Building Ground, &c.

BUILDING GROUND.

TO BE LET FOR BUILDING, on NORTHUMBERLAND ROAD and the other NEW ROADS going from Upper Leeson-street to Mountpleasant-square, Upper Charlemont-street, and the neighbourhood of Leeson Park. The contiguity to the city, and salubrity of situation, makes this neighbourhood particularly adapted for the outlay of capital. There are several first class houses now erecting on these lands, together with the Church and Asylum for Blind Females (Molyneux Asylum).

The particulars may be known on application to the Offices, No. 15 Molesworth-street, Dublin.

BUILDING GROUND.

TO BE LET IN LOTS FOR BUILDING, the Ground on the North, South, and East sides of WELLINGTON-SQUARE, going from Leeson-street to Harcourt-street; also the ground opposite the Railway Terminus in HARCOURT-STREET.

The particulars may be known on application to the Offices of John Louch, Esq., Architect and Surveyor, 15, Molesworth-street.

BUILDING GROUND.

TO BE LET FOR BUILDING, on GARVILLE AVENUE GARVILLE ROAD, and FRANKFORT ROAD, RATHGAR, particulars of which may be known at the Offices, 15, Molesworth-street.

BUILDING GROUND NEAR SHANKILL STATION.—The Domvile Estate Act having lately passed the Legislature, Sir Charles Domvile is now prepared to offer to the Public a number of most desirable Sites for Building on his SHANKILL ESTATE, which immediately adjoins the Shankill Station of the Dublin and Wicklow Railway. This property commands the most beautiful views of the Bay of Shanganagh and of the Wicklow Mountains, and has abundant supplies of the best building stone and purest spring water. The Lands have been laid out so as to afford convenient Plots for Building, and long building leases can be given. Plans of the Lands can be seen and every information afforded by Messrs. Stewarts and Kincaid, Agents, No. 6, Leinster-st.; or by Randal Peyton, Esq., Solicitor, No. 83, Middle Abbey-street.

TO BUILDERS.—TO BE LET, in RATHGAR, on the Roundtown road, about 500 Feet of BUILDING GROUND, 260 feet from front to rere, at 4s. per foot. Also, in Rathgar-avenue and Beauchamp-avenue, 2,000 feet at 3s. per foot. Lease 999 years. The situation is unquestionably the best in the suburbs of Dublin. Apply to Dr. BEAUCHAMP, 115, BAGGOT-STREET; or to F ARMSTRONG, Builder, BAGGOT-STREET.

The Dublin Builder.

VOL. III.—No. 26.

TENDERS FOR WORKS.

THE time occupied by builders, or possibly the expense incurred for surveyors to make out estimates for intended works, is a subject which demands, from its importance to the well-being of the building interests, some consideration at our hands. In a former No. of this paper we alluded to it, but perhaps not sufficiently *in extenso* as it requires. Take up an estimate for a building of any note, and if at all carefully prepared, look at the labour—the infinity of labour—of production! Except money, there is nothing of more importance to the builder than his time; and if this latter is not at his command, the former must be in requisition to enable him to give in a correct tender.

A party intending to build, and who has approved of his architect's plan, commissions the latter to apply for tenders for the works. This is either done by public advertisement, or by invitation to a few selected parties, which latter is called limited competition. Generally speaking, in either case when the tenders are opened they differ considerably, but in the former, to an amount which is scarcely credible. A client of ours once remarked upon an occasion of this kind—"that some of these men must be either totally ignorant of one of the main qualifications for their art, or be utterly reckless of consequences." And why is all this? Because the time which should be occupied, or the expense which should be incurred in bringing out a correct bill of quantities cannot, in many instances, be afforded, and in other cases is not considered worth the chances of success. Therefore, a shorter and much less expensive method is resorted to, combining in a great measure guess-work with measurement in the cube. In some instances this mode is followed *pro tem.* by builders who have no anxiety to obtain the work, and with them produces the high estimate; well knowing from the number in competition, and the repute of at least one of the competitors, that they have no possible hope of success, but not wishing to decline their patron's well-meant introduction, they arrive at an amount which in their minds is a fair approach to the cost rather above than under, others of a more reckless and imprudent turn, chance the matter upon a minimum guess, never bestowing even a thought on quantities, because Mr. So-and-so, who has a direct interest in the plans being carried out, has told them the building can be erected for so much, citing as an example Slapdash, who built an exactly similar house for the same money, but neglecting to tell that he was bankrupt a few months after, and forgetting altogether he has become chronically attached to a habit of meeting his creditors occasionally. We have heard of a builder whose practice was, merely to look over the plans, see the ground, step it, and give in his tender. How these two latter modes terminate we can well imagine.

When it is taken into account the number of estimates a builder is obliged to furnish upon the most remote chance of success (we say obliged, because no matter how fully he may be employed, if he has connexion he cannot in all cases decline without giving offence to those who are anxious to serve him)—so many, that in a respectable builder's establishment with large practice, and where the proprietor is really anxious to give in correct tenders, one, or possibly two, clerks are constantly employed in this branch of the office business—we cannot wonder where the labour and expense is so great, and the chances in favour of a fairly priced tender so small, that less scrupulous parties will resort to the readiest and assuredly the most erroneous calculation; nor can it be a matter of surprise so wide a margin occurs between different tenders.

We are often astonished that parties intending to build do not sometimes consider the risk they run by employing the author of the lowest tender; it may be, or it may not be the works are completed for the contracted sum, but it often occurs that a considerable amount of embarrassment to all parties is the consequence. During the past few years how many contracts have we witnessed unfulfilled? how many buildings have been completed by others than the original contractors? Ranges of houses and suburban terraces have been left in every stage of completion, to the serious and incalculable loss of the proprietors, and the infinite annoyance of the architect.

Can we devise a remedy for this? we think we can. Firstly, surveyors' charges are too high, and act as a prohibition to their employment. We have known the charge for a bill of quantities amount to one quarter as much as the architect's entire percentage for plans, superintendence, and all. Let them be reduced, and a vast increase of business will be the consequence, which in the end will return them much larger incomes than at present. Secondly, let architects and the public set themselves fairly and with a will against the lowest tender, no matter how plausible, unless unquestionable security be offered for its fulfilment, and by a competent builder. Can proprietors conscientiously consent to the erection of their buildings by the timber merchant, the brick maker, the ironmonger, or any of the numerous wholesale merchants in connexion with building? we think not. Thirdly, let there be in all cases of competition for building of any magnitude, correct bills of quantities prepared by experienced and well known surveyors. Let each party in competition get a printed copy (we say printed in order to remove all charges of favour). Then the architect, if he knows his profession, and we assume he does, can easily discover—having a copy of the quantities—the *bona fide* builder.

With regard to the surveyor's charges, it becomes a matter of little moment, the successful party by previous understanding may defray them, or the proprietor, as may be arranged. In either cases we imagine it will amount to the same thing.

AFFILIATION OF THE INSTITUTE OF CIVIL ENGINEERS WITH THE UNIVERSITY OF DUBLIN.

AN arrangement has just been concluded—per favour of the Board of Alma Mater, actuated by a desire to include within its precincts a learned society worthy of the distinction—whereby the Institution of Civil Engineers in Ireland is admitted to the privilege of holding its meetings in the new lecture building, as also to the use of one of Professor Haughton's apartments for a library and meetings of council. A reciprocal courtesy is to be afforded by the Institute in the admission of the students of the engineering school to the meetings of the body, and access to their models. Doubly important advantages are thereby obtained, and we are pleased to learn that at the annual general meeting of the Institute on the 8th instant "a general concurrence in the propriety of the proposed measures" was manifested, and "a resolution passed giving the council plenary powers to carry out the necessary arrangements." On this occasion Sir Richard Griffith proposed the Earl of Rosse, Dr. Romney Robinson, and Professor Haughton, as honorary members, and the proposition was acceded to with acclamation. The ballot for officers for ensuing year resulted thus:—*President*—Sir R. Griffith, Bart. *Vice-Presidents*—Messrs. B. D. Gibbons, S. Downing, Charles Lanyon. *Council*—Messrs. W. Anderson, J. Bower, — Frith, R. A. Gray, J. Hill, R. Mallet, G. M. Millar, and Tarrant. *Honorary Secretaries*—Messrs. Tate and Stoney. *Auditors*—Messrs. Brazil and R. Harding. Messrs. Hemans and Mullins—as past presidents—to be *ex officio* members of council. *Treasurer*—Mr. Tate. Mr. Mullins, the out-going President, then addressed the meeting, observing that "he had the satisfaction of feeling that he had endeavoured to perform, at least, the duties which devolved upon him; that, with the assistance of the members of council, he had sought to give a new impetus to the future proceedings of the institution in the highly honourable affiliation now happily established with the University, and that he had delivered his trust into the distinguished hands of Sir Richard Griffith, who in again accepting the chair, after a long and laborious professional career, when others would have sought repose, gave convincing proof of his devotion to the interests of the institution."

Sir Richard Griffith, the newly-elected president, having been then duly moved to the chair, expressed himself as fully sensible of the favour conferred on him by electing him a second time to fill the chair of the institution; that when the office was recently offered to him, his first intention, owing to advancing years and much public occupation, was to decline the honour, but, being induced by the representations of the members of the council to believe that his acceptance would be desirable, he resolved to give this additional proof of the interest he took in the well-being of the society, and to devote to it all the time that his avocations would permit. He also stated that he had intended to deliver an address on the present state of civil engineering in Ireland, but that owing to the lateness of the hour to which the proceedings of the evening had been carried, he would defer it to the next meeting, which would be held in Trinity College.

A vote of thanks was then passed to Mr. Mullins, for the zeal at all times shown by him in promoting the interests of the institution, and more especially in maintaining its reputation during the period of his presidency.

ANCIENT ROADWAYS.

THE first steps towards the construction of permanent and durable roadways are said to have been taken by the Greeks, and also that this people expended considerable care and labour in their construction. But more noted than the Greeks in this matter, were the Carthaginians. from whom the Romans are by some reported to have derived their success in similar works. The first Roman road was constructed during the censorship of Appius Claudius, about 309, B.C.; it was first carried to Capua, and afterwards extended to Brundusium, a length of 350 miles; its breadth is about 14 feet, and its thickness, 3 feet; the paving being laid upon a foundation of rough stones cemented with mortar, and that again upon a bed of gravel. This road is still entire; it was called the Via Appia in honour of the consul, as was the second, the Via Aurelia, and the third the Via Flaminia. In the time of Julius Cæsar, the number of roads had greatly increased, so that all the principal cities of Italy were connected with Rome by paved roads, and from that period such means of communication began to be extended into the provinces, their principal object being to provide a ready mode of access into distant provinces, for the passage of troops and similar purposes. Augustus, when emperor, paid more attention to the great roads than he had done during his consulate. He conducted roads into the Alps; his plan was to continue them to the eastern and western extremities of Europe. He gave orders for making an infinite number in Spain; he enlarged and extended the Via Medina to Gades. At the same time, and through the same mountains, there were opened two roads to Lyons, one of them traversed the Tarentaise, and the other was made to the Alphenin. Agrippa seconded Augustus ably in this part of his government. It was at Lyons he began the extension of roads throughout all Gaul. There are four of them particularly remarkable for their length, and the difficulty of the country through which they passed. One traversed the mountains of Auvergne, and penetrated to the bottom of Aquetaine. Another was extended to the Rhine at the mouth of the Meuse, and followed the course of the river to the German Ocean; the third crossed Burgundy. Champagna, and Picardy, and ended at Boulogne-sur-mer; the fourth extended along the Rhone, entered the bottom of Languedoc, and terminated at Marseilles. From these principal roads, there were an infinite number of branch roads, namely, to Treves, Strasburg, Belgrade, &c. There were also great roads from the eastern provinces of Europe to Constantinople, and into Croatia, Hungary, Macedonia, and to the north of the Danube at Torres. The seas were able to cut across the roads undertaken by the Romans, but not to stop them. Witness Sicily, Corsica, Sardinia, England, Asia, Africa, the roads of which countries communicated with the roads of Europe by the nearest ports. What labours! when we embrace in one point of view, the extent and the difficulties which opposed themselves—the forests opened, the mountains cut through, the hills lowered, the valleys filled up, the marshes drained, and the bridges that were built.

"The Roman roads," says Mr. Tredgold, "ran nearly in direct lines; natural obstructions were removed or overcome by the effort of labour or art, whether they consisted of marshes, lakes, rivers, or mountains. In flat districts, the middle part of the road was raised into a terrace.

"In mountainous districts, the roads were alternately cut through mountains, and raised above the valleys, so as to preserve either a level line or a uniform inclination. They founded the road on piles, where the ground was not solid; and raised it by strong side-walls, or by arches and piers, where it was necessary to gain elevation. The paved part of the great military road was sixteen Roman feet wide, with two sideways, each eight feet wide, separated from the middle way by two raised paths of two feet each."

If we carefully trace the distance from the wall of Antoninus in (Britain) to Rome, and from thence to Jerusalem, it will be found that the great chain of communication from the north-west to the south-east of the empire, was drawn out to a length of 4,080 Roman miles, or 3,740 English miles; the public roads were accurately divided by milestones and ran in a direct line from one city to another, with very little respect for the obstacles either of nature or private property; mountains were passed, and bold arches were thrown over the broadest and most rapid streams. The middle part of the road was raised into a terrace, which commanded the adjacent country, and consisted of several strata of sand, gravel, and cement, and was paved with large stones, which in some places near the capital were of granite. It is estimated that the Romans constructed, in all, not less than 14,000 miles of paved roadway.

Since the Romans, no country seems to have surpassed or even equalled them in the hardness or durability of their roads. In England we may presume that this branch of engineering has been carried on with greater success of late years than in any other country of modern times; we say of late years, for it was not until the latter half of the eighteenth century, that any considerable improvement was effected; the roads previous to that period having been of a most rude and unsatisfactory description. The greater share of praise for improvement in the construction of roads, is due to Mr. Telford, the eminent engineer, who reduced the practice into a system conformable to the laws and requirements of science.

THE ANTIQUITY OF GOLD IN IRELAND.

DR. WILDE, in the second portion of his catalogue of the Museum of the Royal Irish Academy—noticed in present No.—prefaces the class of metallic material thus:—

"Did manufactured gold and stone weapons and tools co-exist? Our history is silent on this point, and as yet well-authenticated notices of the discovery of any such combination have not been recorded. It is, however, remarkable that the first historic notice of any metal in Ireland refers to gold; for under A.M. 3056, we read in the Annals of Clonmacnoise and those of the Four Masters, that in the reign of Tighearnmas 'gold was first smelted in Ireland, in Fotharta-Airthir-Liffe, or the territory of Fotharta, a woody district in Cualann, or Wicklow, to the east of the River Liffey,' and that the artificer's name was Ucadan. It is also stated by him 'goblets and brooches were first covered with gold and silver in Ireland;' but that would only prove the knowledge of gilding, either in the liquid form, or, what is more probable, by plates of gold laid over the article, such as we observe in counterfeit rings of great antiquity, and in some antique fibulæ which have come down to the present time. A similar application of gold may be seen in some of the Scandinavian breast-pins. It is, moreover, remarkable that most of the early forms of ornamentation, consisting of lozenge-shaped, chevron, zig-zag, or straight-lined patterns, together with, volutes, concentric circles, and spiral lines, found upon our earliest stone monuments, and clay urns of undoubted heathen origin, are also the forms of decorations chiefly observed in our earliest and simplest golden ornaments and bronze celts. Topographers have not yet determined the precise limits of the Fotharta Cualann, but it was undoubtedly near, and probably to the east of, the source of the Liffey. Upwards of three and thirty centuries elapsed without any further reference to native gold occurring in either our ancient annals or modern history; not even the most extravagant of the Finian romances, alluding to the existence of the metal in Ireland, although the authors decorated the heroes of these tales with oriental splendour. In the year 1796, however, in the same part of Wicklow—perhaps on the very site of the furnace of Ucadan—upwards of £10,000 worth of unwrought native gold was obtained in about two months, and small quantities have, from time to time, been gathered there ever since."

EMPLOYMENT OF IRON IN THE ARTS.

IRON is employed in the arts in three conditions:—First, in that of cast-iron; second, in that of wrought-iron; and third, in that of steel. The first and third of these substances consist of iron combined with carbon: in cast-iron with more than in steel. Wrought-iron is the metal nominally without combined carbon, but it is rarely obtained in practice so pure as to be absolutely devoid of a small proportion of carbon. When the molten stream of iron comes from the furnace, it is not in a state fit for the forger or the maker of steel. For this purpose it requires to be refined—that is, to have its carbon burnt away in a furnace called a finery, and still further, in the process technically called puddling. Intense heat and atmospheric air form the means by which the superfluous carbon is discharged, and the iron left in a comparatively pure state. The further progress of the metal is simple enough. It is submitted, while yet incandescent, to the operation of enormous hammers, which knead it into a tenacious mass. This is then taken to rolling-machines, which reduce it to the requisite size and shape, whether of bars or sheets. For the production of steel, a further series of processes becomes necessary. Cast-steel is produced by melting the bars of blistered steel in crucibles of fire-clay, and then pouring the fluid metal into ingot-moulds.

ARE CONTRACT PLANS THE PROPERTY OF ARCHITECT OR CLIENT?

THIS question—though previously discussed elsewhere in the abstract—is revived, to our minds, under *special* circumstances occurring within the last few days, and which have formed a subject for magisterial consideration. For obvious reasons we abstain from mention of names, at least in the present stage, though we shall probably hereafter have to report full particulars, should a further discussion be raised in a superior court, but which we trust the good judgment of parties concerned and their advisers will render unnecessary.

The facts are simply these:—Plaintiff avers that being—some six months since—about partly to rebuild certain business premises in this city, he sought the services of Mr. ——, an architect, and thereupon agreed with him, for a certain bulk sum, to furnish the requisite plans and specifications, reserving the right of employing him or not to superintend the execution of the work; but in the event of the former course being adopted, a further sum, equivalent to 2½ per cent. on the outlay, was to be paid. The plans and specification being prepared, tenders from contractors were called for by public advertisement, and one ultimately adopted. Plaintiff for some time (as alleged) remained in possession of the drawings, but the architect requiring them during his supervision of the work, became again possessed of them, and has since retained them. Owing to an unfortunate circumstance occurring during the progress of rebuilding, it became desirable that certain alterations and amendments should take place, thereby affecting the carrying out of the contract in its integrity. Business being resumed in the concerns, and the builder's duties ended, the architect sent in his account for fees, crediting thereon a sum previously received or sanctioned to be received by a third party. To this account the proprietor advanced no material objection, but the builder, in the interim of payment, sending in rather a *long* and unexpected bill for extra works—which plaintiff alleges the specification protected him from—withheld payment of the architect's account, pending inquiry; whereupon a *second* bill for an amount one-third greater, and including fees for "*drawing an agreement*," reading and checking the builder's bill of extras, and for commission thereon, was sent in by that gentleman. To this plaintiff demurred—being, however, still disposed to settle the *original* claim—as also to the builder's bill of extras, excepting a few items stated to have been *authorised.* Proceedings were instituted in a superior court, first by the architect for the *second* claim, and again by the builder for amount of *his* bill. The latter was referred to the Conductor of this Journal to advise upon, and comprised very numerous items. The premises were minutely inspected, and the statement of the plaintiff attentively considered; but, as will be readily understood, no decisive conclusion as to the legitimacy of charges for *extras* could be arrived at, in the absence of the plans and specification on which the contract had been framed. For permission even to *refer* to these documents, application was made to the defendant and his solicitor, but it was peremptorily refused—consequently summary proceedings were adopted in a police court. For our purpose it has been necessary so far to state the facts of the case, with a view of showing on what plea the plans, &c., were withheld from the client, and which our readers will at once comprehend was in consequence of the architect's *second* demand not being complied with; but we need not now enter into the details of the somewhat lengthened discussion at the head police office. It will, however, be desirable that our professional readers should know the decision of the learned magistrate on the question before him, and which was substantially to the following purport:—"That owing to the concurrent agreement for superintendence of the works, as also that the right of ownership had not been sufficiently established by actual possession and special payment for the plans and specification, and pending proceedings which had been commenced in a superior court, he should not feel himself justified in making an order for their delivery." But the learned magistrate suggested that the plaintiff should seek for a copy of the plans and specification, on payment to the architect of a proper sum, and in the event of refusal, that application, grounded on affidavit, representing the necessity of reference to the documents, might be moved in the court wherein proceedings were pending, and that access would then be compelled at the expense of the architect, who should be liable for costs.

With these particulars before us, we are introduced to the materiality of the question, viz., "was the architect justified in withholding access to the client or his authorised agent to these documents, sought to be referred to for the purpose of adjusting the builder's bill for works executed under his (the architect's) superintendence, the client not disputing the payment of *first* account—believed to be the true one—furnished for professional services?" According to our *own* doctrine we shall answer our *own* question with a decided negative, and when the readers of this journal shall have heard our reasons, we court rather than otherwise any opposite sentiments serving as they probably may to the solution of a somewhat vexed question.

According to the practice of the profession in Ireland it is the admitted duty of an architect engaged to design and carry out an intended work to furnish *two* sets of drawings and *two* copies of the specification,—the one a duplicate for the guidance of the contractor, and the other the *original* as signed by all parties concerned, determining the terms of the contract, and for office reference during the progress of the work, pending the winding up of all accounts in connection therewith. It *may* or *may not* be that a client should wish to consult the architect upon minor matters of detail, or upon requisite deviations during the execution of the work, and after the contract is fully signed, sealed, and delivered; but whether or not so, he has undertaken *to pay* for the plans and specification, he is assumed to be competent to do so—in the case in point it *is* so,—and he has the undoubted right whatever differences may arise between him and his architect to make use of same for legitimate purposes and in connection with the work to which they refer, until the final arrangement of accounts with both parties. An architect refusing his client such access, and thereby placing the latter in a position to *sustain damage*, fails in the fulfilment of his duty, and incurs a responsibility both in character and pecuniarily, only to be estimated by circumstances. Briefly, this is our reading of probable consequences, and they would be considerably aggravated if aught of vindictiveness intervened, and prompted a deviation from a recognised principle.

NATIVE SKILLED LABOUR.

IN an article under this title the *Freeman* says:—"Scarcely a week passes over that we are not called upon to direct public attention to the growing prosperity of native industry, skilled labour, or art manufacture. A locality, known as the South Liberties of the city of Dublin, bears about it unmistakeable evidences of its having been at one time the scene of busy thrifts and commercial opulence; the stranger passing through it now-a-days is struck with the fine old cumbrous, well-fashioned houses with stone facings, big and roomy staircases, narrow windowed, with the old Queen Anne gables with granite facings and stone mullioned doorways, each house costing as much as would now be required to build a terrace. The 'South Liberty' of Dublin was once a place in which the manufacture of cloth, silk, and poplin, was indigenous. Of late years a number of attempts have been made to manufacture tabinet and poplin in other countries, even France, where the looms of Lyons were not thought unworthily employed in trying to rival the poor 'Liberty Weavers.' Since then the Queen has repeatedly directed that this fabric should be furnished to her in large quantities. The courts of Petersburg, Berlin, Vienna, Munich, Dresden, and even Christiana, have made arrangements with their consuls that Dublin tabinets shall be forwarded to them as required. So extensive is the export trade at present of tabinet, poplin, and tabouret, that in the South Liberties, to which we have already referred, busy life is again presenting itself. The loom and shuttle are again beginning to make 'healthful music' in the establishments of our Lord Mayor (Atkinson), Messrs. W. Fry and Co., Messrs. Pim Brothers, Messrs. Dunne, O'Reilly, and Co; John Judge, Wm. Geoghegan and Co., Robert D. Cordner and Co., Robert Mitchell and Co., and the other traders embarked in this department of native industry. The growing requirements of the trade demanded that wool should be dyed quickly and well, and a dye-house, which cost for its erection a sum approximating to £1,500, had to be built for Mr. Eustace, 8, Weaver's-square. The construction of this establishment in all its departments is admirable, and bears about it a healthy sign of commercial life and activity."

BIOGRAPHICAL SKETCH OF BONARROTTI MICHAEL ANGELO.

This celebrated painter, sculptor, and architect was born at Chinsi, in Tuscany, in the year 1474. His talents were so early developed, that he is figuratively said to have been *born a painter;* and his parents observing the turn of his genius, put him under the tuition of Dominico Ghirlandaio, whom he soon surpassed; for at the age of sixteen he executed some pieces rivalling even those of antiquity. Under the auspices of that great patron of the arts, Lorenzo di Medicis, he established an academy for painting and sculpture at Florence; which on account of the troubles of the house of Medici he afterwards removed to Bologna. At the age of twenty-nine, he was employed by Pope Julius II. to construct a grand mausoleum; but before it was finished, he returned to Florence in disgust, on account of some pecuniary matters. From Florence he would have gone to Constantinople, whither he had been invited by the grand signor, to build a bridge from that city to Pera, had he not been prevailed upon to return to Rome by Soderini, the gonfalonier, or holy standard-bearer. This officer recommended him to his brother Cardinal Soderini, who introduced him to the pope, at Bologna. Here he met with an envious competitor, in the person of Lazzri Bramante d'Urbino, who had been employed by the pope, and was unwilling to share his honours and profits with another. He endeavoured to excite a spirit of discontent in Bonarrotti, by insinuating that the pope was too much offended at his former conduct, to permit him to resume the building of the mausoleum; and to the pope he represented, that as Bonarrotti was a painter, he might be more advantageously employed in painting the arch of the Sextine chapel, at Rome, than in any other work. It should seem from this, that Bonarrotti had not yet displayed those talents as a painter, with which he afterwards fascinated the world; for it is certain that Bramante, considering him as a dangerous rival, meant nothing less than his complete disgrace. Bonarrotti, however, though contrary to his inclination, painted the arch, so much to the pope's satisfaction, that he was taken into greater favour than ever.

Pope Leo X. ordered him to make a design for the front of the church of St. Laurence, at Florence, for which also several other architects had given in drawings, but Bonarrotti's being preferred, he was sent to Florence to superintend the building; the vestry of which is reckoned among his best productions. In this city he also built the Medicean Library, the niches and staircase of which are of a very curious construction.

On the death of Sangallo, in 1546, the pope, Paul III. appointed Bonarrotti architect of St. Peter's, at Rome, an appointment which he at first declined; but being vested with unlimited powers for carrying on the work, he not only accepted it, but even refused any remuneration for his labours. Sangallo had left a model for finishing the building, which had cost 4184 Roman crowns, and occupied some years in making; according to which the edifice itself could not have been completed in fifty years and upwards. The first use Bonarrotti made of his extensive commission was to set this model aside; and in fifteen days he produced another, for the small cost of twenty-five crowns, by which he proposed to raise that venerable pile with far greater facility and expedition, and with more majestic grandeur, than the plans of any of his predecessors could have given it. The four great piers, by which the cupola was to be supported, had been erected by Bramante, but they were so very weak, that succeeding architects had found it necessary to strengthen them. Bonarrotti thinking them still insufficient for the purpose, he enlarged them to their present gigantic size, and contrived to leave voids, like wells, in them, probably for the purpose of keeping them dry. Similar vacuities he left in principal walls, through which he carried a winding staircase, so wide, and upon so gentle an ascent, that he was enabled to convey materials to the height of the level of the arches on beasts of burden. The great cornice over the arches differs from the common cornice, in having less projection and fewer members; and the imposts of the pilasters have a greater projection. In each of the two curved extremities of the transept, it had been intended by former architects to place eight tabernacles, or altars; but Bonarrotti reduced their number to three, and threw an arch over them, subdivided into a few well-proportioned compartments; and to prevent any alterations in his design by future architects, he built the whole so solid that it could not conveniently be changed. He lived, however, to see the building carried to the height of the tambour on which the cupola was to be laid, when, on account of his age, his friends urged him to frame a model of the dome, lest what he had already done should be spoiled by the incapacity or whim of a succeeding architect. With this request he complied, and formed one of clay, which he afterwards caused to be made of more durable materials, by Giovanni Farnese. This model was universally approved, and finally executed in the pontificate of Sextus V. Whilst Bonarrotti was engaged in the building of St. Peter's, the officers called *conservators*, in the time of Paul III. resolved to reduce the Capitol to an useful and convenient shape, for which purpose they applied to Bonarrotti. He accordingly began the Senators' Palace, in the centre, ascended from without by a double flight of steps; landing on a level introduced between the two flights. The wing, denominated the *Conservatorium*, is entirely from his design. The ground-floor consists of an external and an internal portico, supported by sixty-eight columns of the Ionic order, surmounted with that elegant capital, the invention of which is attributed to himself. There is, however, a great blemish in this part of the building; for, in order to give a due proportion to the width of the portico, the columns are niched into the wall, an expedient never productive of beautiful effect. About this time he also finished the Farnesian Palace, which had been begun by Sangallo. He likewise designed and executed the gate, called *Porta Pia*, the architecture of which is not very regular; of many other gates designed by him, it is uncertain whether any of them were ever constructed, but they are all of the same irregular taste. The great central hall of the Dioclesian baths was converted into a church from a design of his; as were the chapel of the Strozzi family, at Florence; and the college of the Sapienza, except the part where the church is situated; it is upon the whole a very fine edifice.

Old age having at length rendered this great architect incapable of personal exertions, Nanni Bigio was secretly commissioned by the pope to superintend the building of St. Peter's, but with strict orders to adhere minutely to the plans and model of Bonarrotti, who died in 1564, in his 90th year, before the dome was completed. His body was transported to Florence, by order of Comes de Medicis, where it received the most splendid funeral honours, and a superb mausoleum was erected to his memory, at the expense of the grand duke.

THE OPENING OF SAINT SAVIOUR'S CHURCH.

On this date the most elaborate and beautiful ecclesiastical structure as yet erected in this city, is being consecrated for Divine worship. We have so frequently described this building during its progress, that we should find it unnecessary now to repeat particulars as to dimensions, arrangement, &c., but the internal furnishings, the altar, reredos, &c., being of an uncommonly beautiful character, we quote the following from the *Freeman's Journal*, which is ever vigilant in recording progress in Art:—

"The altar and its embellishments are cut out of the purest Caen stone, and its frontal consists of a group of seven niches, with systematic arches, finely cut, and forming an arcade, each niche being occupied by a piece of sculpture. The figures are those of angels, bearing sacred symbols. The arches of the niches are trefoliated, and sustained on shafts of green Galway marbles, with carved foliated capitals and moulded bases. The spandrils formed by the arches on the top of the altar are carved into rich clusters of lilies, roses, grapes, and shamrocks. The "mensa," or table of the altar, is a slab of white marble, resting upon a cornice, the hollow of which is covered with white roses. The tabernacle has a resemblance to the great mediæval or 'Sacramental housen', in the churches of Louvain, Ulm, and Nuremberg. The lower part, or 'tabernacle proper,' is a square temple. The front is formed by a deeply receding Gothic arch, moulded and carved with delicate and appropriate ornaments, and resting on shafts of red Cork marble, with elaborately carved capitals, representing wheat and vine foliage. The door of the tabernacle is formed of beaten, engraved, and enamelled brass, inlaid with precious stones. A foliated cross fills up the centre of the door, and the angles are filled with the emblems of the four Evangelists. The 'tympanum' between the head of the door and the arch above described is carved, and represents the 'pelican feeding her young,' allegorical of the Eucharist. The cornice surrounding the top of the tabernacle is carved with rosebuds and other blossoms, and the spandrils between the cornice and the arch are filled in with carved figures of angels bearing censers. The canopy over the tabernacle consists of open Gothic arches, resting on polished marble shafts, the spandrills being filled in with rich carving, in keeping with the rest of the work. Above this rises a lofty 'Fleche,' consisting of light open stone work, cut into exquisite designs, and surrounded by more than twenty figures of angels in the act of adoration. The 'reredos' consists of an arcade of six arches, three on either side of the tabernacle, resting on marble shafts. The arches are covered with crocketed gables, and the spandrils over the arches are filled in with medallion heads of saints of the Dominican Order. The lower part of the reredos is carved on diaper containing *fleur de lis*. The choir for the fathers is placed behind the high altar, after the manner observed in the Church of Santa Maria Sopra Minerva, at Rome, and other churches of the Dominican Order in Italy. Around this choir, and immediately under the stained glass windows of the apse, runs a string course or cornice, carved into grapes and vine, and terminating with angels bearing chalices. The eastern windows of the apse are filled with stained glass; the centre windows contain the subject of our Lord's Transfiguration. The side windows contain the 'Presentation of the Blessed Virgin in the Temple,' and her Coronation in Heaven. The spaces between the principal paintings in these windows are filled with designs in mosaic of the most gorgeous colours. The semi-dome of the apse and ceiling over the sanctuary is divided into panels, and painted on a gold ground, containing medallions with representations of our blessed Lord in the various symbolical characters, such as the 'Good Shepherd,' 'the Vine,' 'the Sun of Justice,' 'the Light of the World,' &c., interspersed with monograms and symbols in rich profusion. The ceiling of the compartment of the nave next the sanctuary is decorated in brilliant colours in medallions, containing the dog and torch lilies and stars, &c., the symbols of St. Dominick, and monograms of his name. The rest of the ceiling of the nave is panelled in brilliant colours, and the bay of the ceiling over the organ gallery is ornamented in corresponding style, with harps, hautboys, and other musical instruments. The beautiful organ gallery, which was described on a recent occasion, is now completed. To give some idea of the extent of the stone carving in this noble church, it may be sufficient to say that there are 18 full-sized figures of saints of the Dominican Order forming the corbels of the chief supports of the main roof; 60 figures of angels bearing various appropriate symbols and scrolls, and 10 corbel brackets intended to support full-sized statues of the saints of Ireland. Each of those corbels is in itself a study, displaying the correct taste and skill of the artists. Besides these there are several hundred feet of string courses, and countless corbels and capitals of varied design. The side altar of the chapel at the end of the south aisle contains as a frontal a pieta in marble,—one of the latest works of the lamented Hogan. This is surrounded by a framework of Irish marbles. Amongst the many other beauties of this church is the ceiling of the Chapel of the Passion, at the right of the south aisle. This ceiling is painted on a crimson ground, and decorated with symbols of our Lord's Passion, in gold and rich colours. The entire floor of the nave and aisles is occupied by richly-carved and commodious seats, formed in style and decoration perfectly in keeping with the general design of the building. The floor beneath the benches is thickly and solidly boarded, whilst the commodious passages up the centre, in both nave and aisles, are inlaid with Minton's encaustic tiles. Provision is made for lighting the church for evening worship, by beautiful gas standards of brass, each standard containing a cluster of fifteen burners. The splendid organ gallery is destined to be occupied by a superb instrument now in course of construction at the factory of the Messrs. Telford, Stephen's-green, and likely to be ready for permanent erection early in May next. The case of this grand new organ will be constructed after the designs of the architect, Mr. J. J. M'Carthy, whose artistic repute would seem to have gained his *comble* in the triumph of tasteful conception evinced in the construction of this beautiful church."

⁂ In addition to the above, we may remark, that the altar and reredos are placed too far forward for proper effects, that the decorations of roofs and brass furniture are by Messrs. Hardman and Co., and the carvings by Mr. Lane—Mr. Greene immediately directing.

KILKENNY ARCHÆOLOGICAL SOCIETY.

WE note with much pleasure the progress of this most laudable society with each succeeding year. The eleventh annual meeting took place on 2nd inst., and amongst the new members elected were the Earl of Portsmouth, and Benjamin Lee Guinness, Esq., the latter proposed by Mr. R. R. Brash, architect, Cork, in the following terms:—

"I have been requested by Benjamin Lee Guinness, Esq., of College-green, Dublin, to propose him a member of the Kilkenny Archæological Society. I need scarcely remind you of the noble and praiseworthy example set by Mr. Guinness in his restoration of the venerable fabric of St. Patrick's Cathedral, Dublin, an act of both good taste and munificence, that I sincerely trust will find imitators. I feel bound to state for the information of your members that these restorations are carried on with the most anxious care to reproduce the ancient features of the edifice without any embellishments unauthorised by the existing remains. The works are executing in a most permanent and satisfactory manner. I mention these matters to reassure the minds of the members of our society who must naturally feel anxious on the subject from the absurd rumours circulated a short time since by uninformed parties."

After other preliminary business the report for 1860 was read, which announced that during the year 58 new members were elected; that in reviewing progress, the committee proudly point to the results of co-operation, nevertheless that but for the generous donations of a small minority of the members and life compositions, the six shilling subscriptions would have proved insufficient. Furthermore, that henceforward the meetings will be quarterly instead of bi-monthly, and the "Journal" published accordingly; also that a "special illustration fund" is proposed. Referring to the museum, the report states "it is the only provincial institution of the kind in Ireland, and must prove a credit to the county and city of Kilkenny if properly supported. An instance to the point is the purchase by the Royal Irish Academy of the unique "Kilkenny Brooch," which but for the existence of this society's museum, and the consequent attention directed to such remains, would have passed into the hands of some travelling dealer, or been sold in London. It is a distinguishing mark of the management, not alone of the museum, but of the society at large, that not one halfpenny of its funds is expended in salaries—all its officers being honorary."

"Your committee are glad to report that much has been done during last summer to remove obstructions which disfigured the noble architectural remains of Jerpoint Abbey, and secure their preservation. The wall which stretched across the nave of the church has been removed, thus throwing open the view from east to west. A portion of ground, including the site of the south side aisle of the nave, has been purchased from squatters, enabling the committee to take down the enclosing wall, built when the abbey was lately under repair, and to remove it further south, so as to rescue from desecration the entire site of the abbey church; about enough land remains over to supply, by its annual rent, compensation to the caretaker. The thanks of the society are due to James S. Blake, Esq., J.P., a member of the committee, for the judicious and careful manner in which he carried out these improvements."

After some conversation relative to financial arrangements, the announcement of some presentations, and the reading of some papers, the society adjourned to first Wednesday in April.

ADAPTATION OF ARCHITECTURAL STYLE TO PLACE AND SITE.

A PAPER on this subject was read recently by Mr. Cosmo Innes before the Architectural Institute of Scotland, from which we collect the following:—

"When I see the progress of Edinburgh, its extension on every side, the constant change, and, I admit, general improvement in the streets of our New Town, I cannot doubt that the day is at hand when we shall have some of the same energy, the same taste and wealth, directed to the restoration of our grand old High-street. Now, when that day comes, I am sure the architects of Scotland will be prepared to treat the enterprise in a worthy manner. Why should our gables not rise bold and steep as of old, with crow-steps, if you please, or with those rich embellishments that seem so peculiarly suitable to that style which we naturally seek for in the grand old cities of Flanders and Upper Germany, and which Mr. Burnett has taught us to find at Nuremberg? It is not only our tall gables that are capable of being made very effective and ornamental. Why should our architects (in towns at least) so carefully hide the roof of the house—send out the lady without her head-dress! In the modern streets of our city we have but two styles—the style of last century, where the eaves came over the wall, and dripped over it (unless a lead gutter saved the passengers' heads)—or our modern fashion, which runs up a poor architrave or bit of cornice, trying to veil the slates and the roof altogether. I confess a great love for our genuine old Scotch style, of a range of windows breaking the eaves, and surmounted, each with its little gable, affording the most appropriate position for sculptured or chiselled decorations. Besides these, there may be our national corner turrets, which, when well managed, enliven the outline of our upper storeys, without flying in the face of any style. But this is not all. These only provide for the lower stratum of the roof. I see no reason why the roof should not mount high above all these accompaniments, and bear with it tier after tier of dormers—as many as you choose—and end, if it suits the situation, in a coping of open work, of which I don't know the name: it is amazingly effective in Glammis. I am unwilling to detain you longer on this part of my subject, which has, I dare say, been fully considered by professional men, who have found some impediment, which I cannot divine, to imitating some of the beauties of Flemish and German town architecture. I have ventured to recommend what I think the true course for improving our street architecture. It is in some degree with art as with language. We try back to the fountain of our mother tongue, not that we may speak or write like Chaucer or Barbour, but to gather or fix in our minds the foundations of grammar and idiom, which give us the mastery over our language and enable us to wield it. So with architecture. We don't want to build houses like the fifteenth century, cold and dark, without the comforts and conveniences of refined life; but if there is there the germ of our peculiar and national style, and if (as I believe) that style is capable of adaptation to all our present wants, it is for the architect, in following out his noble profession, to develop it, to modify and elaborate it; ever keeping in mind the spirit which can be found in every honest work of genuine art."

ARBITRATIONS IN COURSE.

For some time past numerous members of the profession in Dublin have been engaged in adjusting disputed points between builders and their employers,—practically illustrating as regards architects a maxim which finds particular favour with the legal fraternity, viz., that "it is an ill wind that blows nobody good." Perhaps the most important was that relative to the new buildings at Mount Argos, which we learn is decided, but we abstain for the present from stating particulars, as they will probably be published *in extenso* shortly in the advertisement department of this journal. *In re* the recently erected Commercial Hall, in Grafton-street, there has also been a protracted series of sittings, but we are not apprised of any conclusion being arrived at yet. The cases of Meighan *v.* Baker, Bolton *v.* Tyrrell, Farrell *v.* Boulger, and Kelly *v.* Smiley have likewise been under consideration, and awards made, though hardly to mutual satisfaction; but with that we are not surprised, as litigants usually believe themselves right and their opponents eggregiously in error. Concerning the improvements in the locality of the Four Courts, several of our architects as well as professional valuators have been busy in arranging settlements with property owners in the neighbourhood, and in similar manner are proceedings going forward as regards the proposed Liffey Extension Line from the Broadstone to the North Wall.

FLAGGING THE FOOTWAYS OF TALBOT-STREET.

We learn that the footways at both sides of Talbot-street, between Gardiner-street and the railway terminus, are immediately to be laid with Caithness flagging. The cost (£416) is to be defrayed, one half by the property-owners and householders in the locality, and the other half by the Corporation. This will be the first introduction of the stone into Dublin, and we expect, judging from the specimens we have seen, that it will perfectly answer the intended purpose.

As an additional improvement in this important thoroughfare, we would suggest the removal (where practicable) of the projecting area railings on either side. Could this desirable end be accomplished now in connection with the flagging, there would be a fair width of pathway in this portion of the street.

MINING.

This branch of scientific and industrial operations seems to be gaining ground rapidly in Ireland, at least judging from the glowing reports of companies engaged, the remunerative dividends struck periodically, and the estimation in which mining shares are held in the market. Amongst the latest accounts are those of the Carysfort Company, which state, that the principal workings have been at Ballysillogue and Ballintemple; the sinking of the engine shaft was stopped at former place, and a level, at a depth of 25 fathoms, driven to cut the lode—the result being looked forward to with considerable interest. At the Ballintemple mine 25 tons of lead, of very superior quality, had been sold, and a similar quantity will be very shortly ready for sale. At Moneyteigue operations had been suspended. All the machinery, shafts, and levels are reported in first-rate order. The call in September last was promptly responded to by the holders of 14,000 shares, and £2,000 since lent on approved security.—

The directors of the Castleward United Company congratulate the proprietors on their favourable prospects, that operations are so far commenced as regards the building of an engine-house, putting up a steam-engine, with other machinery, laying pipes, &c., and that the present manager, Mr. Evan Hopkins, of London, had given a most satisfactory report as to the undertaking.

THE COUNTY SURVEYORSHIP OF KILKENNY.

Our readers have already been apprised, through other sources, of the vacancy that recently occurred in the surveyorship for this county, and of the particulars of the death of Mr. Samson Carter, C.E., who held that appointment for many years. We have now to announce with pleasure that Mr. Peter Burtchall, C.E., has succeeded to the office.

COUNTY SURVEYORSHIP OF WESTMEATH.

The situation of county surveyor for Westmeath has just become vacant by the decease of Florence Mahony, Esq., who has filled that important situation from the first appointment of county surveyor up to four o'clock on Wednesday, the 9th inst. The appointment is in the gift of the Lord Lieutenant, and the salary £300 per annum, with £50 allowance for clerk, and sundries for office, stationery, &c.

SLEEPING APARTMENTS IN RAILWAY CARRIAGES.

It seems to us somewhat strange that the directors of the main railway arteries in this kingdom do not provide sleeping accommodation for *night* and *invalid* travellers especially. Surely if our steamboats, which make the run across channel in 3½ hours, are fitted with berths for repose during that short period, a railway train, in which a considerably greater time is passed on long journeys, ought to have some similar accommodation? Our Midland Great Western *did* introduce *coupées* furnished with bedding —whether they are now in vogue or not we cannot say; but we would submit the question for the consideration especially of the London and North-western, the Great Northern, and Great Western Railway Companies of England respectively. Even a first-class carriage—luxurious as it is—nevertheless being usually divided into sitting compartments, does not admit of one enjoying *bon repos* recumbently; and what we would suggest is this, that to each train destined for a long journey, say over 100 miles, a separate carriage, arranged with a limited number of beds for males and females—as on shipboard—be provided, and we have no doubt that should the directors even consider themselves justified in making an *additional charge* for the extra comfort thus afforded, a large proportion of the public would gratefully appreciate it as a boon. If the London and North-western, for instance, would assume the initiative, we have no doubt the others would follow. Personally we have noticed painful instances of invalids prostrated after a rough passage—*even* in the new steamers— between Kingstown and Holyhead, being jostled about in a crowded carriage, and, interpreting their wishes by their countenances, we might assume that joyfully *any money* would be given for the luxury of *a bed*.

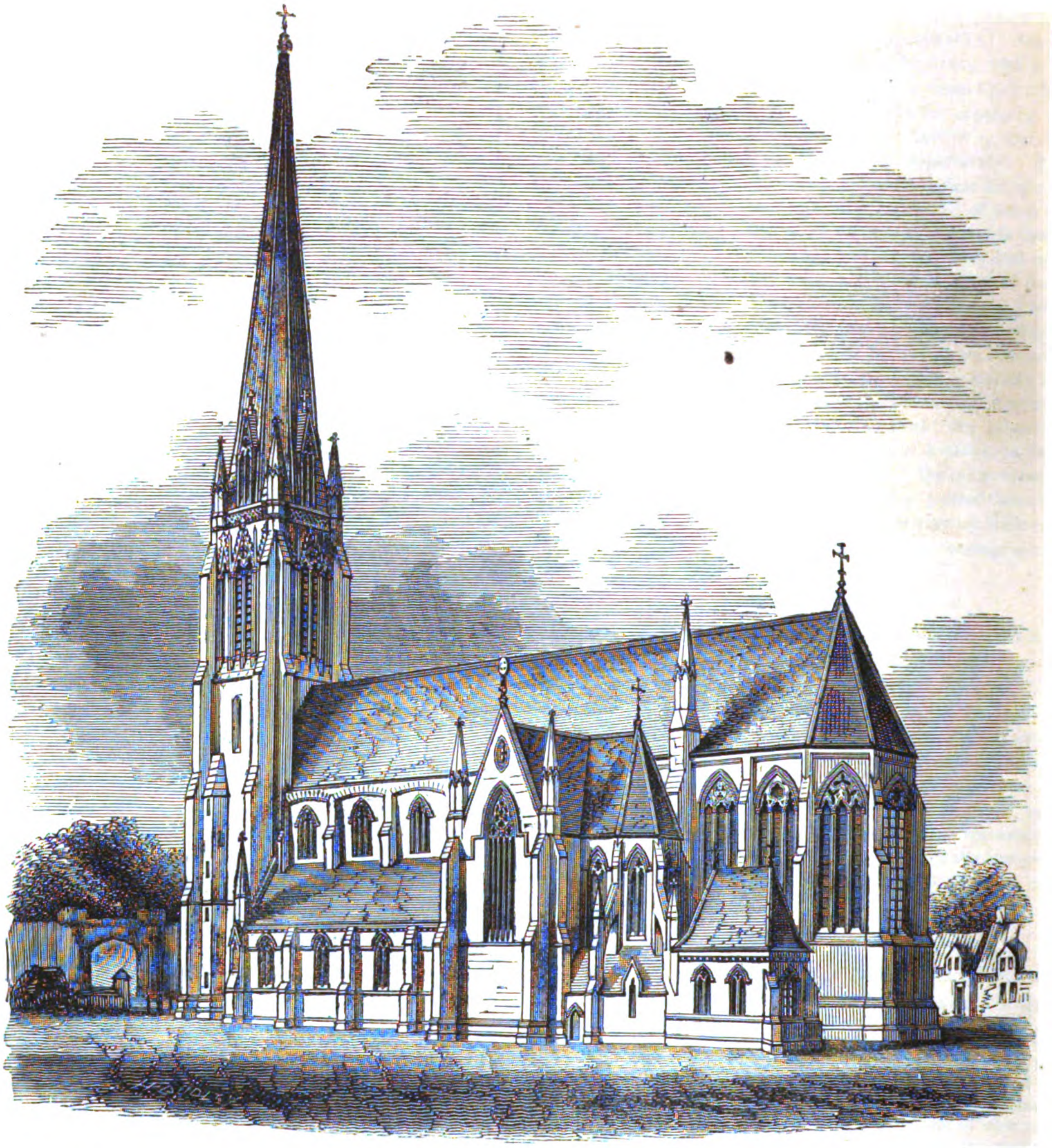
OPPOSITION OF THE RATHMINES COMMISSIONERS TO THE DUBLIN WATERWORKS BILL.

At a recent meeting of this body, it was resolved to give the most determined opposition to the bill proposed to be brought before Parliament next session, for the purpose of securing an improved supply of water to the city of Dublin, on the grounds of the Municipal Corporation having broken faith with the Commissioners. This resolution is very much to be regretted, but as at a special meeting of the Corporation on the 10th inst., Alderman Roe requested "the public to suspend their judgment on the subject for the present," we accept the suggestion, and trust that prior to next issue the matters in question will be adjusted.

NEW GRAND OPERA HOUSE IN PARIS.

For such of our readers as desire to enter the lists in this important competition, the following particulars (condensed from the general instructions which, with a map of the site, may be had at the Bureau des Batiments Civils, Paris) will serve as a preliminary guidance. *Designs* (only) comprising general plan, elevation of principal façade, longitudinal section, estimate and description, to be sent as above named before end of this month. Scale for plan, four millimetres, or 1 to 250; motto and sealed letter as usual. The successful competitor to have the carrying out of the work; the *second* in merit, 6,000 francs prize; the third, 4,000. The first is conditional that in an artistic and constructive point of view it is deemed suitable by the jury, who will consist of the Minister of State, of members of the architectural section of the Academy des beaux Arts, and of the Council General of Civil Construction. The site is 150 metres by 70, surrounded by les Rues de Rouen, de Lafayette Mocador, and part of la Rue des Mathurins; and adjoining the first-named and the Boulevard des Capucines is to be a Grand Hotel de la Paix, with 600 bedrooms. Amongst other requirements are the following:—covered porticos, vestibules, staircases easy of access, accommodation for police, military, and sanitary purposes; for audience from 1,800 to 2,000; Imperial box, with separate entrance; ditto for subscribers; stage for 400 persons, depth 105 feet, width 46 feet; performers' rooms, &c.

We regret to perceive that a destructive fire recently broke out on the premises of Messrs. Clarke and Co., Engineers and Patent Shutter Manufacturers, Gate-street, Lincoln's-inn Fields, London, and consumed a large amount of property.



CHURCH OF THE IMMACULATE CONCEPTION, OXFORD.

CHURCH OF THE IMMACULATE CONCEPTION, OXFORD.

ONE of our illustrations in this No. comprises a view of a structure to be erected at Oxford, and dedicated as above named; and which, through the courtesy of the Rev. A. Comberbach, we are enabled to present to our readers. The building will comprise nave, aisles, transept, apsidal, chancel, sacristy, tower, baptistry, &c, and a site has been selected opposite to Christ Church College. The expenses of erection are proposed to be defrayed by subscription, of which the local Catholics have already contributed £500.*

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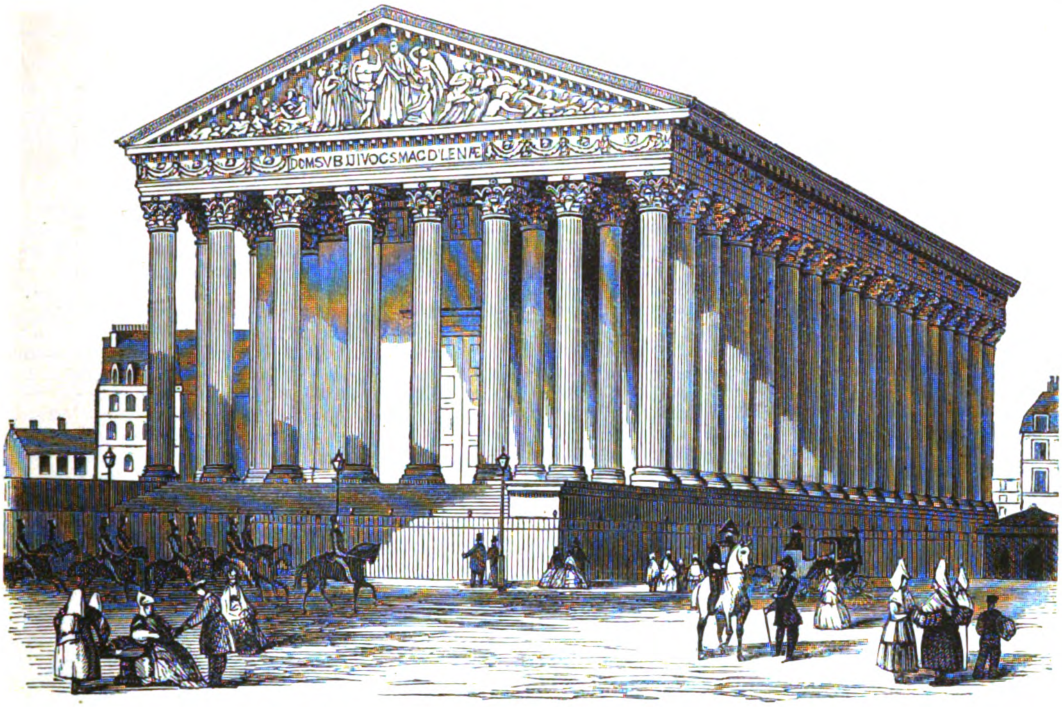
* We are requested to mention that the expense of erecting this church is proposed to be defrayed by subscriptions, and that the Rev. Mr. Comberbach intends visiting this country with a view of seeking pecuniary aid.



CHURCH OF LA MADELEINE, PARIS.*

THE MADELEINE, PARIS.

In the middle of the eighteenth century, a church situated in the village of the Ville-l'Eveque being found greatly inadequate to the extent of the population of the neighbourhood, it was determined to demolish it and erect a new one in front of the rue Royale, in order that it might be a magnificent object from the Place Louis XV. The first stone was laid in 1764, and between that period and the revolution, the plan was several times changed, and the works suspended.

Bonaparte having formed the project of converting this building into a Temple of Glory, where the names of military heroes would have been inscribed on tablets of massive gold, the whole edifice was taken down, and the present one, in the form of a Roman Temple, was begun in 1806. The execution of this project was interrupted a few years after by political events. A royal ordinance of the year 1816, decreed that this edifice should be completed, in order to place in it expiatory monuments to Louis XVI. and his queen Louis XVII. and the Princess Elizabeth.

This church stands on an elevation, to which twenty-eight marble steps lead, is Greek in style, 328 feet long, and 138 broad. It is entirely surrounded by a colonnade of fifty columns, each 60 feet high, comprising base and capitals. Between each two columns is a niche filled with a statue of a saint. The portico fronts on a square which may be called the central or rallying point of not only the most interesting events of the past century of France, but of the present busy metropolis of Paris, the Place de la Concorde. It is supported by sixteen columns. These are surmounted by a tympanum, adorned with a bas-relief of "The Last Judgment," a bold and striking production. Mary is seen kneeling at the feet of the Sovereign Judge, imploring mercy for the fallen. The blessed are on the right; and allegorical figures of Faith, Hope, and Charity support Innocence. The immense doors are bronze, richly ornamented with subjects taken from the Old Testament; each door is 33 feet high and 16½ feet broad. The interior consists of a simple nave without aisles, and is literally dazzling. The walls, arches, columns, with the capitals and bases are all polished marble, gilded or richly painted. The ceiling is divided into three domes, which admit the only light. On the sides are recesses or side chapels, each containing a statue of the saint whose name it bears. The main altar is grand beyond expression. A marble group represents the once sinful but now repentant Mary, supported by three angels who are conducting her to heaven.

THE ADMIRAL MOORSOM.—The London and North Western Railway Company have placed on "the express" line between Kingstown and Holyhead, a fine steam vessel bearing this title. She measures 230 feet in length by 30 feet between paddles, has 400 (nominal) horse power, engines working at 1,200, and draws 10 feet of water. Her commander, Captain Hirste, to a certain extent superintended her construction, and she is said to be a first-rate sea boat.

THE DIPLOMA QUESTION.—The Royal Institute of British Architects fixed the 14th inst. for considering the resolutions agreed to by kindred societies, with reference to the diploma question, but as the debate was conducted with closed doors, we are unable to announce in this number either particulars or the decision arrived at.

The North Atlantic Telegraph is about being proceeded with, under the directions of Sir Charles Bright, C.E.

The Limerick and Castleconnell Railway has been assigned over to the Great Southern and Western.

The ceiling of the apartment in Conduit-street, wherein the Institute of British Architects is wont to assemble, has been quite destroyed by the thawed snow finding its way through the roof.

Sir John Watson Gordon, the distinguished President of the Royal Scottish Academy, has received her Majesty's commands to paint a portrait of the Prince of Wales.

It is proposed to erect, in the neighbourhood of St. Clement's Inn, Strand, London, a monster hotel. The clearing away of Holywell and Wych Streets will be thereby necessitated, and the widening of the Strand effected. Capital, £600,000.

Among the railway aplications for next session is one for a tubular underground line, of a mile and a half, from Regent's Circus, London, to the metropolitan line at Smithfield. Ultimately it is intended to extend the line from Regent's Circus to Kensington.

All the arrangements are declared to be perfect for having in London, in 1862, an International Exhibition on a scale still more imposing than that of 1851.

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* In consequence of disappointment, we are obliged, at latest moment, to substitute this block for another in our engraver's hands, but which will be ready for next number.

ST. ANDREW'S CHURCH.

PRELIMINARIES for the rebuilding of this structure have occupied a lengthened period in arrangement, but they now seem to be arriving at a satisfactory termination, as we find that in the Consistorial Court, on the 10th instant, the Honorary Secretary, Mr. Acheson, T.C., declared "that the building committee had satisfied all the parties who had lodged objections, and that those objections had been withdrawn." The arrangement acceded to for this purpose is, "that the vaults in the churchyard should not be interfered with, that they should be permanently covered over, and that a license should be issued for the removal in coffins, in a proper manner, of the remains which would be interfered with to another part of the churchyard."

As regards the work of rebuilding, Mr. Acheson says, "that £10,000 would be required, of which they were to get £4,300 from the Ecclesiastical Commissioners, and they had now £3,800 themselves. Further, that it would seat 1,000 persons; that the building committee offered to give the city 20 feet of room from the old porch—which would considerably widen the street at that point—on condition that the Corporation would assist them in putting up an ornamental railing and stone work outside the church, which would cost between £400 and £500.

THE FIRE-ESCAPE MOVEMENT.

A MEETING was held on the 7th inst. in the vestry of St. Thomas' Parish, Mr. H. Coull in the chair. Mr. O. Spear moved and Mr. F. Carolan seconded a resolution to the effect that Mr. Robert Harper be authorized to collect supscriptions.

Dr. Shaw submitted suggestions as to making dormer windows, so as to afford the inhabitants a facile mode of egress and escape in case of fire. He also advocated the organization of a fire brigade.

The Chairman suggested that Dr. Shaw should submit his propositions before the meeting of the Life Protection Society, which would take place next day.

Several subscriptions were handed in, and

Mr. Scott read a letter from the editor of the DUBLIN BUILDER, accompanying a number of that periodical wherein the system of fire-escapes was advocated.

A fire-escape, designed by Mr. A. P. Allen, Co. Wexford, has been on view some time at the Commercial Buildings. It weighs but 20 lbs., and it is said that in it children or aged and infirm persons can be rescued with facility. The *Freeman*, in describing it, says—

"This apparatus is remarkable for originality of contrivance, simplicity of construction, and evident practicability of adaptation in cases of sudden emergency requiring its use. It comprises a light but solid hoop or circle, to which is affixed a stout fire-proof canvass *pouch* or *sack* distended, and having a strap inside to serve as a seat for the person or persons descending by it. This hoop is attached by shrouds of fire-proof cord to a single stout rope, also fire-proof. This rope runs through a block, fitted with a stout grappling hook, to attach it to a window sill or other convenient hold. Another rope, or 'down haul,' is affixed to the bottom of the sack, and thus, when the person escaping is securely seated within the hoop and sack, the 'down haul' rope is drawn outwards by the persons below, thus keeping the apparatus clear of flames from the lower windows, and the purchase-rope being eased away, the machine conveys its living freight safely to the ground. It can then be drawn up again by hauling on the purchase-rope, and thus many lives saved from otherwise inevitable destruction."

To *our* minds this contrivance is not "what it seems," nor is it suitable to the exigency of a *great* fire. The canvass *pouch* or *sack* referred to we would—perhaps inappropriately—term a *breeches*, similar to those on some recently invented life preservers, and presenting nothing whatever of novelty; and certainly on the *fire-proof* cord, the sole means of suspension and assistance to descend, we should place very slender confidence, with flames bursting out externally through every aperture. Moreover, the fixing of the pulley might be, under certain circumstances, a work of considerable *time* and *difficulty*, and if insecurely effected—as most probably it would in the hurry, confusion, and nervousness attendant on such an occasion—the wretched occupant flying from the fire would inevitably be dashed to atoms.

Messrs. Edmundson and Co., of this city, patentees of improved gas apparatus, have recently lighted in a most superior manner the residence of Sir C. C. Domville, at Santry.

THE *IRISH TIMES* AND ART IN IRELAND.

OUR contemporary, in an able resumé of national artistic matters—past, present, and to come—has the following; and we are pleased to see that a journal of such *locus standi*, and chiefly devoted to politics and the ordinary gossip of the day, can afford a leisure hour to *consider* and *chronicle* so comprehensively the position of our arts, which all must admit do not keep pace with the scientific progress of the age:—

"If in ancient times Ireland was the land of schools, it was also the land of artists. The elaborate carvings on many of our ancient crosses and monuments, the jewellery and workmanship of our torques and shrines, and the illuminations of our manuscripts, prove that a wide encouragement was given to art—grotesque, indeed strange, but fully able to bear comparison with anything produced by the English and Continental schools of the same era. In modern times due credit is not given to Ireland for the artistic genius she has produced. The catalogue of artists apparently belonging to the English schools presents many Irish names. The age of "Sir Joshua" derived some additional lustre from the genius of the unfortunate and eccentric Barry, who, perhaps, is best known to us through the biography of his kind and discriminating patron, the illustrious Edmund Burke. In our own day, Maclise and Danby, M'Dowell and Foley, are amongst the brightest ornaments of the so-called English schools of painting and sculpture. If, then, artistic talent be not rare amongst us—if it be true, as has been often said, that, owing probably to the predominance of the imaginative faculty, our countrymen possess a peculiar aptitude for art—how comes it that our schools are in so backward a condition, and that our public taste is comparatively so low?

"Does anyone suspect us of libelling our aristocracy or our *bureaucracy*, let him look at the edifices which have arisen of late years to disfigure the streets of a city whose architecture was once classical and chaste. Let him consider—and it will be with sorrow and chagrin for our still beautiful metropolis—what noble opportunities were thrown away when the *Barrack style* was adopted for the new buildings at the Four Courts, and for the Museum and National Gallery on Leinster Lawn. These were official Vandalisms, certainly, perpetrated by those whose notion of architecture for a great capital seems to consist in the piling together as much stone and mortar as can be got for a given sum of money. Did there prevail amongst us a more correct appreciation of the beautiful and dignified in art, such barbarism would not have been received with indifference, nor applauded as a triumph of economy."

Referring to the intended Exhibition of 1861 at the Royal Dublin Society House, the *Irish Times* says:—

"The Exhibition will be arranged in the new Agricultural Hall, in Kildare-street, a gallery being added to provide more abundant space. This building, lighted from the roof, and constructed mainly of iron, *seems* admirably adapted for the display, and for the safe preservation of pictures. An organ of suitable tone and power is to be erected, and we understand that occasional performances of music of a high order are contemplated by the society, so as to render the Exhibition entertaining and instructive to more than one sense."

We have already expressed *our* opinion on the preliminaries adopted for the project, and are not disposed now to repeat them.

GEOLOGICAL SOCIETY OF DUBLIN.

AT a general meeting of this society, which took place on the 9th inst., in the Museum Building, Trinity College.

The Rev. Professor HAUGHTON in the chair.

The Chairman stated that the society had been presented by Mr. T. Noble, of the Royal Artillery, with a specimen of a curious looking stone which was found in the Isle of Wight. The stone was formed like the barrel of a gun, and was evenly bored through its centre.

He believed it to have been formed by the percolation of water through a sandy bed, forming a sandy icicle as it were. The specimen was interesting from the very great evenness of its bore.

Mr. P. Ganly read a paper on the past intensity of sunlight as indicated by geological phenomena.

A discussion took place on the subject of the paper.

Professor Jukes having taken the chair,

The President read a paper "on the occurrence of ologoclase in the county Donegal," after which the meeting separated.

A provisional committee has been formed with a view of establishing steamboats after American fashion on Lough Erne, to commence plying next summer, and to make the double voyage, about 104 miles, each day five days in the week. The Dundalk, Enniskillen, and Derry Railway Company propose to connect their Enniskillen station, by means of a short tramway, with one of the points of embarkation.

THE RESTORATION OF ST. PATRICK'S.

IN the recent annual charge of the Very Rev. the Dean of St. Patrick's to the dignitaries of the church we find the following allusion to the cathedral itself:—

"On a former occasion, when I have drawn your attention to the venerable fabric of our cathedral, a tone of considerable despondency was of necessity to be traced in the report; for though enough was done in the renovation of the Chapter-house, and the restoration of the choir, to show the great capabilities of beauty in architecture which otherwise would soon have sunk under the crumbling hand of time; still, nevertheless, so much more remained to be done, that my allusions to the building at large were pronounced almost in a spirit hoping against hope. But I now have to tell you, for the honour of our city, that the Lord has raised up amongst us a man whose name will go down as a praise to the latest posterity. Blessed in his ample means, but more blessed in the largeness of his heart (for it is more blessed to give than to receive), Benjamin Lee Guinness, Esq., has energetically undertaken and greatly advanced in the general restoration of our time-honoured cathedral. Following the ancient alinements, the solidity of the work, and the fine taste in which it is executed, cannot be surpassed. The faithful purpose of this generous benefactor is not to seek the approval of man but the honor of God. And my difficulty is, in such a way to express, what I am sure is our common feeling of admiration, that while we speak the truth in the very highest approval, we should do so in a manner that may avoid giving pain to the simple piety of the author of such an unparalleled act of munificence."

THE VENTILATION OF HOSPITALS.

IN an excellent little pamphlet recently published under the title of "Hints on Ventilation," and reviewed in this journal, Mr. John Louch, architect, writes with reference to a plan for ventilating hospital wards:—

"Some time ago I was applied to to give an opinion as to the best mode of ventilating an hospital about to be erected. There were to be nine rooms on each floor, each about 36 feet by 23 feet, and 13 feet 6 inches high. The plan I recommended was, to have boxes made of strong smooth slate neatly put together; they were to be 9 inches by 4½ inches in the clear, with the two ends open, and to be as long as the thickness of the walls would admit of; the two ends to have fine perforated metal plates secured over them; the space inside to have six divisions of perforated zinc, or fly wire, properly secured across them. I should have mentioned that the rooms were lighted with two windows at one end, the fire place being at one side, and the door in the centre of the other end. I proposed placing four of these ventilators in the end, and as high up as the ceiling would admit of; that is, one over each of the windows, and one at the angles. I also had the upper lights of the windows made to open on pivots, but to be hung 3 inches up from the meeting rails; they would open at the top in, say 1 foot, and to have cranked iron bars secured to sash frames for the sashes when open to rest on; the space between the meeting rails would present openings of near 3 inches; and for the purpose of diffusing the air coming in, there should be fine perforated zinc secured to the lower sash meeting rail, the entire width of the sash. Gussets should be formed of plain zinc or wood on the sash frames, to fill the spaces at the sides formed when the upper sashes are open back on the cranked iron bars; these are to prevent the air blowing in on the inmates. I have some confidence in this plan, as I know the efficacy of fine perforated zinc being placed in the upper sashes of the windows, where one of the usual squares of glass is replaced with it, after an experiance of many years. Those acquainted with the beautiful principles of an instrument known as the respirator, will see at once the object I have for forming the ventilators as I describe; while an abundance of pure air will be at all times admitted into an apartment, all vitiated air will be effectually removed as fast as it is generated, and draughts perfectly prevented. Should these results be proved, the grand principle of hospital ventilation will be attained. I shall have great pleasure in showing the plans of various hospitals, and the mode of ventilation as adopted, to any person calling on me for this purpose."

PRESENTATION.

A meeting was held on the 20th ult. in the Society House, Dungannon for the purpose of presenting a testimonial and service of plate to Mr. Williamson, C.E., on the occasion of his promotion from the County Surveyorship of Tyrone to that of the county of Derry. The testimonial was most numerously signed, and the service cost £150, and was consequently exceedingly handsome.

A FAMILY ICE-HOUSE—HOW TO BUILD IT.

IT is interesting to see how some luxuries, long indulged, become necessities. With nine-tenths of our population, thirty years ago, ice was a luxury, both in city and country. Now it is an absolute necessity in our cities and large towns, and an exceeding convenience, if not a necessity, in our smaller villages and farm-houses—so much so that the ice-house is an important item of household economy. We need not discuss the purposes to which it may be applied. It is sufficient that the party interested know the fact, and we propose simply to tell him how to build it.

We have read any number of descriptions of ice-houses and how to construct them Some are built in a marvellous way—curious and intricate, deep in the ground, with under-drainage and compartments, costing a deal of money for no particularly good purpose. Others are plain as a smoke-house, built on the ground surface, and just as good, if not better, than the cellar ones. The truth is, the plainer the building, provided it be substantial, the better it is to preserve the ice, and that is all it is wanted for. We have built more than one ice-house, ourselves; have seen sundry of them built for others, and find that the simplest plan is usually the most efficient. The larger the house, the longer will the ice keep, as a rule, if well built, and a small house has, relatively, to be built with more care and thicker walls than the larger one, as the lesser quantity of ice contained in the small building is more influenced by the surrounding warm outside air than the other.

In the construction of family ice-houses, for ice purposes only, the builder is apt to make them too small. When ice-rooms are made inside of other buildings, and properly protected in the walls, its size is of less consequence; 10 or 12 feet square will answer a tolerable purpose; but the walls, floor, and roof should be thoroughly doubled and packed with sawdust or tan bark, as if it stood out of doors by itself. It is a very good way to build an ice apartment in a wood, carriage, or waggon house, if the space can be devoted to it; yet as the litter connected with the ice is frequently troublesome, and the moisture is apt to produce premature decay in the wood-work, where the whole structure is of wood, we would prefer that the ice-house be an independent affair of itself.

The building should be not less than 16 by 20 feet in area on the ground, and 8 or 10 feet high at the roof plates. That size is sufficient for the largest private family, unless ice is needed for extraordinary purposes, as in butter-making, &c. Take a lot of scantlings, 8 inches wide, 4 inches thick, and as long as the building is to be high. They should be of durable wood, as oak, pine, cedar, locust, black walnut or chestnut. Mark out the spot where the house is to stand, on the surface. Do not dig an inch into it, except to receive the feet of the scantlings, which are to serve as posts. For these dig holes 4 or 6 inches deep, that the foot of each can stand firm when planted. Set the posts 4 feet apart all around the area prescribed, which will take six on each side and five on each end. As they are set in, *stay* them together, and brace them from the ground at each corner by boards, so that they stand perpendicular and on a line. Then, inside of this enclosure, plant a second set of posts, 1 foot *in the clear* from the others. As this inner enclosure is 2 feet shorter and narrower than the outside one, the corner posts must be set a little nearer to the next ones than those on the outside, and stayed in their places in the same manner, or *cleated* temporarily, to them to hold them in place. Thus you have a double set of posts—a house within a house, or which is to be made one. When the posts are all in place, *plumbed* and *lined*, spike firmly and strong, on every set of posts, a common 3 by 4 inch scantling across the whole, from one side to the other, on the sides and even with the top of them—the latter being brought to a uniform height with the saw—so that the whole frame be fastened firmly together, like the outline of a huge box.

Now, take any kind of seasoned, straight-edged board, and line up both sets of posts on the *inner* side, or face to face, one board on each side only at a time, after the first 3 or 4 feet high are laid. Tack them on with small nails—for the filling will hold them fast in their places—and then pack in the sawdust or tan-bark between. Understand: the space between the boards is to be *flush*, and 10 inches apart in the clear, supposing the boards to be an inch thick, so that the posts will stand inside and outside the two linings, and make a full show both outside and inside the building, when completed. To make assurance doubly sure, and prevent a possibility of the posts spreading in the ground, at their feet, a set of floor-joists may be laid across, from inside to outside, and firmly spiked to each post; but in common cases this can hardly be necessary. In such cases, *gains* must be cut on the under sides of the lower tier of boards, or lining, to admit the joists and make a *close fit* of these boards to the ground. The lining of board being now 3 or 4 feet high, let the filling be thrown loosely in, and but gently pressed down, as hard packing will be likely to spring out the posts. As the filling progresses follow up with the boards till the top of the posts are reached, and the walls of the house are finished. At one end is to be left a door—we would have it in a corner. Of course it must be cased up on each side, like any door; no matter how roughly done, so that it is strong. We would have a partition across the inside, 3 or 4 feet from the inner row of posts, to accommodate an entrance room or closet for keeping fresh meats, milk, or other perishable articles in hot weather. This partition should be made by a single row of studs set in like those in the main building, and cribbed up on each side with boards, filling in between the cribbing and posts with sawdust or tan-bark, so as to admit no air, even from the closet, to the ice inside. Leave a door place, and hang a door in this partition, swinging outward, into the closet, so that the ice apartment may be kept tight always. Shelves, or any other conveniences may be put up in this ante-room, as may be preferred. The outer wall should have double doors—one opening out and the other inside—and fastened with a hook and staple. A rough plank or board floor can be laid over the surface of the ice room, a few inches of straw on that, and it is then ready to receive the ice. If the soil is clayey, very compact, so as not to absorb what water will probably drop from the melting ice during warm weather, a slight drain may be made underneath to conduct it outside, but stuffed with straw that no air can draw in and help to melt the ice. But in ordinary soils, their soakage will absorb the little water that will accumulate from the waste of the ice.

Now for the roof. Take common 3 by 4 scantling, and *gain* them on to the top of every outside part, at an angle not less than 30 degrees, or one-third *pitch*, and let them project full three feet down, outside, from the top of the posts, to give a thorough protection to the walls from rains that will fall upon it. Let the roof run lengthwise the building, and leave the entrance door of the house at the gable, or narrow end. The roof may be either of boards battened in two thicknesses over each other, or of boards and shingles in the usual way of house covering. A loose floor of common boards should be laid over the joints which cover the tops of the posts, and a loose coating of straw spread upon it. The gables may be nailed up with common boards, and small spaces left between them to give the loft within a free circulation of air; or, if made tight, a small slatted blind should be inserted, or a few augur holes made for the same purpose. Or, if a little ornament be desirable, a small ventilator, cupola fashion, may be built on the peak of the roof, with a 6-inch passage through the latter.

Thus, then, stands the ice-house, complete for use and the reception of 10 cords or 30 tuns of ice in a room, if the posts be 8 feet high in the clear, 14 feet square. If the ice be within a reasonable distance, the expense will not exceed a couple of dollars more to fill it than a smaller one; and not wanting so much, you need but half fill it; or, if filled, sell the surplus to your neighbours.

The building, when finished, will show the lines of post outside, which, in an outhouse, as this is, is no objection to its appearance. If so, the posts can be clapboarded, and any amount of finish given to the whole structure that is desirable. If left rough, as we would have it, without a plane mark about it, any coloured wash may be laid upon it to please the taste or fancy. Ours, that we built a year or two ago near our farm-house, we left rough and whitewashed. It cost us about 50 dollars, and we do not know of one that we would exchange it for, for our own purposes. It stands in a grove of trees, which are an excellent protection from the fierce rays of the sun, as well as giving it a picturesque appearance.—*The World.*

The Free Public Library at Liverpool, recently opened, had as many as 20,000 visitors per diem.

In the manufacturing districts of England there has recently been a quietude and depression, which Christmas period does *not* ameliorate.

It is proposed to place the town of Skibbereen under the provisions of the Towns Improvement Act.

It is believed, that the Emperor of the French is about to purchase up all the Railway Companies in France.

The Harbour Commissioners of Sligo are in favour of a connecting railway between Enniskillen and Sligo, by Manorhamilton and Blackburn, 38 miles, instead of that proposed by Lowtherstown and Bundoran, 64 miles.

Lord Caithness has appeared in London with his steam carriage, driving it through the most crowded thoroughfares with the ease and elegance of a *maitre de danse*.

EXPECTED NEW WORK.—A valuable lecture on church and conventual arrangements, recently delivered at the Royal Institute of British Architects, by the Rev. Mackenzie Walcott, is about to be published, with illustrations, by Messrs. Atchley and Co., Great Russell-street, London.

DIMENSIONS OF THE PRINCIPAL EUROPEAN CHURCHES.

THE Roman *Advertiser*, in an article compiled to shew the impossibility of St. Peter's, at Rome, being ever crowded, gives some curious statistics as to the comparative capacity of the most celebrated churches in Europe. We add a column showing the number of square yards:—

	Persons.	Sq. yds.
St. Peter's	54,000	13,500
Milan Cathedral	37,000	9.250
St. Paul's, at Rome	32,000	8,000
St. Paul's, at London	25,600	6,400
St. Petronio, at Bologna	24,400	6,100
Florence Cathedral	24,300	6,075
Antwerp Cathedral	24,000	6,000
St. Sophia's, Canstantinople	23,000	5,750
St. John Lateran	22,900	5,725
Notre Dame, at Paris	21,000	5,250
Pisa Cathedral	13,000	3,250
St. Stephen's, at Vienna	12,400	3,100
St. Dominic's, at Bologna	12,000	3,000
St. Peter's, at Bologna	11,400	2,850
Cathedral of Sienna	11,000	2.750
St. Mark's, Venice	7,000	1,750

The piazza of St. Peter's, in its widest limits, allowing 12 (persons) to the quadrate metre (square yards), holds 624,000; allowing four to the same, drawn up in military array, 208,000. In its narrower limits, not comprising the porticoes or the Piazza Rusticucci, 474,000 crowded, and 138,000 in military array, to the quadrate metre.

COURT OF BANKRUPTCY AND INSOLVENCY.

(Before Judge Lynch).

In re Killen and Cunningham.—These bankrupts had been contractors for public works, and the meeting was for proof of debts, surrender and appointment of assignee under the joint bankruptcy. The bankrupts formally surrendered, and Mr. Richard Martin, of the firm of John Martin and Son, North-wall, was appointed assignee. Agents—Messrs. D. and T. Fitzgerald.

In re John Kelly, of Ballymahon, builder, a bankrupt.—It appeared that the bankrupt had been dealing with the Messrs. Martin for three or four years, and they had furnished him with materials; that about twelve months since he began to get short in his payments, and in February following, on their application, he assigned to them as a security for their debt of £546, the profit then to accrue from a contract for the building of a church under the Ecclesiastical Commissioners, which he estimated at £400, and also £200 which he expected from another contract for flagging the town of Longford, and a policy of insurance for £500; the assignment was by a letter, and he undertook to execute a deed; he did not inform his other creditors of it, and the first intimation they got of it was its appearance in a "black list," which brought down his other creditors upon him. He was embarrassed at the time, but wanted to prevent Messrs. Martin from coming down upon him, in the hope that a good season might bring him through. A Mr. Longworth denied acceptance of a bill for £195, alleged to have been his; the signature was not his, and he did not know whose it was; he knew nothing about it until he received a letter in the bankruptcy matter. Mr. Martin appeared for the Messrs. Martin, and maintained their rights on foot of the assignment as an equitable mortgage. Judge Lynch said that after the evidence given in relation to the bill, and involving grave charges, he could not at present pass the final examination.

ASSIGNMENTS.—Hugh Francis Brophy, 10, Shamrock-villa, Co. Dublin, and Joseph O'Toole, of Mountain-view, Rathgar, Co. Dublin, builders and contractors, trading as Brophy and O'Toole, builders.

ARRANGEMENTS.—We learn that arrangements with creditors are pending in three cases, and are likely to be satisfactorily effected. In one instance especially there seems to be a strong feeling that it should be so.

WARMING STREET RAILWAY CARS. — An invention for warming street railway cars has been lately applied to cars on the railroad, says the *American Railway Review*. A furnace is attached underneath, on which are placed draft-doors, regulated by the motion of the car, so that there is certain to be a strong draft in either direction. Pipes extend from the drum of the furnace up through the floor of the car and along the whole length of the seats, from which sufficient heat radiates to warm the interior comfortably. These pipes are so adjusted as not to consume any of the space necessary for the convenience of passengers.

Scientific and Artistic Morceaux.

Mr. Robert Mallet, who has spent some years in experiments and investigations into the phenomena of earthquakes, completed them on November 23 by the explosion of six tons of powder in the hill at Holyhead from which stone is taken for the breakwater. The result favoured his wishes, for the mercury in the seismometer, or shock-measuring instrument, was seen to oscillate, though a mile and a-quarter distant from the focus of the shock. From this Mr. Mallet obtains data for comparison with observed natural shocks. Had he been at Copiapo on October 5, he might have felt and tested 116 shocks within twenty-four hours. The quarrymen at Holyhead reckon that for every pound of powder blasted, they should get on an average two and a-half tons of stone; hence the prodigious quantity that would be thrown down by a blast of six tons may be easily calculated. Prodigious though it be, the demand is so great for the breakwater, which has a width of 350 feet at the base, that within two weeks it may all be flung into the sea. We have heard that stone quarried in this way costs a fraction under ninepence a ton.—*Chambers' Journal.*

The Photographic Society have distributed among their members copies of a print representing a picturesque ruin in an effective style such as would be taken for wood engraving. But according to the epigraph, it is "absolutely untouched by the graver," and is a new achievement of photography, being, as we are informed, produced solely by the action of light. The inventor is Mr. Paul Pretsch: his process is as yet a secret; but so far as is known, it consists in taking an impression on a sheet of some glutinous preparation, from which an electrotype copper-plate is afterwards taken, and from this the picture is printed as from a wood-block. The result seems almost wonderful: anything that can be photographed is reproducible in the same way; hence there would appear to be no limit to the publication of copies of the best specimens of art.—Mr. Malone has repeated Niépce St. Victor's experiments on light, and concludes that the eminent French chemist has mistaken his results.—Mr. Mercer, of Accrington, has discovered a way of preparing calico for photographic impressions, which being dyed with a madder colour, are fast pictures that cannot be washed out. We have seen portraits thus produced which look as well as those on paper; and it may be that some ingenious persons will find in this discovery a new mode of marking linen, by photographing the owner's portrait thereon, instead of writing or working his initials. Possibly the ingenuity may extend to fancy waistcoat-patterns, in which faces shall be the chief attraction; and when a man can have his portrait large as life in the middle of his pocket-handkerchief, warranted not to wash out, the light-fingered professors will perhaps hesitate to try their skill on "wipes." Another discovery of Mr. Mercer's is worth notice: he dips calico in a certain kind of cold bath, whereby it undergoes a transformation somewhat similar to that of paper into parchment, and acquires a stiffness which no heat will afterwards soften. What will "outfitters" say to this?—a material for collars and wristbands which will not become limp!—*Ibid.*

In a former *Month* we called attention to Dr. Stenhouse's application of charcoal as a material for respirators, and as a disinfectant, an application which time and experience have abundantly verified. Many of our readers know that the ventilation of sewers is a question which has long been discussed and never brought to a satisfactory conclusion; they know also that the numerous gratings by which sewer-gases escape and rise into the streets are offensive and obnoxious to health, especially in narrow streets and crowded neighbourhoods. This is an acknowledged evil, but the sewers must be ventilated, and the more their contents are oxidised by admission of air, the more harmless do they become. As the openings must not be closed, and ought indeed to be multiplied, it occurred to one of the sanitary officers in the city to adopt the principle of Dr. Stenhouse's charcoal respirator, and having fitted a series of charcoal filters into the openings that lead from the sewers to the surface of the streets, he finds the solution of the important question, for the noxious gases are completely neutralised. Of course, special precautions have to be taken in the preparation of the shafts, and the filters must be kept dry, or the charcoal will cease to act, but of the result there is no doubt: the unpleasant smell is entirely destroyed. During the past two years, many parts of London, within the city, have been thus purified. The openings need not necessarily be in roadways, they may be led up through the lamp-pillars, or between party-walls, or into chimneys. A west-end engineer has tried the same plan in parts of Westminster, and with the like success; it is adopted in the new sewage-works at West Ham; it has been applied at Bowood, the seat of Lord Lansdowne, and we hear talk of its introduction into Glasgow. Its general adoption can only be a question of time, for charcoal is the cheapest remedy yet thought of for the prevalent evil; it is applicable at outfalls as well as along the course of sewers, and if kept dry retains its efficacy for many years. London, with its hundreds of miles of sewers, would require 25,000 filters.—*Ibid.*

Professors Bunsen and Kirchoff, of Heidelberg, to whom modern chemistry is largely indebted, have lately made a discovery which, in the vast field it opens for further research, may be ranked as the most famous of the year. It is a method of chemical analysis by means of spectrum. Most readers know that by spectrum is meant the rainbow beam reflected from a glass prism exposed to sunlight: it is producible also by the light of a lamp, and chemists and opticians have at times experimented on the changes that appear when different substances are burned within the lamp-flame. For delicate observations, it is essential that the spectrum be not too bright; much less bright, in fact, than that thrown by the solar beam; and Bunsen's lamp, which, burning hydrogen gas, gives a feeble illumination with great heat, is the best for the purpose. Now let us imagine the apparatus prepared, and the spectrum thrown into a box from which daylight is excluded. The professors above mentioned take less than a grain of chlorate of sodium, mix it with a small portion of milk-sugar, and burn it in the corner of their laboratory furthest from the lamp. An eye keeps watch on the inside of the box, and presently when the vapour has diffused itself, and meets the flame, a bright yellow line is seen to cross the spectrum, and remain visible for some minutes. This is called the sodium line, for whenever sodium is present in the atmosphere of the lamp-flame, and however combined with other substances, that particular line never fails to appear, even if the quantity of sodium be not more than one-twenty-millionth of a grain. It is found that each metallic base and metallic earth has its own peculiar line or lines: lithium shows a faint yellow and sharp red line; potassium, a red and a violet; strontium, four lines – two red, one orange, one blue; calcium, a green and an orange line; barium, more than a dozen lines, which may be described as one-half green, the other orange. And as with the sodium, each substance is always recognisable by its own peculiar line or lines, however infinitesimal the quantity tested. In fact, it would appear that even the ultimate atom could hardly escape this mode of analysis.—*Ibid.*

While carrying on their experiments, the professors noticed certain lines on the spectrum for which they could not account, produced by none of the substances enumerated above, but by some substances to them unknown. Considering hereupon, they ventured to assert that there existed in nature a fourth alkaline metal hitherto undiscovered. If they predicted its discovery, their prediction has been recently verified—as was that of the astronomers who predicted the discovery of Neptune—and they now announce they *have* discovered the new substance in notable though minute quantity, and they propose for it the name of spectrium. Judging from present appearances, Nature has not been lavish of this remarkable metal, for they had to operate on 800 hundredweights of the water of a mineral spring (the mother-water), to get—only fifty grains.—*Ibid.*

The French Engineers have availed themselves in the construction of the great breakwaters at Cherbourg of the faculty of the mussel fish—which attaches itself to piers with a material resembling coarse silk, enabling them to resist the force of the most powerful waves—and on large masses of stone they plant several tons of this shell-fish.

Bois durree, *or hardened wood,* which has been properly described as wood softened and then hardened, is made from sawdust, which under the influence of a high temperature and the enormous pressure of 600 tons, acquires a hardness a good deal exceeding that of wood. It is of a very fine grain, and fears no atmospherical variation; but its principal merit is its adaptation to moulding, and by the most economical processes forms and impressions are given which would require, in any other way, considerable labour and workmanship. We have seen various articles of great beauty manufactured from it, such as writing desks, inkstands, seal handles, medallions of royal and public characters, and even binding for books; on these carving and the most delicate sculpture are reproduced with the perfection of models, and with exquisite firmness of execution.—*Manchester Examiner.*

Professor J. Bete Jukes commenced on the 31st ult., at the Museum of Irish Industry, a systematic course of thirty lectures on "Geology and its application to the arts."

Mr. G. Davies, of Serle-street, Lincoln's Inn, Middlesex, C.E., has obtained a provisional protection for "improvements in the construction of iron or other metal beams, and in the machinery and apparatus employed for such purposes."

New Iron Plating for Ships.—Some private trials are now being made by Government with a new form of iron plating, and at the shortest distances every description of shot is shivered, and not the slightest impressions made.

COMPOSITE GRAVE MONUMENTS AND TABLETS.

A PATENT has recently been obtained by Messrs. George Smith and Co., Sun Foundry, Glasgow, for the construction of the above, and the following characteristics are claimed, viz., "that to remove the difficulties formerly presented as regarded the inscription on the panels, the framework *only* is constructed of cast iron, and is prepared to receive either marble, stone, or slate panels, which may be inserted independently." It is also alleged by the patentee that "the material is greatly susceptible of embodying designs—the most simple and massive as well as those of high artistic worth, combining delicacy and variety," and that "in these respects cast iron is infinitely beyond marble, stone, or slate." "A preservative coating to prevent rust," and by repetition causing "the retention of original sharpness and finish for ages" is also included. Their extreme *comparative cheapness* is emphatically put forward. We are at present unable to pronounce any opinion on its merits, but we may have occasion for further reference by-and-bye; meantime we must remark, that in *some* localities any innovation upon the monopoly that exists amongst manufacturers of memorials to the dead, and any improvement on the generality of the stereotyped, ill-fashioned, unartistic forms found in cemeteries and churchyards ought to be hailed as a desideratum.

Notes of New Works.

Mr. John Mullins, of Longford, builder, is the contractor for the erecting and finishing the tower of the cathedral in that town; expenditure, about £4,000. Also for erecting terrace walls to same; amount, about £500. Mr. John Bourke, architect.

Additions and alterations are being made to Lissbruck House for Mr. John Crawford, after plans by Mr. James Bell, jun., architect. Mr. John Mullins, builder; amount, £350.

A lodge is being erected in Trinity College, Dublin, facing College-street, intended as a residence for the Chief Steward of the University. The style is Italian: it is fronted with Ballyknockin granite, having bold cut stone lucarnes with segmental pediments; the cost will be about £900. Mr. M'Curdy, architect; Mr. Fetherstone, builder. [The unsightly old wall at present in front of this building is, we understand, to be removed. We would strongly urge on the Board of Trinity College and the city authorities the absolute necessity that exists in those days of improvement of sweeping away this disgraceful portion of the College boundary. The good offices of Mr. George Roe have, we believe, already been active in pursuit of this object]

Messrs. Vyse and Co., of Wood-street, London, are converting the premises at the corner of St. Andrew-street and Trinity-street into extensive warerooms. Cost, about £900. Mr. M'Curdy, architect; Mr. S. Bolton, builder.

An extension of the Passage railway to Monkstown is proposed, and the owners have been served with notice.

The new branch Bank of Ireland, at Tipperary, is nearly completed. It has a neat front composed of brick with Portland stone cornices, dressings, &c. An ornamental railing has also been erected, and the interior fittings are in a forward state.

Messrs. P. Lalor and Son, of Carlow, have been engaged for the last four months in the decoration of Ballinakill Catholic Church, and are said to have executed the work with much artistic skill.

The new Catholic church erecting at Raheny, and already described in this journal, is in a forward state, the slating of the chancel being finished, and the rest of the roof in progress.

The premises No. 62, Upper Sackville-street are being altered and remodelled, so as to be converted into extensive wine stores and vaults, for Mr. Lewis Heinekey, wine merchant. Mr. M'Curdy, architect; Mr. J. Nolan, builder. Cost, about £800.

Preliminaries for the construction of the Cork, Blarney, and Macroom Railway are said to be so far satisfactorily arranged.

A new minor model school is about to be erected at Lurgan on a site near the railway station. It will be of Italian design, with a roll and flat roof, campanile, &c. The cost may probably range from £5,000 to £6,000; and the building is being designed and will be erected under the superintendence of the architect to the Board of Public Works.

We learn that the Lords of the Admiralty have withdrawn from the Board of Public Works, the building arrangements connected with the coastguard stations in Ireland.

An important and handsome memorial structure, in the Gothic style, is about being erected at Prospect Cemetery, Glasnevin, after plans by Mr. John S. Butler, architect. It will present a quantity of elaborate carving and be terminated by a crocketed and finialed spirelet, attaining a height of 34 feet.

The side altars in the Metropolitan Church, Marlboro'-street, are being re-constructed in an improved manner, according to designs by Mr. J. J. Lyons, architect; Mr. Wm. Hughes, builder; Mr. Hibson supplying and fixing the marble work.

The building of the Ulster Hall in Bedford-street, Belfast, has been for some time in progress. The grand hall will be 138 ft. long by 63 ft. wide and high, and will afford sittings for about 3,000 persons, together with orchestral accommodation for 300 performers. A gallery 10 feet 6 inches in width will extend about three-fourths round the hall, and twelve distinct approaches affording easy access from spacious corridors be obtained. Over the vestibule there will be a minor hall, 63 feet by 32 feet, and intended for various purposes. In Bedford-street *three* entrances are provided, in Linen Hall-street *two*, and in Franklin-street *one*. Provision is made for a grand organ, and the acoustic properties of the hall are said to promise to be of the highest order. Mr. W. J. Barre is the architect; Messrs. Fulton the contractors.

Mr. James Connor, of Belfast, has been declared contractor for the erection of the new bridge over the Lagan at Ormeau.

Reviews.

The Royal Irish Academy Catalogue. By DR. WILDE.
Dublin: Hodges and Smith.

The second portion of this comprehensive work—evidencing a vast amount of zealous energy, research, and antiquarian lore, and destined to form unquestionably a glorious national muniment—is now published. The sub-classifications are multifarious; historical sketches and annotations are given in each department, and the illustrations are very exquisitely handled, both by draughtsmen and engravers;—the whole displaying such superlative mental and physical labour in compilation as only the giant mind and indomitable activity of Mr. Wilde would be competent to surmount. Even for one whose professional pursuits might bear to an extent upon the antiquarian, archæological, national historical, and various other subjects embraced in this work, its advent would be hailed with universal admiration; but how considerably are the merits of the author's Herculean undertaking enhanced when we are reminded of the circumstances under which it has been produced?—viz., *volunteered* and *gratuitous* labour to supply a *national want*—for so may be characterised the absence of a complete record of the contents of the Academy—and that too during leisure intervals snatched from arduous and important avocations of a totally foreign character. The third part is in progress, and on its appearance we shall have occasion to refer *in extenso* to the whole. Elsewhere may be found an interesting quotation from the subject of this notice.

Price on Gunpowder-proof Locks, Lock Chambers, and Drill-proof Safes. London: Spon, Bucklersbury; or the Author, at Wolverhampton.

Mr. George Price, of Wolverhampton, a well-known manufacturer of safes, locks, &c., on fire and drill-proof principles, has just published an elaborate treatise—the second by the same author—under the above title, in which he describes the various methods of different patentees, the means adopted by burglars to open locks and safes, the precautionary measures used to foil them, the contrast between one manufacturer's make and another, and concludes with a history of "the Bromley test," already noted in the columns of this journal, together with subsequent correspondence by Mr. Price relative thereto. Though certainly admitting the cleverness of the book, which is clearly written and copiously illustrated, a question would arise to our minds as to its prudential character for the community generally, inasmuch as that the exposition therein of experiments effected with great skill by notorious burglars, the means employed, the results in each case, the respective causes of *success* and *failure* might tend to add to the ranks of that fraternity, and induce some of the less experienced, but equally aspiring, members to try their hands likewise, especially when armed with so much information. However, we freely admit the author's capacity to deal both practically and theoretically with his subject, and moreover, doubt not that his inventions and improvements are highly appreciated; but these very considerations suggest a passing regret that he has not pursued a more independent tone, relying on *his own* merits, and without condescending to the disparagement of *others*.

The diocese of London contains a population of nearly two millions and a half, and is increasing yearly at the rate of 50,000 souls.

Miscellaneous.

Excavating Tunnels.—Mr. Gilbert, Coleorton, has invented an apparatus to excavate sewers, tunnels, &c., and at the same time to allow the building of the required number of rings of brickwork, without the aid of timber to prevent the slip from above, no more ground being displaced than is necessary, these being done as well in running sand or new ground as in solid firm ground, and effected in the following manner, as described by him:—I propose employing a cutting shield, of the form of the upper part of the tunnel or sewer, and supporting it by suitable framing, upon which are powerful screw-jacks, hydraulic presses, or other suitable power for the purpose of driving said shield forward. The shield travels over rollers on the top of the frame, and can be made to travel in a straight line, rise, fall, or turn a course by means of such rollers. The bearing prop or framing at the back of the brickwork may be formed in the shape of an X; the lower part thereof serving as an entrance passage to a waggon-road, where such is required for clearing away dirt, or other purposes.

The Great National Exhibition of 1861 in Belfast,—We perceive by the report of the meeting held recently, that the gentlemen who have kindly undertaken the laborious task of collecting subscriptions in Belfast have been requested to furnish their reports within a limited period. The subscription list at present amounts to about £850, but as at least £1,500 will be required to meet the expenses of the exhibition, we trust that such of the inhabitants of Belfast as have not yet subscribed will contribute liberally, and thus aid the committee in carrying out effectually an undertaking calculated to confer great advantages on the town. It would be a disgrace to Belfast if its contributions for this purpose should prove to be less than those of Cork and towns of minor importance. As the subscription list will shortly be published, we hope to see the gentry, merchants, and other respectable inhabitants of Belfast well represented upon it. —*Belfast News-Letter.*

The "Lamp."—This journal is regularly forwarded to us, and we recognise in its pages much that is pleasing and instructive. The contents are chiefly original, and where they are not so the selections are judicious, and evidence good taste. Moreover, the illustrations, though miscellaneous, are frequently of a pretentious architectural character, especially so, considering that the journal is not a professional organ, and that it takes its place amongst the cheap literature for the million. The editorial department is very ably presided over by an Irish barrister and eminent scholar, Mr. James Burke, A.B., who in addition to the successful accomplishment of his mission in conducting a journal devoted chiefly to those of a certain creed, produces a work to which none can take exception, and of which *all* must admit the merits.

Poisonous Paperhangings.—The Royal Engineers have received orders from the War Department no longer to permit green paper to adorn the walls of officers' quarters, and of other Government buildings. In some countries on the Continent, the police are stringent in refusing permission to decorators of the beautiful tints now brought out in this favourite colour; and the attention of our own authorities has been drawn to it, from the circumstance of medical men being called upon to treat officers for complaints, to account for the contraction of which they were completely at a loss. It is said that a gallant colonel, at Woolwich, who breeds and keeps a large stock of choice canaries, was greatly annoyed in finding the most valuable birds drooping and dying by threes and fours at a time. At length, his family being attacked repeatedly by throat and mouth complaints, apparently caused by arsenic, it was suspected that the deleterious substance was evaporated by the heat of the room from the green paper on the walls; and this suspicion proving, on examination, to be well founded, the order above alluded to was promulgated for future observance.—*Army and Navy Gazette.*

Architecture at the Catholic University.—Professor M'Carthy's class meets every Wednesday evening from 7½ to 9½ o'clock p.m. This is the *only* University in Ireland that has deigned to appoint a professor of architecture.

Gathering Mechanism for Sewing Machines.—One of the last and most striking improvements in the sewing machine is that made by G. B. Arnold, of New York, whereby plaits are made and secured in an accurate and beautiful series of gathers at one operation, and with the same rapidity as ordinary stitching. There are two ways of effecting this, both patented by the above-named gentleman. One invention (patented last spring) lies in the use of a double-feed, one part of which gathers the cloth while the other part feeds along under the needle. The other invention (patented last week) requires but one feed, with peculiar parts acting in combination with it. These improvements are making a considerable sensation throughout this country by adding very materially to the powers of this wonderful machine; and an agent is now abroad, instructing the artisans of Europe as to the nature of said inventions.

Multiplication of Photographs by Machinery.—A highly interesting paper was read not long ago before the American Photographic Society, and is reported in the *Architects' Journal*, of New York. By this paper it appears that 12,000 photographs or stereographs an hour can now be produced from a single negative by means of condensed or focalised light and simple machinery worked by a crank. A sheet of ordinary paper, sensitised, was exhibited, containing 800 of these photographs. Mr. Charles Fontayne, of Cincinnati, Ohio, is the inventor of the process. The prepared or sensitised paper is simply passed, in a continuous sheet, before the negative, in a box, where condensed light is made to penetrate through the negative and impress its image upon the paper, which it does in ·03 of a second for each impression. The condensing lens is seven inches in diameter. Thus, it is said, "the illustrations for a book, having all the requisite beauty and perfection of the photograph, may be turned out by the use of this machine with a rapidity wholly undreamed of either in plate-printing or lithography." The cost of engraving also will of course be dispensed with. All sorts of drawings, too, may be thus multiplied, as well as actual objects, photographed or stereographed, in cheap and endless profusion. The *Architects' Journal* publishes a print thus produced from a rough sketch by the ordinary ammonia-nitrate process, and of which we received a copy.

Physiological Considerations.—The injuriousness of imperfect drainage is said to arise from the noxious influence of all organic matters—animal and vegetable—when in a state of decomposition. That putrid flesh and vegetables are generally unpleasant, both to taste and smell, is a fact; but are they as injurious as they are unpleasant? Some putrescent matters are injurious when eaten, although many can be and are eaten with impunity; and all of them are injurious *if they enter the blood.* The surprising fact that the Indians kill their game with poisoned arrows, yet suffer no harm from eating the flesh thus poisoned, is intelligible to the physiologist, who sees that the poison of the arrow enters the blood of the animal; but the poison of the poisoned flesh, which is eaten, does not enter the blood. It is on the same principle that we can explain why an anatomist may spend day after day over putrid bodies (in an atmosphere the stench of which makes a stranger sick), yet suffer no harm beyond what would result from sedentary confinement in any other room; nevertheless, let this anatomist scratch himself with the scalpel which he has just used, and this little wound may be his death. He could breathe the air laden with the products of decomposition, and, if oxygen were sufficiently abundant for respiration, no harm would ensue; but he could not admit decomposing matter into his blood without serious injury. Putrid *substances* are poisonous only in the blood; but the gaseous *products* of putrescence are not poisonous. A stink is unpleasant, but it is not poisonous. We assume, of course, that the gaseous products are not too abundant to prevent respiration, otherwise the effects of imperfect respiration will ensue; but these are not cholera or fever.

THE PANTOMIME—THEATRE ROYAL.

Though apparently "the proverb should become somewhat stale" considering circumstances, nevertheless the annual festive celebration at the Royal as yet seems to lose none of its attractions. The Dublin public is termed fastidious and critical; yet we believe that there is none other more willing to lend an applauding hand where merit presents itself, in whatever branch of histrionic art it may be. Old and young look for the pantomime, each with a comparative anxiety—the former, perhaps, with the double intent of cool criticism and a desire to witness juvenile enjoyment, the latter with that truly beautiful innocence which alone characterizes tender age; but *one* and *all* must join in commendation of the present provision for their pleasure by the excellent caterer who guides the helm at our national theatre. Evidently talent has been brought to bear forcibly in each department, but especially in the scenic and musical. Mr. Glover has substantially realised his promises for future eminence, and Mr. Levey most excellently sustains that already acquired.

TENDERS

For erection of alterations and additions to Lessbrack House, for Mr. John Crawford. Mr. James Bell, Jun., architect.

J. Mullins (accepted)	£350
Hunt & Co.	300

To Correspondents.

J. M'G (Attended to); R. R. B. (Next number); T. F. (Quite at variance with previous expressions); J. M. (Have not seen drawings, and cannot say); W. P. (As you please); X. L. (We are not in a position to recommend definitely without *further* information). Received—J. F.; Clerk of Works; W. J. B.; F. L.; W. G.; W. W.; S. G; T. S.; Enquirer; T. M.

The Dublin Builder.

Vol. III.—No. 27.

LIVERPOOL TIMBER TRADE.

THERE is no article of commerce whose position in the market has more significantly important bearing on the state of affairs *generally* than that of timber. It is, of course, subject to fluctuations influenced by various causes, but an aggregate return of the *imports*, *exports*, and *consumption* for a year will incontestibly evidence either the temporary growth or decline in prosperity of a nation for that period. Judging, therefore, that the numerous readers of this journal, whose avocations more or less induce a special interest in this subject, might desire to accompany us in a statistical glance at the trade during 1860 at some of the chief ports in the kingdom, we commence with Liverpool, intending, however, in subsequent numbers to follow on with those of Dublin, Belfast, Cork, Limerick, &c. For the particulars hereunder we are indebted to the comprehensive annual circular published and forwarded to us by Mr. E. Challoner, an eminent timber broker and measurer in the town in question. The opening paragraph states that—

"The past year, but for the disturbance of the timber duties, would have been one of uninterrupted prosperity, owing to the animation existing in the manufacturing districts. But the shippers in British America of sawn wood (the form in which *their* staple is chiefly presented) being subject to much heavier cost of transit and labour, must henceforth be placed at a marked disadvantage in their competition with the European shippers, whose adventures become as it were assured to them in this country, by the comparatively small freight they have to pay.

"Until the past year, this difference of freight was always taken into account in fixing a scale of duty. Wood, being an import from our colonies, the freight of which, in many instances, amounts to more than even its cost at the port of shipment, this alteration of duty termed 'assimilation' must be always at the cost of the colonist, unless the *freights* could be also assimilated, which they never can.

"Neither has the reduction of duty on foreign timber this past year benefitted the consumer; the amount of duty forfeited by the customs having been divided by the foreigner as cutter and carrier, his competitor in the British colonies being his sure protection at market in this country.

"The existing rate of duty on colonial deals being equal to about 10 per cent. on the invoice, the amount of duty aggregated on the year's import into Liverpool is shown to be £20,513 against £205 received on foreign sawn fir; thus proving how little of European fir passes through this port. In London and other competing ports, foreign sawn fir much preponderates over colonial, and from these ports the interior is completely supplied.

"*Apart from political contingencies*, the present state and future prospects of the holders of wood at market here have seldom been brighter, on account of the advanced rates of freight likely to rule in the coming spring, the limited stock in this port, and the prospects of an active demand.

"Amalgamating, as usual, the import, consumption, and stock of colonial fir, both in logs and planks, and contrasting the same with the previous year, there appears to be as follows:—

Year ending January 23rd, 1861.

	Import.	Consumption.	Stock.
Logs,	5,610,104 cubic feet.	5,987,104 cubic feet.	2,253,000 cubic feet.
Planks,	10,256,895 „	9,951,645 „	3,576,870 „
Total,	15,866,999 „	15,938,749 „	5,829,870 „

Year ending January 25th, 1860.

	Import.	Consumption.	Stock.
Logs,	5,666,534 cubic feet.	5,974,234 cubic feet.	2,630,000 cubic feet.
Planks,	9,753,480 „	10,063,020 „	3,271,620 „
Total,	15,420,014 „	16,037,254 „	5,901,620 „

Showing an increase in the import of 446,985 feet, or nearly 3 per cent.; in the stock a decrease of 71,750 feet, or 1¼ per cent.; and in consumption a decrease of 98,505 feet, or ½ per cent.

"The following table contrasts the tonnage employed in the timber trade of this port last year with the previous one:—

From the 25th January, 1860, *to the 23rd January*, 1861.

	Vessels.	Tons.
Quebec ..	142	123,099
St. John, &c. ..	232	161,014
Baltic	51	14,385
Total ..	425	298,498

From the 27th January, 1859, *to the 24th January*, 1860.

	Vessels.	Tons.
Quebec ..	143	105,163
St. John, &c...	216	177,938
Baltic	70	26,006
Total ..	429	309,107

In the matter of American pine timber, the circular states that—

"During the past year the import from Quebec has been 4,744,109 feet against 4,143,789 feet in the previous year. The improved make and quality of this wood has largely increased its consumption, the stock of the port showing a decrease of 187,500 feet, when compared with that held at the close of 1859. Waney board pine has formed a large proportion of the past year's import, owing to the preference given to it by machine-makers, and the scarcity of late of the better class of St. John's pine; in some instances 2s. 4½d. per foot has been obtained at auction. The like improvement in size and quality has been extended to the square timber, on which account prices generally have been remunerative. St. John's pine, on the contrary, has fallen off in supply. The imports, beyond those from Quebec and St. John, have become unimportant. The last sale by auction of Quebec was at from 1s. 5½d. to 1s. 7½d., or 18⅛d. per foot average for middling quality of 61 feet average, and Waney board pine was offered by auction recently, but withdrawn for an advance on 2s. 4d. per foot."

The following are the returns of the mahogany imports—

"St. Domingo—	*Year ending Jan.* 23, 1861.		*Year ending Jan.* 25, 1860.	
The Import has been	1,083,801	feet, against	1,519,855	feet.
„ Consumption....	1,444,454	..	1,249,927	..
„ Stock is........	37,160	..	397,813	..
Cuba—				
The Import has been	87,953	feet, against	178,383	feet.
„ Consumption....	41,673	..	219,663	..
„ Stock is........	Nil	..	3,720	..
Honduras—				
The Import has been	2,246,584	feet, against	1,630,912	feet
„ Consumption....	2,196,454	..	1,618,762	..
„ Stock is........	216,280	..	166,150	..
Mexican—				
The Import has been	1,283,431	feet, against	1,066,710	..
„ Consumption....	1,421,331	..	845,510	..
„ Stock is........	177,100	..	315,000	..

"Of St. Domingo, the above shows a marked falling of in supply, while the consumption has exhausted the stock entirely of logs, and leaves but few curls. Cuba has fallen off in supply to one-fifth of the import in the year ending 1859. The deficient supplies of all Spanish mahogany have rendered the produce of the newer cutting districts of Laguna and Santana especially marketable, through the admirably made, large, and figured Wood lately brought to market from these ports. To-day the cargo ex Albina, from Laguna, brought from 6½d. to 9½d., or 7d. 5-16ths. per foot average. Honduras has largely increased in consumption, 2,250,000 feet being the import last year, against 1,630,000 feet in the previous year; the consumption in the past year 2,196,454 feet against 1,618,762 feet in the previous year, and the stock of 216,000 feet was this day reduced by the sale of 138,364 feet, ex Strang, at from 6½d. to 1s. 2d., or 8 1-32d. per foot overage. Mexican.—For the reasons assigned above, this description has become highly appreciated. In the year just ended, 1,288,431 feet received against 1,066,710 feet in the previous year, the consumption has been 1,421,331 feet against 845,510 feet in the previous year, leaving a stock to-day of 177,000 feet against 315,000 feet at the corresponding period of last year, the market being cleared of all wood actually unloaded. The above calculations are made in superficial feet of one inch, sale measure."

Of Baltic timbers it seems that:—

"During the past year 51 vessels laden with 14,385 tons fir, have arrived, against 70 vesels 26,006 tons during the previous year. The import has been 457,273 feet of Danzig, 10,000 feet memel, 6,000 feet of Riga, and 64,596 feet Norway; aggregating 537,959 feet against 956,468 feet in the previous year. The consumption has been 668,959 feet against 774,068 feet; and the present stock is 200,500 feet against 331,500 feet held at the close of 1859. This decrease in the imports into Liverpool from the Baltic is principally accounted for by the great difference in freights to the East as compared with those to the West Coast, and the cost and difficulty of transit to the interior from this port."

Of Deals.—"The import has been 562 standard against 2,189 standard; the consumption 2,091 standard against 1,108 standard; and the stock now is only 483 against 2,012 standard held at the close of 1859."

And of Battens.—"The Import has only been 60 standard, and the stock is nearly exhausted."

Talbot-street.—A correspondent of the *Freeman's Journal* in urging attention to the considerable obstruction to the traffic of this leading and populous thoroughfare, offered by the unsightly old building at the corner of Talbot-street, where Marlboro'-street intersects, says, "I see a notice in your journal from the *Dublin Builder*, concerning a new flagway in same street, at an expense of some four or five hundred pounds, but ventures to add that the removal of the concerns in question would be of much more importance." [It seems to have escaped the notice of the writer that we had already drawn special attention to the desirability of the suggested removal, as may be seen by reference to page 176, vol. ii.—Ed.]

HOLYCROSS.

Holycross, with its beautiful and picturesque Abbey, the ruins of which are more imperishable than many modern buildings, is situated on the western bank of the River Suir, about two miles from Thurles, and nineteen from Clonmel, in the County of Tipperary. This Abbey was formerly a Cistercian Monastery, founded in the year 1182 by Donald More O'Brien, King of Limerick, surnamed Donald the Great, who died in the year 1194. Although many celebrated writers, as Archdall, Ledwich, &c., have ascribed the foundation to his son, Donald Carbragh O'Brien, yet the existence of the foundation charter leaves no doubt on the subject. The monastery was originally built in honour of a supposed piece of the true cross (hence its name), presented by Pope Pascal II. to Murtogh, monarch of Ireland. This relic, set with gold and gems, was preserved by the Ormond family, and transmitted by them through the family of Kavenagh to the present time.

The Abbey, as it at present exists, consists of a nave and lateral aisles, choir and transepts, and four small chapels, two at either side of the chancel, with the remains of the cloisters, chapter-house, &c. The nave and lateral aisles communicate by arches, are entirely unroofed, and are much less ornamented than the other portions of the building; but the beautiful western window is still in perfect preservation; the mullions and tracery, chiselled and hand polished with the highest finish, preserve their sharpness uninjured, although exposed at both sides to the weather for centuries. Four well-proportioned and lofty arches, leading into the choir and transepts, with delicately groined roof, support a square tower of high finish and in excellent preservation. The transepts present nothing worthy of particular notice; the southern one leads by a flight of stone steps through a small doorway to the top of the cloisters; this doorway and connecting balustrade are of recent construction. Two of the small chapels open into the south transept from the east. Each of these chapels has a window of singular beauty and perfect proportion; indeed the several windows of Holycross, each different in tracery, cannot be equalled in this country both for exquisite finish and beauty of design. Separating those two chapels, and supported on either side with small twisted columns, is an arched space, than which nothing, perhaps, more remarkable exists in any of the old ecclesiastical buildings in this neighbourhood.

We now come to the chancel, which contains a fine east window, the tracery of which, with many of the bosses and delicate ornaments of the groined roof within, have suffered considerable injury—more from the hands of barbarian man, than from the wear and tear of the elements. This has been, as far as possible, repaired by the Rev. Dr. Wall, into whose possession the property of Holycross came, by purchase, some twenty years ago. The southern wall of the chancel contains a supposed monument, celebrated for its great beauty and for the almost interminable discussions it has given rise to amongst antiquarians. This, the finest specimen of its kind at present existing in Ireland, consists of three arched compartments, surmounted by a canopy and frieze of the most florid pointed style, and much more richly sculptured than the building in which it is placed. About one third way up one of the shafts, the remains of a little cherub or angel appears, evidently sculptured from the solid stone, but now much defaced; the intention of this strange protuberance, which is attached to one pillar only, affords but little prospect of a satisfactory solution. The armorial bearings on this structure are described by Dr. Petrie, one of our most learned antiquarians.

The table of the monument is a stone slab, with foliated cross, acknowledged from its design to be considerably older than the rest of the structure, probably coeval with the original abbey itself. O'Halloran and many others, until recent times, have taken for granted that this was a tomb erected in honour of the founder, Donald More O'Brien, whose death took place, as we have before stated, in 1194. The architecture of the structure itself, however, bears internal evidence that it could not have had such an early existence; but the slab might have been a portion of his monument, although it could not have formed part of the original altar-piece of the building, as stated by some authorities.

But many ecclesiologists, accustomed to note the fittings of ancient edifices built for the celebration of Roman Catholic rites, take a totally different view of this structure; amongst them, Mr. Prim,* and his learned fellow-secretary of the Kilkenny Archæological Society, the Rev. James Graves. They argue that this is a set of sedilia or "sedes majestatis," being intended as seats for the priest and his assistants during the celebration of High Mass. These recessed seats are common enough in the southern walls of the chancels in Roman Catholic abbeys, and drawings and descriptions of some of them are given by Mr. Prim; one in particular, that of Callan Abbey, bearing a very strong resemblance to the structure at Holycross. Notwithstanding all that has been urged to the contrary, frequent personal inspections of this highly-ornamented triple-arched recess, lead me to believe that it was erected as the sedilia of the abbey church, its accompanying piscina or recessed basin for washing the chalice which had contained the wine being strongly corroborative of this supposition. The true measurement of the seats between the pillars is not 18 inches, as mentioned in the paper before referred to, but 24 inches for the centre seat, and 22½ for the side arches, the height from the original floor of the chancel being 23 inches, as far as can now be computed. These measurements, lately made with the greatest accuracy, present no difficulty for even a full-robed abbot finding ample room for his accommodation. It is true that the Abbey was founded as early as 1182, and that the architecture of the structure in dispute (the perpendicular or third pointed) proves *it* not to have been erected until about 1400; but the flamboyant windows of the chapels, and the mouldings, capitals, and other ornaments of the Abbey itself, clearly show that almost all the entire ruin—if not all—belongs to the same period, and that it must have been rebuilt about the beginning of the 15th century.

It has been stated that the fact of human bones being found in a grave under the slab-stone of this structure, on its being examined during the repairs of the Abbey a few years ago, "subverts all speculation, and sets the sepulchral character of the monument at rest for ever." Now, it seems to me highly improbable that the original architect of this beautiful ornament to the chancel, would have used an ill-fitting cross stone, even though it was a century or two old, which would necessarily disfigure the most elaborate specimen of his work in the Abbey. Is it not much more likely that when the sedilia came to be disused, that some one connected with the place removed the original seat and made use of the recess as a burying-place? And what would be more probable than substituting this old cross stone as a monumental slab, instead of the original seat of the structure itself, which may have been broken during its removal? It has been stated as unlikely that the monks would commit such a sacrilegious desecration; but anyone who has examined the numerous monastic buildings in this country, will find abundant instances of such stones having been used up for different purposes in all ages. Several instances of the kind were discovered during the recent alterations, in the year 1857, in St. Mary's Church, Clonmel. To prove that such desecrations were not confined to the middle ages, we have only to state the fact, that even in the 19th century, during those alterations, a large cross stone, that originally formed part of the altar of White's Mortuary Chapel, and had lain in the churchyard for centuries, an object of curiosity, if not of veneration, was cut through the centre of the cross to form a threshold stone for a doorway, although a special request from the Archæological Society was made to those in authority to preserve, if possible, all such relics.—*Hemphill's Abbeys, Castles, and Scenery.*

New Monster Hotel at Bray.—The architect, Mr. E. O'Kelly, and the projector, Mr. John Brennan, have been recently busily engaged in marking out the foundations of a hotel on a very extensive scale, in this rapidly-increasing locality. The site may be looked on as one of the finest in the kingdom, views of great beauty and extent spreading in panoramic form on every side—the north-east angle of Mr. Quinn's field, opposite the railway station, being the spot marked out. From the plans and elevations exhibited on the ground, the establishment will be on the most extensive plan of American hotel accommodation. Its front elevation will, for 120 feet, face the Quinsborough-road; its east front the railway station. It is to contain large assembly, coffee, sitting, and smoking rooms, and some 180 bedrooms, and the most valuable feature of all for Bray visitors, an extensive restaurant. That such an establishment is much wanted here is well known, and it need not at all interfere with the first-class establishment already existing. It will, without doubt, increase the tide of summer visitors to Bray and Wicklow, and by so doing will benefit the railway, the locality, and the county.—Correspondent of *Freeman.*

New Water Elevator.—Mr. Robert Nelson, an American, has invented a new water elevator, in which the vacuum is produced by the combustion of volatile matters, among others, naphtha. The elevator consists of a large cylindrical reservoir, at the base of which the suction-pipe is placed. In the upper portion are several valves, communicating with a reservoir of naphtha and a little furnace placed between this latter and the cylinder. Upon closing this latter it is sufficient to light the little fire, and allow the naphtha to fall upon it drop by drop; the vivid combustion that ensues, creating a vacuum, causes the water to rise rapidly in the cylinder, as much as 100 gallons at a time.

Rendering Textile Fabrics Uninflammable.—A patent has recently been obtained for the above purpose, by a Mr. Able. His method consists in precipitating a basic silicate of lead within the textures, by first saturating them with a solution of basic acetate of lead, then drying, and afterward treating them with a solution of silicate of soda.

Railway accidents, attended with serious, and in some instances fatal consequences, have prevailed lately very much in England.

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* *Vide* Transactions of Kilkenny Archæological Society, Vol. I.

THE DIPLOMA—"TO BE OR NOT TO BE."

WHAT'S the question! which for a lengthened period has been engrossing the chief consideration of the architectural fraternity, and which recently—as may be seen in another portion of this journal—has received, to a certain extent, an apparent solution. Without entering into it fully at present, various considerations would seem to suggest themselves with reference thereto, and which may be enumerated as follows:—Will the diploma be productive of any *practical* benefit to the profession and the public, by limiting architectural practice to such only as shall be in all respects competent? secondly, will it effectually exclude all intruders? and thirdly, assuming that it will do so, will such effect be *general* throughout the kingdom, or merely *local*, or for such districts as have subscribed to the voluntary examination? Regarding the probability of its *practical* results, we may ask, is that section of the public engaged in building speculations to understand that an additional guarantee will be afforded, both in artistic and constructive departments of their works, if confided to a diploma'd architect? and another, will the chances of casualties and litigation be lessened by virtue of that magically inflential document presented to the professor by the Inst. B. A.? Moreover, must all the present practitioners, be their professional position what it may—unless by grace especial from this worthy body—withdraw from outside the pale and hide their diminished heads, or submit to the humiliating alternative of—like schoolboys—being paraded before their masters, and subjected to an examination test? The Institute dignifies the movement with the title of "voluntary," but this seems to us very shallow indeed, as its initiatory step is to constitute itself into a dictatorial tribunal, exempted from the voluntary test, considerately consenting "to take upon itself the labour of instituting an examination tending to promote a systematic professional education." The diploma should be either, to all intents and purposes, *voluntary* or *compulsory*. As at present constituted—or proposed to be—it partakes equally of both elements, and those who have neither time nor necessity to go in for a diploma voluntarily, may be compelled to do so by the pooh-poohs and snubs of juniors—ree-raws—having nothing else to do but brush up for a display. The tone of the provincial societies is mostly favourable to the movement, though at the Liverpool Architectural Society some strong difference of opinion prevailed; of course, that of the profession in Ireland was not obtainable, there being no association or institute to pronounce it—hence the questions are suggested, shall the movement extend *here?* and, if so, who are to be the judges? We confess to little faith in its well working *here;* but as it is hardly fair to pronounce a definite opinion in the present stage of proceedings, we postpone further consideration until the curriculum and bye-laws, at present in course of preparation by the Institute of British Architects, be published.

THE ROUND TOWER CONTROVERSY.—THE BELFRY THEORY EXAMINED.

BY RICHARD BOLT BRASH, ARCHITECT.

HAVING in a former paper* endeavoured to show that we have no historical evidence as to the original uses and era of the round towers of Ireland, and that the word *Cloch-teach*, used in various passages of the native annals, cannot refer to them, I will now proceed to consider the question of their date and use, as discussed by Dr. Petrie †

That zealous and learned antiquary ascribes these structures to a period ranging from the fifth to the thirteenth century, and their erection to the Irish Christian converts; firstly, for belfries; secondly, as monastic keeps, or places of refuge in troublous times, and for preserving the Church plate, relics, and other valuables possessed by their infant and struggling Church; and, thirdly, as watch-towers. Upon the latter use, however, he does not much insist for want of sufficient evidence.

On the belfry question, however, he takes a positive position, and brings to bear upon it a vast amount of learned research, and patient ingenuity. I would remark, in the first place, that the very early period admitted for the existence of these towers is forced upon the Christian theorist by the remarkably ancient character of those hoary structures, particularly one class of them, which amidst all the reparations and mutilations they have undergone, still present to the archæological critic the type of an architecture which has no parallel in that of any known Christian people, but has a perfect and startling accordance with the Pagan arts of design and construction, as still exemplified in monuments of ascertained antiquity all over the world. This branch of the subject is most interesting, but of so extensive a nature that the scope of my present paper will not allow me to enter on it. It is, however, my intention to devote a special article to the consideration of this important phase of the question.

That the Irish converts erected belfries, in the fifth and succeeding centuries, is improbable, and is likewise opposed to the testimony of architectural history, and to the negative evidence of our native annals. *Belfries* must, evidently, have followed the introduction of *bells* into Christian worship and uses: I say belfries, meaning high structures specially raised to hang large bells in; for it is an admitted fact, that the custom of erecting lofty symmetrical buildings, ornamental, monumental, or commemorative, whether in the shape of obelisks, solid columns, or hollow pillars roofed in, is of unknown antiquity. Our present business, however, is with ecclesiastical towers, erected specially for the purpose of suspending large sonorous bells in, to call the neighbouring community to the public worship of the sanctuary. The date of the introduction of bells into Christian solemnities is involved in much obscurity. Bells were used by the Etrurians, Egyptians, and Romans. The bells upon the bridles of horses, also upon the garments of the high priest, are mentioned in Scripture, and various substitutes for them are alluded to by ancient writers. Pliny states that bells attached to chains were suspended from point to point of the pyramids that composed the mausoleum of Porsenna, King of Etruria. Fosbroke (vol. i., p. 229) mentions that they were used in the mysteries of the Cabiri, the Corybantes, and Bacchus, and that they were worn on the tunics of the Bacchantes, as a melodious accompaniment in dancing. They were carried in funeral processions to warn the Flamen of Jupiter least he should contract any impurity by hearing the funeral flutes. The bells of a Priapus, at Portici, were of bronze, wrought over with silver. Suetonius states that Augustus Cæsar suspended a fringe of bells round the eaves of the Temple of Jupiter Tonans. Hart, in his *Ecclesiastical Records* (p. 245), mentions that, before the introduction of bells, the faithful were summoned to public worship by the sound of a table of wood, brass, or iron, struck like a gong: nor was the use of this totally discontinued for some centuries after, as such instruments are mentioned in Lanfrane's *Monastic Institutes*, written after the Norman Conquest. In the Greek Church a hollow table of sonorous wood was used for the same purpose: when smartly struck with a hammer, it emitted a sharp ringing sound. Such an instrument is employed in the Armenian churches to this day.

The first mention of ecclesiastical bells is about the year 400. We are informed that Paulinus, a bishop of Nola, in Campania, introduced them into Christian worship; this introduction must exclusively refer to the altar services, as previous to this, we have no mention of bells used in the solemnities of the Christian church; the simplicity of the apostolical doctrine and worship having probably yielded by degrees to the influence of the more pompous ceremonial of the pagan ritual. The *tintinnabula*, subsequently introduced by Pope Leo I., about 458, were so small that six or eight of them were hung to one wheel. Early in the seventh century we have an ordinance of Pope Sabinian, enacting that the canonical hours should be marked by the ringing of bells. The custom and use of hanging a number of small bells to a wheel, as above mentioned, is illustrated by a quotation from Du Cange, *v. Rota*, in Fosbroke, vol. i., p. 98, mentioning that a wheel was fixed to the wall near the altar, on which were hung a number of bells, and which was whirled around at the elevation of the Host. There is no doubt that bells were used in the liturgical services of the Roman Church long before they were exalted in towers to summon hearers to public worship. It is more than probable that the first employed for this purpose were large-sized hand-bells, rung at the church-door, or from the external galleries that were common in the *façades* of Lombardic churches in Italy for several centuries. It is also extremely probable that the earliest belfries were of wood, framed and fixed in proximity to the churches. Thus, Gregory of Tours affirms that Leo, his predecessor, was an artist of great skill, particularly in works of carpentry; and that he erected towers, which he covered with gilt bronze, and some of which lasted until his time. Whittington, in his *Historical Essay on Gothic Architecture* (p. 22), states, on the authority of Felibien, (*Arch.* iii. 159, iv. 232.) that Dagobert completed the tower of Strasburg Cathedral A.D. 643, which was principally composed of wood. So late as 1145 a wooden bell-tower, covered with lead, was erected at the Cathedral of Chartres, which was in existence in 1506, when it was burned by lightning. [Note to Whittington's *Essay*, p. 182.]

As from Rome emanated all ecclesiastical forms and ceremonies, and as the introduction of bells into Christian worship is undeniably due to her, so we must naturally look to Italy for the first examples of belfries or bell-towers. The first bell-tower recorded to have been erected in Italy was that added to old St. Peter's at Rome, by Pope

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* *Ulster Journal of Archæology*, vol. vii., p. 155.

† Petrie's *Origin and Uses of the Round Towers of Ireland.*

Stephen III., between A.D. 752 and 757. See Hope's *Architecture of Italy*, (vol. i., p. 276,) who quotes, as his authority, Anastatius Bibliothecarius. Knight, in his *Architecture of Italy*, (p. 28,) says, "that bells were not used in connexion with churches until after the time of Paul I. Adrian I., who was elected in 772, erected the first belfry; it was of a character very similar to that represented in the engraving annexed, *and became the model after which most of the ancient belfries of Rome were designed*."* The characteristics of these ancient Roman belfries,—many of which remain to this day,—are thus given by Hope (vol. i. p. 277): "At Rome also the towers are all square, but with the stories marked by different cornices or string courses, the divisions between offering a certain number of small arches, with or without columns clustered together, with perhaps a canopy or tribune for a Madonna near the top; and medallions of porphyry, serpentine, or other marbles, inserted in the brick surface." See also the Architectural Publication Society's volume for 1818-9, article "Campanile," (p. 3). The dates of some of these square Roman brick towers are well ascertained. S. Giorgio, in Velabro, was erected by Pope Zacharias, A.D. 745 to 752; Sta Maria, in Cosmedin, 760 to 780; S. Giovanni Laterano, 750. The oldest of the square towers of San Ambrogio, Milan, was erected in 850; the second in 1143; the tower of San Zeno, Verona, in 1145; the leaning tower of Bologna, in 1116; that of Pisa, in 1174. The foundation of the square tower in the Piazza, at Venice, was laid in 889.

Speaking of the Venetian towers, Hope says (vol. i., p. 277):—"At Venice, again, all the steeples are square, and without distinct external string-courses, but divided on each side into two or three panels, running uninterruptedly from their base to their top, crowned by a small square or octagon belfry." Again:—"The towers of the north of Italy are also square, more marked by vertical panelling; the string-courses, usually flat, are very secondary features; the arcades are not perforated to the same depth; and the cushion capital is not found." [Architectural Publication Society's vol. for 1848-9, article "Campanile," page 3.]

There is another class of church towers in Italy to which the advocates of the Christian origin of the Irish Round Towers have turned for help to sustain their cause. I allude to the circular towers of Ravenna: these structures are of undoubted antiquity, but not more so than the brick towers at Rome, which they exactly resemble in every thing except their circular form. Hope (vol. i., p. 277) thus describes the Ravennese towers:—"Cylindrical, *and like a tube of equal diameter from top to bottom*, and all articulated, or showing external string-courses, marking every higher internal floor, some of these stories offering single round-arched windows, others clusters of two or three; low roofs cover the tops." The clustered windows are divided by small slender columns, having the cushion capital, which feature is general in all Roman brick towers. It is not to be supposed, however, that all the church towers of Ravenna are circular; there are several square towers, exactly similar to the Roman ones, and having details identical with the circular ones. A list of these towers is given in the *Builder* (London, 1849, pp. 243-4), where the writer, treating on the strong resemblance and identity of construction and detail between the Ravennese and Roman towers, remarks, that the windows in the towers, square and round, are almost all similar, in the peculiar deeply recessed columns and small arches above, to the Roman brick ones. There are very few strings, and these few are formed merely of brick laid angle-wise between two rows of bricks, almost flush with the face; they have no details. The crowning cornices are in a similar style, but larger and bolder. The columns have sometimes slightly carved capitals, in the Norman style.

Stairs were carried up in these towers; in the square ones they ran from angle to angle, between two thicknesses of walling; in the circular ones the steps wound round a newel, like the turret-stairs of castles and ordinary church-towers. The author of the article "Campanile," in the publication before alluded to, thus, in general terms, describes the early structures of this class:—"We find that the early 'Campanili' were simple towers, perforated by semi-circular arched openings, carried on columns or piers, not very artistically arranged, arising abruptly from the ground, without base or plinth mouldings, undiminished to the summit, and divided by numerous string-courses into stories of nearly equal height."

I have been thus minute in describing these ancient towers from reliable and trustworthy sources, in order to show that there is no resemblance whatsoever between the circular towers of Ravenna and the Hiberno-Celtic, except their circular form. What other points are there in common between those stair-cased, many-floored, and many-windowed structures, with their columned dressings, their brick ornamental string-courses and cornices, and the tall, slender, tapering, exquisitely proportioned, yet massive, masonried tower of Ireland, with its stone-lintelled Cyclopean doorway, its few and diminutive window opes, usually square or angular headed, its 4 attic windows facing accurately the cardinal points, and its overlaid stone roof?

The date of the erection of the Ravennese towers has not been fixed. Their architectural details would take them as far back as the eighth, or as late as the tenth, century; but it is not by any means probable that they are earlier than the eighth, from the fact that church-bells had not come into general use at an earlier period, and that at Rome, where we should naturally look for the earliest introduction of all ecclesiastical adjuncts, bell-towers were not erected before the middle of the eighth century. I would once for all quote the opinion of one who had carefully and laboriously investigated the subject of Italian ecclesiastical architecture:* speaking of the Roman basilicas erected at the first great development of Christianity he says:—"The only universal addition in Rome to the former sacred structures was after steeples had begun to spring up in the seventh and eighth centuries, that of one of these appendages to each of the old churches." Yet with all these facts and weight of testimony staring us in the face, we are called upon to believe that the Irish erected ecclesiastical bell towers in the fifth, sixth, and succeeding centuries.

That bell-towers originated in Italy, is beyond all manner of doubt; we can trace their progress into Northern Italy, into Southern France, and Germany, where the Italian type of tower is plentiful to this day: nay, the influence of that original form was felt through Christian Europe; and, even in Britain, the so called Saxon towers, such as Earl's Barton, Sompting, Brixworth, &c., in their square form, vertical panelling, coupled windows, with columns or baluster shafts, and the cushion capital, point unmistakeably to the original Italian type of bell-tower. I shall not here pursue this branch of the subject any further. It is quite sufficient for me to establish, as I hope I have done, that we have no authentic record of the erection anywhere of lofty stone or brick towers, specially for the reception of ecclesiastical bells, before the eighth century; nor have we any reasonable grounds for supposing that such were in use previous to that date.

The ages generally assigned to the oldest remaining towers in France and Germany, and to those in England usually called Saxon, is consistent with the date given for the introduction of bells and bell-towers in Italy, allowing a reasonable period to elapse for the gradual introduction of this new feature in ecclesiastical architecture, and taking into account the difficulties of communication then existing, the dislike of innovation, and the troubled state of Christendom in those remote and semi-barbarous ages.

I shall here leave my readers to conjecture, if they can, how the Christian Irish came to have bell-towers in the fifth, sixth, and seventh centuries.

In order to give some colour to this early erection of towers in Ireland, Dr. Petrie has attempted to establish the use of bells in this country at a very early period: his authorities are monkish legends, and Lives of Saints of the most apocryphal character, whose statements, as the truthful and erudite Lanigan has shown, if not entirely unworthy of credit, must, at least, be very unsafe upon matter of fact. Various passages from these legends are quoted by that learned gentleman, such as, that St. Patrick, who came to Ireland A.D. 452, abundantly distributed bells; that he had a bell-ringer, one Sinell, who rung the bell in the Cloigteach; that he had three artificers, named Asicus, Biteus, and Tassach, who fabricated such utensils with admirable art; that one Dageus was a famous bell-founder in the sixth century, and that he not only fabricated "bells, croziers, crosses, &c., but also shrines; and that though some of these implements were without ornament, others were covered with gold, silver and precious stones, in an ingenious and admirable manner." How unlikely all this is to be true must be apparent from the following considerations:—The early Irish missionaries were poor, zealous, fervent, simple in manners, plain in attire, rigid in morals; they brought with them neither silver, gold, nor precious stones; their language was that of the apostles of old to the blind man at the beautiful gate of the temple, "Silver and gold we have none, but such as we have give we unto you." They came to preach the Gospel of peace to a nation of idolaters, and the weapons of their warfare were not carnal but spiritual.

I have already stated that the introduction of bell-towers into Ireland, at the period or periods mentioned by Dr. Petrie, is contrary to the negative evidence of our native Annals, to which source he entirely appeals. Now, admitting for argument's sake, that the word *clochteach* signifies a bell-house, how comes it that a belfry is not mentioned under this appellation before A.D. 950, the earliest notice or mention of the term that Dr. Petrie has been able to produce? We have various terms for churches, and various parts and classes of ecclesiastical structures, specially and repeatedly mentioned, centuries previous to that date, but not one word about a *clochteach*. The natural inference is, that no belfries existed; that such appendages to churches were not in use, for if they were, surely such lofty imposing and important structures would not have been passed over in silence, when *Duirthechs* (oak churches or oratories), *Erdams* (porches), and *Cucines* (kitchens) are specially referred to.

(To be continued.)

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* The Italics are mine.

* Hope's *Historical Essay*.

ST. PATRICK'S BRIDGE, CORK.

IN a former No. we noted the progress and characteristics of this important structure, and were pleased to find during a very recent personal visit that all the constructional difficulties as regarded the foundations for piers and abutments had been most ably surmounted, under the eminent practical direction of Sir John Benson, by Mr. Joshua Hargreave, the contractor, with whose names that of the clerk of works, Mr. Barnard, deserves to be most honourably associated. The local *Constitution* gives an admirable description of additional particulars to those already recorded, and from it we quote the following:—

"Upwards of 100 stone cutters, masons, and labourers are constantly employed in forming, dressing, and completing the stones and masonwork, and the formation of the arches has now reached a point which, while evidencing the conscientious care and surveillance exercised in every department, justifies the anticipation that when finished it will constitute one of the principal ornaments of a city which has hitherto been rather poorly furnished either in the number or the quality of its architectural embellishments. One of the most important and striking advantages which the new bridge will afford over that which met its destruction in consequence of the remarkable Flood of November, 1853, will be the almost perfectly level and spacious roadway it will offer for carriage traffic, a matter of the utmost consequence with a bridge which will form the principal thoroughfare of the city, and over which so many heavily laden vehicles must daily pass. The elevation, reckoning from the approaches at either end to the middle of the roadway over the centre arch, will not exceed 18 inches, which along a length of 245 feet is at the rate of only 1 in 164—an incline almost imperceptible, and being in fact purposely formed with the object of carrying off the surface water, and preserving the roadway dry and fit for traffic during the winter rains. In the width, as well as in the incline of roadway, the bridge will be a manifest improvement upon that which it is destined to supersede, being in fact the widest in the United Kingdom, with the exception of the new Westminster-bridge, one of the handsomest of the numerous modern structures which span the Thames. The entire width of the new bridge, from parapet to parapet, will be 60 feet; this will afford a roadway of 40 feet, and two footpaths of 10 feet wide each. This width is exclusive of the sweep at approaches, which will form four quadrants of about 10 feet radius, and adding about 20 feet to the width at either end.

"The material employed is almost entirely Cork limestone, with the exception of some few of the more massive portions of the foundations, procured from Foynes. Some small amount of the material was had from quarries at Midleton. The stone for the arches has been furnished almost entirely from Beaumont quarries.

"Little now remains to be effected but the completion of the arches and the formation of the roadway and approaches. The foundations of the piers and abutments were laid in massive iron 'casemates' or chambers lowered into excavations extending several feet below the bed of the river. Four of these were employed, one for each of the two piers, and one for each of the two abutments. They consisted of massive iron chambers strengthened in the interior by strong bars of cast iron. The excavations having been first made to the requisite depth, and the beds brought to a level with concrete, each casemate was lowered into its position by a moveable crane working on a timber bridge and tramway temporarily erected for the purpose. The spaces inside and outside the casemates were then packed tightly with concrete. The magnitude and importance of this portion of the work, on which the safety and durability of the superstructure entirely depend, may be estimated from the fact that the casemates for the piers were each 90 feet in length, 10 feet 6 inches wide, and 7 feet 6 inches deep—the metal being proportionally thick. The foundation stones of piers and abutments were lowered into their beds with the moveable crane, and firmly set with hydraulic cement.

"The centerings of the arches are formed of a series of massive ribs of Memel timber, strengthened by a series of thick framework of the same material. Along the circumferences of the ribs or timber arches a series of transverse planks are ranged close together, on which the masonwork of the arches is laid. At the points where the arched ribs rest on the upright supports a number of large wedges or bolts are inserted, which when the masonwork is completed will be driven out, the centerings will slip down some three or four inches, leaving the masonwork partially unsupported and free to settle down into its permanent position. The form of each of the three arches constitutes a segment of an ellipse, affording a greater width of waterway and also a flatter crown than the circular arch. The versed sine of the centre arch is 19 ft. 6 in., and that of each of the others 18 ft. 6 in., there being but one foot difference in height between the middle arch and the other two.

Nearly the entire of the stones for the arches have been dressed to the required dimensions. For this latter purpose timber models were furnished to the stone cutters, giving the section of each stone, of which about 60 will go to make the circumference of each arch. The width of each section is uniformly about 14 or 15 inches, and the height three feet at the springing of the arches, diminishing to about 2 feet 6 inches at the crown. The weight of each stone varies from 15 cwt. to one ton. They are set in position with the moveable crane, and cemented with hydraulic mortar.

"The balustrades will consist of a series of neat pilasters of cut stone, capped with the same material, the height from the footpath to the parapet being 3 ft. 6 in. The total length of the bridge from abutment to abutment will be 183 feet, and from quay to quay 215 feet.

"About one-third of the masonwork of the northern arch has been now completed, and one fourth of the two others. For the arch sheeting alone nearly 1,000 cube yards of stone will be employed. The total number of stones required for the formation of each arch will be about 1,200.

"After the completion of the arches, the most important portion of the remaining work is the formation of the roadway. To effect this and secure a level and firm surface for traffic it is intended to build a series of broad and parallel walls at nearly equal distances from each other along the entire length of the bridge—the heights of the walls at the various points of the arches will be increased or decreased, so that the summits may present a nearly exact level. A row of stout planks corresponding to the width of the bridge will then be laid across the summits of the wall to form a basis for the material of the roadway. This portion of the work is not expected to require much time, and we may now look forward before many months shall have elapsed to the completion of a structure which will reflect credit alike on the talent of the architect, the energy and skill of the builders, and the public spirit of the citizens by whom it was projected and carried out."

INCRUSTATION OF STEAM BOILERS.

MR. HENRY RANSFORD has addressed a letter to the "Society of Arts Journal" on this subject, from which we quote the following:—

"I tried the experiment on a 30-horse tubular boiler. In addition to the blow-off cock at the bottom, another was fitted over the fire pan, at the usual level of the water, and to the end of it, inside the boiler, was screwed on a funnel of sheet-iron, partly flattened, so that, on the cock being opened, anything floating within eight or ten inches on each side was drawn through. The engine-driver had directions to open the lower cock once a day, and the upper one when he saw the water in the glass gauge was thick, and keep them open until the water ran clear, but never to blow out the boiler as formerly. Three or four gallons from the lower, and half that quantity from the upper cock was sufficient to carry off all thick and dirty water. At the end of *three months*, first allowing the water to get nearly cold, the boiler was emptied; a stream of water was then introduced by the man-hole, and the tubes thoroughly washed. On examination the under half of the tubes was as clean as the day they were made, the upper half discolored, but no scale, and the sides of the boiler in a similar state; on the bottom was about half a bushel of thin scale, broken up into small pieces, that apparently had fallen or been washed from the tubes; thus, after three months' work, there was nothing to do but to get up steam again. The secret consists in never blowing out the boiler when hot, the usual custom, as the result is—the heat of the tubes and sides instantaneously convert the soft deposit into a hard calcareous substance, and every time the boiler is blown out, an additional stratum is added. If the man-hole is taken off on the Saturday afternoon, and the flues opened, the water is cold enough to run off by Monday morning, so that no time is lost, and I have no doubt the hot water might be allowed to run off on the Saturday, provided an equally large stream of cold water was allowed to run in at the same time, until the boiler and tubes were cold. I will merely add, the water was pumped from the Thames, and allowed to settle before being used for the boiler. There is no reason why the plan should not answer equally well for locomotives."

An ancient statue of calcareous stone, four and a half feet high, recently dug up from the excavations of Nineveh, and representing the King of Sidon, has just been placed in the Assyrian Museum of the Louvre. The archæologists are visiting this statue with great curiosity and interest.

The provisional committee of the Tralee and Tarbert Railway have decided on abandoning the bill for the present.

THE ARCHITECTURAL ELECTION AT THE ROYAL HIBERNIAN ACADEMY.

THOUGH not as yet officially announced, it is nevertheless very generally understood in the professional circle that an election of *four* additional architect members of the Royal Hibernian Academy has *de facto* taken place, and awaits ratification by the Royal Commissioner; we therefore conceive that we may, without transgressing prudential bounds, publish the names of the new members, at least as report has furnished them to us—viz., Sir Thomas Deane, Charles Lanyon, Patrick Byrne, and William Murray, who together with the present academicians, J. J. M'Carthy, and John S. Mulvany, will constitute the authorized quorum of six. We trust that one of the first palpable benefits resulting from this acquisition to the academy, will be a more creditable display in the architectural department at the ensuing exhibition.

MUNICIPAL TAXATION.

IN the course of an able statistical resumé on this subject by Alderman John Reynolds, J.P., at a meeting of the Corporation on the 24th ult., the following figures were quoted respecting the overtaxed state of the city, and for which every citizen and householder should feel grateful to that energetic member:—

"The gross sum assessed last year was £170,244; made up thus – The north sewer rate, fourpence in the pound, £3,583; the south sewer rate, £5,176; police tax upon a valuation of £525,627, and £241,459 of rural valuation, at 8d. in the pound, £25,569; grand jury cess, upon a gross valuation of £519,947, £30,330; poor-rate on the north side is £15,737; supplemental do., £5,554; and on the south side, £17,337. Improvement rate, 2s. in the pound, amounting on a valuation of £508,722 to £50,872. There was also a sum for public buildings; and the pipe-water rent was £13,201; making a total as above stated. He had no reason to suppose that it would be less in 1861; on the contrary, he believed it would be *more*."

The speaker suggested, for the *ninth* time, that a memorial be submitted to his Excellency to use his influence with Government "that such local charges as carriage-rents, pawnbrokers' licenses, fines and penalties, should be paid into the borough fund in aid of paving, lighting, and cleansing, instead of being paid towards the support of the police force, over which the municipal representatives had no control."

DUBLIN, "THE MADDEST CITY IN THE WORLD."

AT the meeting alluded to in above paragraph the same speaker declared that he had made a curious calculation showing "*Dublin to be the maddest city in the world*" (what a laugh for *some* people!) inasmuch as that the number of dangerous lunatic committals to our city gaols were in the ratio of 1 in every 700 of the population, whereas those for the whole of Ireland were 1 in 2,690 – the former being an average *four* times greater than the entire country; further, that the sanity of the Drogheda folk must be considerably in advance of the Dubliners, as the per centage of lunatics is immensely less in the former than in the latter instance. The returns for Dublin are as follows:—In 1856, 46 males, 57 females, total, 103. In 1857, 52 males, 66 females, total, 118. In 1858, 59 males, 64 females, total, 123. In 1859, 50 males, 74 females, total 124. The total number of both classes being 468. Of this number 155 males and 113 females were removed under the Lord Lieutenant's warrant. Of the 468 there were 375 committed from the city alone, the remaining 93 being country cases; and, the alderman remarked, considering that the total number of commitments in Ireland as dangerous lunatics during the four years mentioned appeared from the inspector's report to be 2,416, it should be admitted that the proportion for Dublin was something monstrous.

The approaching election of one member to the greater and one to the lesser dignities of the Royal Academy is occupying the attention of the art-world. Among the names of the Associates mentioned as likely to be raised to the full-blown honours of R.A. are those of Messrs. Boxall, Millais, Egg, and Pickersgill, but it is tolerably certain that the first-named gentleman will be elected. Mr. Faed will probably be the new Associate. It is also said that Baron Marochetti will be elected the Associate sculptor.

ULTIMATUM OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AT length the parent professional Institute has arrived at an affirmative decision on the long-vexed, but too long-postponed question —"Should an architect be diploma'd;" and relating thereto, the following resolutions were passed at a recent special meeting:—

Proposed by the chairman, M. Digby Wyatt, Esq., V.P.—"That the examination be open to all members of the profession, and that candidates not members of the Royal Institute of British Architects do produce a recommendation signed by three members of the Institute, one of them being a Fellow, and subscribe the declaration as to practice, which is signed by members of this Institute."

Mr. George Godwin seconded the motion. Immediately upon this Mr. J. W. Papworth moved, and Mr. Robert Kerr seconded, an amendment—"That this Institute, by the publication of the resolution of the 25th of June, 1860, and in the circulation of the propositions submitted by the Council at that time, having to the utmost of its power ascertained the views of the profession thereon, and having taken into consideration the replies forwarded by various societies, to which the circular of the Institute was sent, does, in conformity with the wishes expressed in those communications, take upon itself the labor of instituting an examination tending to promote a systematic professional education."

In the course of a prolonged conversation a number of amendments were proposed, discussed, and withdrawn.

Eventually the motion was laid before the meeting in the following shape:—"That the examination be open to any British subject making such declaration of his intention to follow the profession of civil architecture as may be determined by the Council, on producing a recommendation from three members of the Institute, one being a Fellow."

The Chairman moved, and Mr. Penrose seconded, a resolution to the purport—That the Council be empowered to carry the preceding resolution into effect.

Mr. Robert Kerr moved, and Mr. Burges seconded, an amendment:—"That the Council be instructed to proceed towards the preparation of a *curriculum* and bye-laws, and be recommended to appoint a committee to this end, and to report to a general meeting."

Mr. Godwin suggested that the motion should be withdrawn in favor of the amendment.

This having, by leave of the meeting, been done, the amendment became a substantive motion, and was carried *nem. con.*

Another meeting of the Institute took place on the 21st ult., Mr. Godwin, V.P., in the chair, who announced that the discussion relative to preservative stone processes was fixed for the 28th; and stated that the three committees appointed by the council were as follows:—for "professional practice," for "the library," and to inquire into "construction and materials," briefly explaining the objects of each. Mr. Lewis read the substance of two papers by Mr. Hawkes, "On the Transverse Strength of Bricks," and "On the Expansion of Brickwork in a Furnace Chimney;" also called attention to some specimens of mosaics from Murano and Palermo, which Mr. Penrose proposed to apply to the pendentives of the dome of St. Paul's Cathedral; also to some specimens of paper with a pressed pattern (resembling leather work), by Messrs. Scott, Cuthbertson, and Co., of Chelsea, which was hung like ordinary paper, and then received two coats of size and two coats of paint; and to some patent bitumenized pipes for the conveyance of water, gas, and drainage, and which was intended to be substituted for those of cast iron. They were made of layers of course paper, and had been successfully introduced in France, Spain, and Italy. He likewise brought under notice specimens of a new material resembling marble, by Mr. E. J. Bridell, and which admitted of elaborate mouldings and ornamental forms An animated discussion took place, in which Messrs. Jennings, Rickman, Barry, Dines, C. H. Smith, and others took part.

Some very interesting mosaics from Carthage have recently been deposited in the British Museum, but have only been partially displayed to the public.

Mr. G. F. Train recommends for railway carriages during frosty weather, an American railway wheel of peculiar construction.

DUBLIN MECHANICS' INSTITUTION.—Report read at annual meeting on 21st ult., showed that the institute is in a healthy condition, contrasting favourably with former periods, when the numbers were much greater; also an increase in the number of library readers, a small amount remaining on liability sheet, a marked improvement in the fundamental classes, the success of the experiment to dispose of life members' tickets by lottery, &c., &c.

IMPORTANT DECISION AS TO ARCHITECTS' FEES.

Wylie v. *Willmer.*—Plaintiff is an architect and parish surveyor for Liverpool; Defendant, the proprietor of the *Liverpool Chronicle and European Times.* Action brought for £20 (5 per cent. fee) for finding a plot of ground and building in School-lane, and a further sum of £158 15s. for plans, &c., for a building thereon. The learned Assessor, in summing up, said—

Mr. Wylie is an architect, and he brings his action to recover £158 15s., which is a commission at the rate of 2¼ per cent. upon £6,350, being, as he states, the estimated value or cost of the erection of a building, the plans and specifications of which, pursuant to the instruction of the defendant, he prepared; and his right to recover depends upon the question of what the contract was between the plaintiff and the defendant. Gentlemen, if a man goes to a machine-maker and says—"Make me a machine, or a steam-engine," *and if you can imagine such a thing as no directions being given as to cost*, of course, when the engine is built or the machine is prepared, the purchaser would be bound to take it whatever its cost was. But suppose he ordered an engine of 200 horse-power, and the machine maker prepared one of 400 horse-power, it would be monstrous to suppose that the man who ordered one of 200 horse-power should be bound to take the one of 400. Now, in the case of an architect, if an architect is employed to prepare plans and specifications for the erection of a building—I don't know what the course may be in every specific instance, but probably, generally speaking, when a gentleman wishes to build either a house for himself, or a warehouse, factory, or other building, if he employs an architect one would think he would tell him—"I want such and such a description of building, of a house, or factory," in order that the architect may know somewhere about the style and proportions in which to proceed. Very likely, generally speaking, they will know the probable amount to be laid out on the building; and it must make considerable difference whether £1,000 is to be laid out or £2,000. It would probably make a great difference whether it should cost £2,000 or £6,000, which is coming nearer to this case. Well, if the architect is instructed to prepare plans and specifications for a building, the cost of which is not to exceed £2,500, or thereabouts, a little more or a little less, he cannot expect to be paid if he prepares plans and specifications which are not applicable for such a building as that, but require the outlay of a sum considerably exceeding the limits of £2,500, because his employment was to do a certain work. He has not done that work, but other work. He can, therefore, only recover in case he proximates to the contract which he has entered into with his employer—that is, to do the work specified by the employer. Now, the plaintiff's case here is that there were no such limits at all given to him; that he was employed to prepare plans and specifications. He puts it, "Although I knew in the first instance, upon the communication taking place between us and Mr. Holme, that about £2,000 was the limit, yet that was for what was originally intended in the first plot." As you remember, two plots were specified as purchased from the trustees. This was the plot of lands upon which a building to cost somewhere between £1,500 or £2,000 was to be erected "But," says he, "the defendant came from time to time; brought rough sketches of plans, and altered the building, which originally was to consist of two storeys only and a cellar, to four storeys and a cellar, and made a totally different description of building from what was originally contemplated; and he never specified to me anything about a limitation of money, but went on making these alterations, which would necessarily, from time to time, increase the expense. I obeyed him; what I did was by his direction; I did nothing without him; and therefore I am entitled to recover." And he is quite correct in that; because, if it were according to the mode in which he puts it—if, although originally the party contemplated a building to cost £1,500 or £2,000 only, and afterwards Mr. Willmer, without placing any limits upon the amount to be spent, gave directions to the architect from time to time to alter his plans, to increase and expand them, in such a way as that ultimately the plans and specifications required the outlay of £6,350 at the very lowest, Mr. Willmer must pay for that, because it was his own fault in not limiting Mr. Wylie in the way in which he ought to have done. He cannot, therefore, turn round and say—"I won't pay for it, because it is not what I wish to have." But, on the other hand, if the case is as put by Mr. Willmer and Mr. Fraser, who is with him, "that originally I contemplated £2,000 to be spent, and distinctly told Mr. Wylie that that was my limit; and that afterwards when I wanted alterations to be made, I invariably" (and in that you have the evidence of Mr. Willmer and Mr. Fraser both to the same effect)—"I invariably told him that if the alteration would exceed, or render a greater expenditure of money necessary than my limit, I would not have it done"—then it is a very different matter. Upon one occasion Mr. Wylie said—"Well, it cannot be done for £2,000." Then said Mr. Willmer, "Well, I will increase my limit to £2,500, but within those limits you must keep." And Mr. Fraser corroborates him; and they both say that over and over again—Mr. Willmer says twenty times at least—they told him he must not exceed £2,500. Well, gentlemen, although it may be said you cannot arrive accurately at what would be the cost of erecting buildings according to certain plans and specifications until the quantities are taken out, yet it is obvious that any architect of skill and experience would have some general knowledge which will keep him within certain limits, and certainly he ought to know the limits between £2,500 and £6,350. One of the witnesses called for the plaintiff, Mr. Culshaw, said it is obvious he must have done so. Mr. Cunningham said, of course they cannot know it accurately, but they must know to a certain extent. Well, if Mr. Willmer and Mr. Fraser are correct in what they say, undoubtedly there were limits beyond which Mr. Wylie was not to go. Mr. Wylie did go beyond them; he prepared plans and specifications which are not of any use at all to Mr. Willmer; and Mr. Willmer is not bound to pay for them, because their being used in the way described by Mr. Howorth makes no earthly difference When Mr. Willmer ascertained that the cost would be so great, he was not bound to take them, if they were not according to contract. There is the case, upon the oral statement of Mr. Wylie and his son on the one hand, and there is the statement of Mr. Willmer and Mr. Fraser on the other. If you believe the plaintiff's case, the plaintiff is entitled to recover; if you believe the defendant's, the plaintiff is not entitled to recover. It therefore depends upon the view you take of the different parties. They are all in a respectable station of life; and it is difficult to say that either one party or the other came here deliberately to tell that which was untrue, and yet it is difficult to reconcile these two statements. On the 2nd of November, it appears, after the tenders are sent in, Mr. Willmer finds out the extent of it; and he writes this letter—and when I read the letter and Mr. Wylie's answer, I think you will have the whole case before you:—

"Dear Sir—Allow me to draw your attention to my having stated to you that I contemplated expending upon my proposed erection the sum of £2,000, which Mr. Samuel Holme in his letter (which you read) of the 17th of August last quoted, and when he so remarked that for so large an expenditure on a ground-rent of £170 per annum a 42 years' lease should be required.

"I mention this here to show you that my whole movement has been based upon that outlay.

"I admit that at a subsequent date I extended the sum to £2,500. Upon giving you instructions, I did so on the understanding that your plans and specifications should be executed for that expenditure. You may, therefore, judge my astonishment upon receiving eight tenders ranging from £6,850 to £6,843.

"Being placed in this very unexpected and *embarrassing* position, I consider it my duty, acting under the advice of my solicitor, to return to you your plans, and to state that any connexion with you in *this matter* ceases to-day.

"I am, dear sir, yours, &c.,
"To Mr. Thomas Wylie." "Edward Willmer.

Now the answer to that letter, in which Mr. Willmer refers to having originally told Mr. Wylie £2,000, and afterwards extended it to £2,500, which was to be the basis of the instructions given to the plaintiff—the following is the plaintiff's reply:—

"My Dear Sir—I have to acknowledge the receipt of your favor of yesterday, informing me that you consider it your duty, acting under the advice of your solicitor, to return to me my plans (for your intended building), and to state that your connexion with me in this matter ceases 'to-day' (yesterday).

"I presume that I must take this as your fixed determination, though I think you can hardly mean so, on more mature reflection: should I, however, be mistaken in this, I can only express my regret at your apparently hasty conclusion, which, if you intend it to be final, ought to be accompanied by the payment of the usual commission and fees for surveys, which, under the circumstances, I claim in full.

"I can, in justification of myself, show how your ideas have expanded from a mere workroom and office to a palatial structure of amazing extent, containing upwards of 400,000 cubic feet, lofty and imposing in appearance; but that of course is not now necessary.

"I am, my dear sir, yours, &c.,
"To Mr. Edward Willmer." "Thomas Wylie.

Well, the only remark I will make upon it is, that whilst replying to Mr. Willmer's letter, he (Mr. Wylie) does not say to Mr. Willmer—"You never limited me in the first instance to £2,000 or £2,500." He passes that by entirely unanswered. Whether it was that he could not answer it, I cannot say, but he does not make any comment upon it. Undoubtedly he comes into court to-day, and says on oath that such things never did take place. Well, gentlemen, you are to say, taking all these circumstances into your consideration, whether or not the contract was as stated by Mr. Willmer and Mr. Fraser, because, whatever work the plaintiff may have done, he is not entitled to call upon the defendant to pay for it, unless it is done pursuant to the contract which was entered into; and that contract, if it were of the nature pointed out by Mr. Willmer, was to prepare plans and specifications which would require an outlay of £2,500, or thereabouts. He has never prepared those plans and specifications, and is not entitled to be paid anything at all, because what he has done is utterly useless to the defendant. Upon the other hand, if you do not take that view, and are satisfied that the plaintiff is correct; that no limits were given to him at any time; that he proceeded entirely by the direction of the defendant; and that, in truth, this building grew out of a mere workroom into a palatial structure, without any fault of his own—then he is entitled to recover the amount of 2¼ per cent. upon the £6,350.

Foreman: A few of the jury wish to ask whether we have power to give a smaller amount to the plaintiff, upon the smaller sum.

The Assessor: I don't think you can. He is either entitled to recover for all the work he does under the contract, or not at all. His contract was to prepare plans and specifications According to the evidence of Mr. Willmer and Mr. Fraser, they were to be plans and specifications for a building not to exceed a certain sum; and if the defendant gets plans and specifications which would not enable him to build such a building as he required for that sum, he gets no value from the work which is done. If, on the other hand, the contract was as the plaintiff states it to be, and no limits were assigned, there is nothing to prevent his being entitled—in fact, it is admitted by the defendant he would be entitled—to the whole money; so that it is either the whole or none.

The Foreman said—We are agreed to find a verdict for *the defendant.*

COURT OF BANKRUPTCY AND INSOLVENCY.

In re J. H. Carroll—The bankrupt was a builder. The meeting was for the examination of witnesses with reference to securities which the bankrupt had given to the Messrs. Martin for advances made by them to enable him to complete contracts which he had on hands.

Mr. Heron, Q.C., appeared for the creditors; Mr. Martin appeared for the Messrs. Martin; and Mr. Rollestoue, Q.C., for Mr. Jones, the architect of the contracts.

The case was adjourned.

In re James Daly (an insolvent, formerly a miller at Mullingar).—The case came before the court on motion for reference to Chief Clerk to take an account of all moneys due by the deceased and surviving trustees of the partnership estate of the insolvent and John Smith. Insolvent and John Smith were partners in the building of a Lunatic Asylum at Mullingar, and in the year 1852, being unable to continue the works, transferred them to Messrs. Martin and Headech, who prosecuted the works until the latter portion of 1854, or beginning of 1855, when the trustees gave up the further charge of the building to the Board of Works. After referring to the facts of the case, his lordship said he had come to the conclusion that it would be a wilful waste of money and time to allow the official and creditors' assignees to commence the proceedings asked for.

INSOLVENTS.

John Lennon, Terenure, Co. Dublin, slator and contractor.
James Wilson, Belfast, machinist and brick manufacturer.

ASSIGNMENTS.

James M'Killen, Ballymena, Co. Antrim, carpenter and builder.

Coming Trials.—Amongst the cases for which notices have been served for Hiliary Term after sittings we observe those of Lynch *v.* M'Dermott (work and labour), Brady *v.* Martin (ditto).

NEW DRINKING FOUNTAINS.

In an early No. of last year's volume, we illustrated some designs for drinking fountains, suitable for erection in cities and towns, with a view of inducing our citizens to join practically in the movement, then and since on foot throughout the kingdom; and we have had the gratification to witness the salutary effect—at least in a degree—of good example, for this metropolis possesses now some few of these structures, and we have reason to hope for more. We notice one of pillar pattern with dog trough at base, on the "Coal" Quay, a well known resort for a class who, perhaps more than many others of the community, usually seek a more exciting beverage than *aqua pura*. However, it is refreshing to perceive that this valuable adjunct has been appreciated, and if it should, even by its presence, succeed in detaining *one* visitor *per diem* from entering the alcoholic depot, the philanthropic purpose of the promoters shall have been recompensed. We must, nevertheless, express a regret that in the majority of those *as yet* constructed, *art* and *utility* have not been combined, and the more so as there are few subjects that offer a wider field for originality of design and ornamentation of a city. An exception, however, to this stricture, has been erected near the junction of Beresford-place with Eden-quay, and inside the area surrounding the north and west sides of the Custom-house, midway between that building and the Northumberland Hotel. It is the gift of His Excellency the Earl of Carlisle, and is partly constructed of limestone and partly of Caen stone, with granite base. Cost about £50. Messrs. Deane and Woodward, architects; Messrs. Purdy and Outhwaite, constructors. The total height is about 10 feet to vane. The interior is fitted with a charcoal filter, and the slab seen at the rere is intended as a rest for burdens.

The mural fountain, also illustrated herein, has been constructed in Parkgate-street—near to the city entrance to the Phœnix Park—after a design by the same architects, and was likewise the gift of His Excellency, whose characteristic discrimination and truly eminent philanthropy most happily suggested the suitability of this site. The water is exceedingly pure, and passes through a filter similar to those used in London. Messrs. Cockburn erected the constructive portions, and Messrs. Purdy and Co., the carvings. Cost, about £50.

ULSTER BANK ARBITRATION.

The questions in dispute between the contractors (Messrs. Fulton) and the Directors of the Ulster Banking Company, relative to the newly erected bank at Belfast, and for which a sum of £4,068 balance is alleged to be due to the former for works executed, has been referred to arbitration by order of the Court of Common Pleas. Some difficulties arose as to the arbitrators, owing to the two gentlemen named in the contract having been subsequently in the employ of the bank, and again a third—Mr. Barre—having been a prominent competitor. Proceedings were, therefore, necessary to the appointment of new and independent parties. We learn that the gentlemen selected are Mr. Beard, of Glasgow, and Mr. Lanyon, of Belfast, with a Q.C. for umpire, for which Mr. Vance's name is suggested. Our readers have been already made fully aware of the particulars and features of this important structure, which required a more than ordinary amount of skill to bring it to a successful completion, and as the several departments of work therein have been (we believe admittedly) executed in a most creditable manner, it is more to be regretted that any obstacles to final adjustments of accounts should have presented themselves. They may, however, to an extent be accounted for by the fact, that there was *no specification*, but a substitute in the shape of approximate bills of qualities and agreement to remeasure the work after execution, and different modes of measurement and valuation having been adopted.

THE ARCHITECTURAL ASSOCIATION OF LONDON.

An ordinary meeting took place on 18th ult., M. T. Roger Smyth, President, in the chair. Allusion was made to the "architectural examination question" on the tapis at the Institute, and the chairman announced that the Polytechnic Institution had signified their intention of including architecture in their educational programme, thus, "to have three courses—one on the essentials of building, one on architectural character (the history and practice of Classic, Mediæval, and modern styles of architecture, with notices of distinguished architects and their works); and, thirdly, a course on modern practice." The register's report was next submitted and discussed, after which Mr. Arthur Allom read a paper on "The Battle of the Styles."

ILLUMINATING PLATFORMS AND VAULT LIGHTS.

In New York there is an extensive adaptation of a recently obtained patent for lighting subterraneous apartments under the pathways and roadways of thoroughfares, without in the slightest degree impeding the traffic. Within a certain circuit in any city the acquisition of so much additional space for cellarage, storage, &c., is a great desideratum, and the following is a sketch of the manner in which it is effected:—

The supporting beams and pillars are of cast iron, strengthened when necessary by wrought iron tension rods. Upon these, slabs of illuminating pavement are laid, the joints being staunched by bituminous cement, and the surface getting such a pitch, or grade, that it sheds water freely. The slabs of pavement are bolted on by ears to the beams, so that they cannot be started nor warped by any weight upon them. The lights introduced into these slabs are strong masses of glass, which fit as exactly as may be into the holes prepared for them in the slab where they are secured and rendered water-proof at the joint by a small portion of asphaltum, or some other bituminous cement. Where the vaults extend under the carriage way, it is found advisable, for the sake of deadening the overhead traffic, to turn small brick arches from one iron beam to another, the beams being made ⊥ shaped to form an abutment, from which the arches may spring. These arches being then coated over with asphaltum to make them tight, are covered with common pavement, like other parts of the road.

The illuminating platform supplies an abundance of light. The vault lights give sufficient in the lower depths to enable persons to see whatever is stored there; while by the ordinary appliances for ventilation an abundant supply of vital air can be furnished for the occupants or workers in those subterraneous apartments.

The light, cheerful covering, the absence of darkness, the airy, healthful atmosphere in the underground apartments formed by these cast-iron side-walks, form a striking contrast to the dark, dismal, gloomy, small vaults made with brick arches. The brick being small in size, the arches must necessarily be of small span and quick curvature; being absorbent of moisture, the vaults must be damp, cold, noisome; while the unfitness of such vaults for storing anything that would be injured by moisture, renders them almost useless, except to store fuel. On the other hand, with cast-iron side-walks, the vaults can be lofty, the height not being taken up with a thickness of brick or flagging. They can be made perfectly water-tight, for no water can pass through iron or glass, and the side-walk, together with the gutter, or kennel, are formed and connected into one waterproof covering, continuous overhead. The vaults can be made the full width of the house or lot, because the side-walk is supported upon heavy beams extending its entire width from the roadway to the house-front, not requiring any arches or other supports but their own strength, to uphold the flagway, which itself is a platform of iron and glass, light, strong, and waterproof.

The surface of the cast-iron pavement is roughened in a very efficient way to prevent slipping. Vaults so constructed are estimated at an annual value of 100 dollars per annum: we should suppose that in London they would fetch considerably greater rent.

A movement is on foot for the opening of the Glasnevin Botanic Gardens on Sundays. The promoters allege that "the beautiful Botanic Gardens at Kew, near London, are open every day, and so great has been the pleasure afforded by this wise concession to public opinion, that a number little short of half a million of persons visited it during the past year, immense numbers going there on Sunday, and not a single instance of injury of any consequence is recorded. Gardens in many other places in England are similarly accessible, and with like good results. Our own Zoological Garden gives like encouragement for affording every innocent means of recreation to our fellow-men. Ever since its council came to the wise resolution of opening it on Sunday at the small charge of one penny, it has afforded delight to increasing thousands from year to year; and ample testimony is borne, in the annual reports of the society, to the admirable good conduct of the visitors, who need no police to make them well-behaved."

The Liverpool Graving Docks.—Instructions has been given to the engineer of the Mersey Docks and Harbour Board to prepare plans for a new graving dock with vertical or nearly vertical sides. It is to be 100 feet wide at the bottom, and 107 feet wide at the top, with centre and side blocks, similar to those of the new graving docks on the Cheshire side of the Mersey.

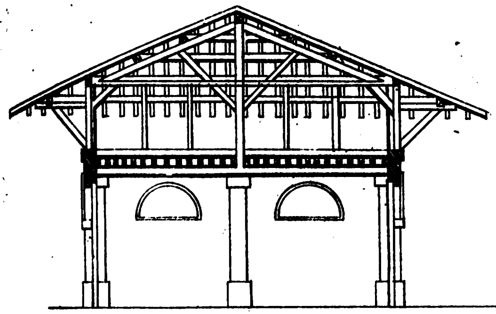
Co. Surveyorship, Westmeath.—The Lords Justices have been pleased to appoint to the surveyorship of the Co. Westmeath, James Alexander Dickenson, Esq., son to the late Lord Bishop of Meath.

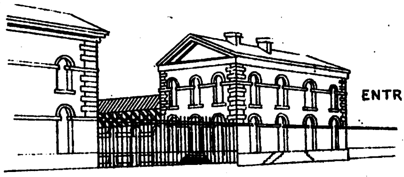
The Dublin Builder.

No. 27, Vol. 3, Feby. 1st 1861.

PLAN, ELEVATIONS & SECTIONS OF THE ABATTOIR, MONTMARTRE, PARIS.

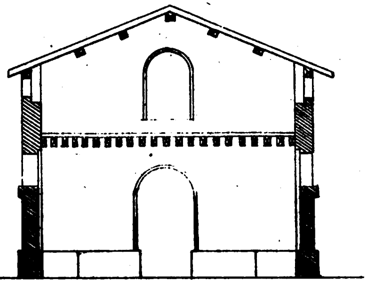
TRANSVERSE SECTION OF SLAUGHTER HOUSE



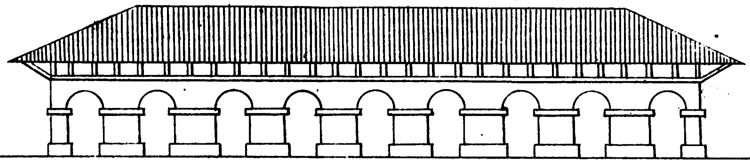


ENTRANCE LODGES

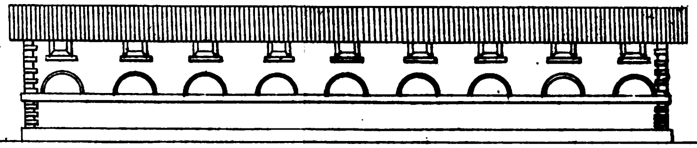
TRANSVERSE SECTION OF SHEDS

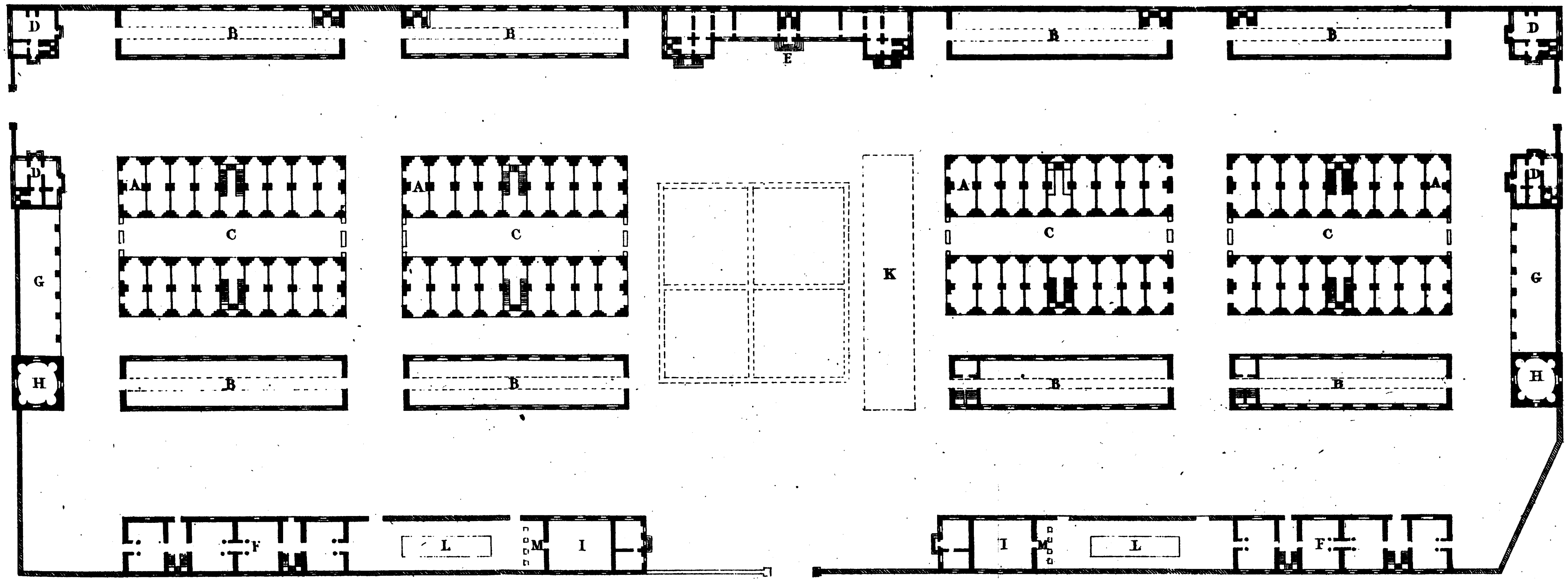


ELEVATION OF SLAUGHTER HOUSE



ELEVATION OF SHEDS





Reference.
A. Slaughter-house
B. Sheds
C. Yards
D. Porters Lodge
E. {Residence of Superintendent
F. Melting-houses
G. Stables
H. Reservoir
I. Tripe houses
K. Pens
L. Manure Yard
M. Privies

E.J. Harty, Lith. 28 Dame St Dublin.

THE LIBRARY
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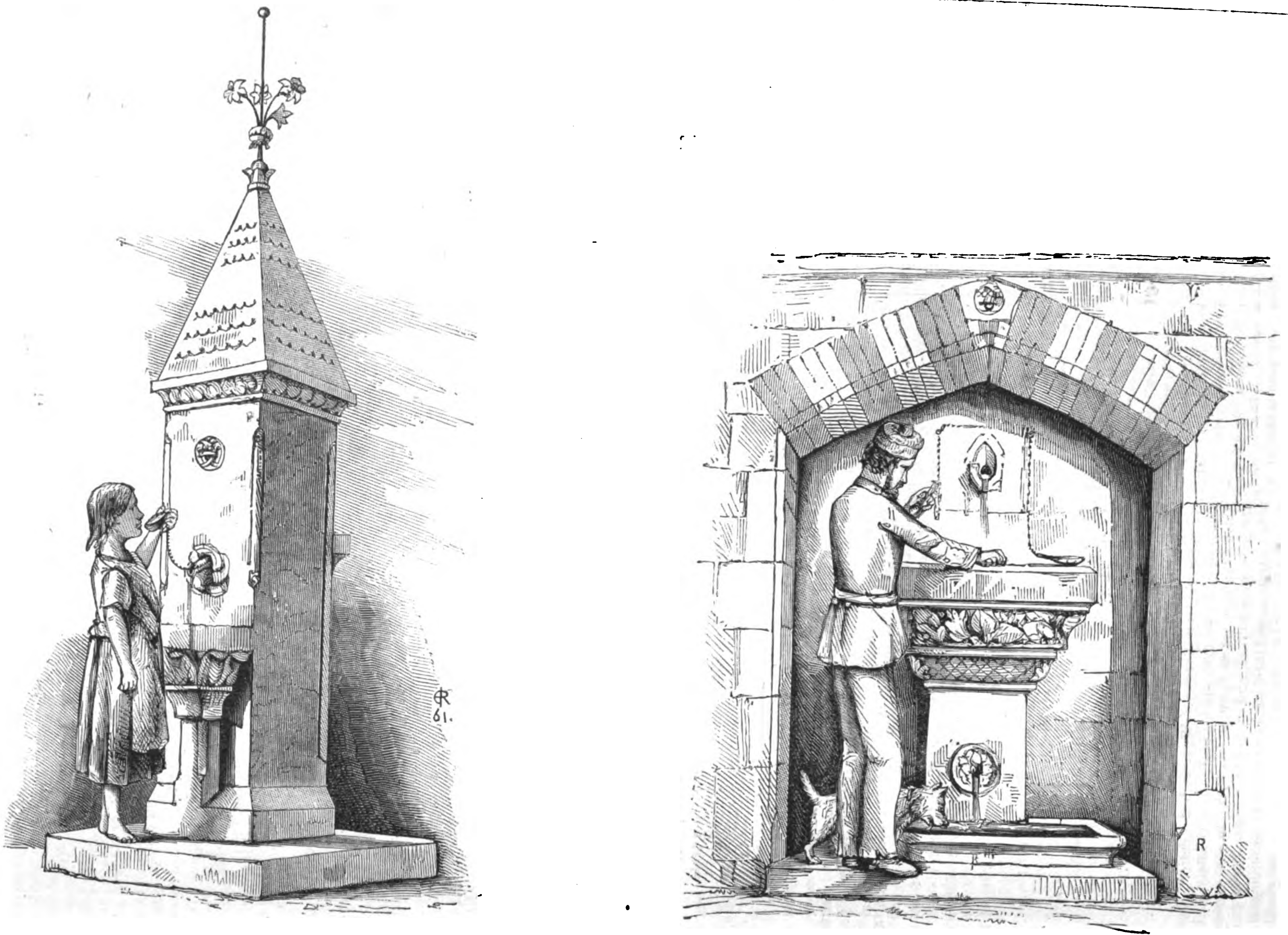

(BERESFORD-PLACE.)

(PARKGATE-STREET.)

DRINKING FOUNTAINS IN DUBLIN.

MESSRS. DEANE AND WOODWARD, Architects.

BIOGRAPHICAL SKETCH OF BRAMANTE D'URBINO.

THIS celebrated architect was born at Castel Durante (or, according to some accounts, at Femagnano), in the province of Urbino, about the year 1444. The family, of which he was a branch, was poor, though respectable, by whom he was designed for a painter: his early years were spent in the study of this art, but his taste and talents for architecture outran every other consideration, till at length he devoted himself altogether to it. He travelled first in Lombardy, and having made some observations on the cathedral of Milan, he went to Rome, where he executed some paintings for the church of St. John de Lateran, which are now lost. His great care was to examine and measure all the precious remains of antiquity, both within and out of Rome; he measured all that he could of the Villa Adriana, at Tivoli; and in pursuit of similar objects, went even so far as Naples.

This devotedness to his favourite science attracted the notice of many patrons of the fine arts, and among the rest, of Cardinal Oliviero Caraffa, who employed him to rebuild the convent della Puce, at Naples, which established his reputation. The work itself is not of the most exquisite character, but it procured him the title of architect to his holiness Pope Alexander VI., there being at that time no artists of superior talents in the papal dominions. The fountain of Trastevere, and another fountain, which formerly stood in the square before St. Peter's, were of his workmanship. He also had a considerable share in building the palace della Cancellaria, the church of San Lorenzo Damaso, and the palace of San Giacomo Scosciacavalli; all these, as well as the convent della Puce, above noticed, are built in travertine, on the outside; but their meagre style is a striking evidence that in the days of Bramante architecture was only reviving, and was not completely purged from barbarous intermixtures. In such an age the genius of Bramante could not but shine, and he retained his lustre, as being without an equal in invention, as well as in execution, till, towards the decline of his life, the superior powers of Michael Angelo Bonarrotti bore away the palm of science, and the voice of public applause.

When Julius II. obtained the papal chair, he appointed Bramante superintendent of his buildings, and employed him to execute his grand project of uniting the Belvedere to the palace of the Vatican, by means of a magnificent court. In his turn, Bramante engaged the pope in the favourite design of pulling down the church of St. Peter's, and erecting a new basilica, after the model of the Pantheon, on a scale that should astonish the world. With this view he made many drawings, and used great diligence to produce one having two steeples with the front between them, as may be seen on the medals struck by Corodasso, in honour of Bramante and his patrons Julius II. and Leo X. The plan was that of a Latin cross, and was well constructed, though of an unequalled magnitude. Three naves were formed by means of colonnades; the principal nave of very fair proportions, and the whole productive of the finest effect. The cupola had the same dimensions with that of the Pantheon; the external steps were also similar. Indeed the plan of the whole basilica bore a strong resemblance to the Pantheon, having eight piers, between each two of which were two columns, forming three openings or passages. This design being approved of by the pope, part of the old church was pulled down, and the foundation of the new structure laid, in the year 1506. The building was carried on with great celerity as high as the entablature, the arches over the four great piers were turned, and the principal chapel, opposite the door was erected, when death put an end to his labours, in 1514, in his 70th year. The continuation of this work was given to Michael Angelo Bonarrotti, who also did not live to see it completed. Bramante's successors made so many alterations upon his original design, that scarcely anything besides the four great arches over the tribune can be said to be his. His remains were interred in St. Peter's, and the solemnity was honoured by the presence of the papal court, and all the professors of the fine arts in Rome and its neighbourhood.

Besides the works above described, Bramante constructed a whimsical staircase, with the three orders of architecture, in the Vatican. The elegant circular temple in the cloister of San Pietro Monterio, though esteemed as one of his best performances, has many defects; for instance, the doorway cuts into two pilasters; the balustrade is a continued series of balusters without pedestals; and the ornament at the top of the cupola is clumsy and heavy. Out of the walls of Todi, Bramante built an insulated temple, encrusted on the exterior with white stone; the plan is that of a Greek cross, with a fine cupola in the centre; and the whole has an air of being the model of St. Peter's. In finishing the chapel within the basilica, he revived the use of the ancient stuccos. He made many designs of palaces and temples, both within and without the walls of Rome, and began the palace, which was afterwards finished by Raffaello, with columns of brick covered with plaster, then a new invention; but this edifice was destroyed to make room for the colonnade of St. Peter's; and the palace which he began for the Duchess Eleonora Gonzaga, wife of Francis Duke of Urban, was never completed, owing to the deaths of both duke and duchess.

AN ODE TO THE TURKISH BATH.

BY DR. HAUGHTON.

Soon in each town shall stately piles appear,
To show the hand of progress has been there;
Soon shall the Briton purchase *for a groat*
A bath which sets all other baths at nought,[*]
Where he can calm recline, walk, sit, or stand,
Waiting in turn the tellak's soothing hand,
From whence he comes divested of all care,
Bold to defy the keenest wintry air,
Strong as a lion, active as the roe,
He feels the love of man, yet fears no foe;
His pulse with double vigour bounding thrills,
With pure delight his heaving bosom fills;
His heart expanding sees the world grow fair,
Nor can behold the pain and woe that's there.
The car of progress flies with rapid pace,
And each great city strives to lead the race.
The STEAMING "HAMMAM," foremost in the van,
Gives Barter thanks, and says "Thou art the man!"
Who is so rude as would not Roman be?
Or who a craven, Spartan games to flee?
Learn of the ancients, cease your strife for wealth,
For nought can e'er avail you without health.
Turkey now gives you *what your fathers knew;*
Be ye as wise, unto yourselves be true;
Adopt the good, the evil cast aside,
And, above all, the heavy burden, pride.
Let the new era be envoked with joy,
And still let labour every hand employ;
The best good thing in this bad world receive,
Enter our gates and soon you will believe.
I am no prophet, yet I now declare,
A mighty change in England shall appear:
No more shall *poisoned blood* for poison call;
No more shall alcohol the mind enthrall;
Plenty shall reign, and fair Contentment smile,
And new enjoyments fascinate awhile;
And by degrees fierce passions shall abate,
Which now destroy a man, now curse a state.
When we discover where our evils lurk,
We in our turn shall thank the grateful Turk.

TIMBER.—The following is the note of goods sold at Messrs John Martin and Sons' wood sale, on the 17th ult.:—

82 gt. hund. of St. John's spruce deals, planks, and battens, from £15 7s. 6d. to £18 5s., average £16 17s. 6d., per 120 of 12 9 3.
30 gt. hund. of 1st quality Quebec Spruce deals from £13 10s. to £19 5s., average £19, per 120 of 12 9 3.
21 gt. hund. of 2nd quality Quebec Spruce deals from £16 15s. to £17 10s, average £17, per 120 of 12 9 3.
10 gt. hund. 1st quality Quebec pine deals from £28 to £29 per 120 of 12 9 3.
11 gt. hund. of 2nd quality pine deals from £21 10s. to £23 10s. per 120 of 12 9 3.
80 pieces crown Memel from 75s. to 77s 6d. per ton.
75 ,, red pine from 72s. 6d. to 75s. per ton.
35 ,, yellow pine at 52s 6d. per ton.
2 Lots Quebec birch from 72s. 6d. to 80s. per ton.
7 ,, St. John's birch from 72s. 6d. to 75s. per ton.
3 ,, board pine at 70s. per ton,
1 ,, oak at £6 per ton.
22 pieces ash, from 55s to 57s 6d. per ton.
45 wainscot oak logs from 7s. to 8s. per running foot.

VALUE OF OLD BRICKS.—We have had a curious illustration of the value of bricks, even old bricks, in this city lately. The houses which have been taken down in Jail-street to make room for the new jails, were built of bricks taken from some houses pulled down near Lady-lane, and these bricks were sold at *ten* shillings a thousand, and after having for years performed their part as good bricks and true in the houses in Jail-street, they were resold at *fifteen* shillings a thousand.—*Waterford Mirror*.

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[*] This prediction is now more than fulfilled, as the Secretary of the Turkish Baths' Association of England writes to me that the cost of erecting some of the English baths is only about £10 or £15; and in some towns you can get a bath for 3d.

EXHIBITION OF THE FINE ARTS AND ORNAMENTAL ART, 1861.

A special meeting of the subscribers to the guarantee fund for carrying out the above project was held recently in the Royal Dublin Society House, for the purpose of appointing the finance committee.

Sir Richard Griffith, Bart., presided.

The Chairman said a report had been drawn up, giving some particulars connected with the projected exhibition. He called on Dr. Steele to read the report.

Dr. Steele read the report as follows:—

"A meeting of the subscribers to the guarantee fund has been called for the purpose of electing a finance committee, and it has been thought desirable to take advantage of the occasion to lay before them an account of the preparations which have been made, and of the plan of operation which it is proposed to follow, in order to ensure that the coming exhibition shall be worthy of the society and the country. The council of the Royal Dublin Society have entrusted the management of the exhibition to a general committee, consisting of the Committee of Fine Arts and of Manufactures, together with the honorary officers, and certain other members of the society. The general committee, while reserving to itself the supreme direction, has, for the convenience and despatch of business, been divided into four sub-committees —viz., of fine arts, of art manufactures, of building, and of printing and correspondence, whose several functions are sufficiently indicated by their titles. These sub-committees have been engaged in making the necessary preliminary arrangements, and are now in full working order. The exhibition will be held in the Agricultural Hall, into which the main public entrance will be direct through the great gateway in Kildare-street. Plans and estimates have been obtained for the gallery, which will be erected immediately, and will form a very material addition to our space. As the great spring cattle show will take place as usual in Easter week, the hall cannot be finally given up for the purpose of exhibition until April, when the requisite fittings, to be prepared beforehand, will be introduced, and the arrangements of the pictures and other objects will be commenced; and we shall be enabled, it is hoped, to open the exhibition on an early day in the month of May. It is proposed from time to time to have attractive musical performances of a high class. Advertisements of the intended exhibition have been issued, and will be continued; and we are sending out circulars inviting contributions of pictures and other works suitable for our exhibition; and we trust we shall be enabled to form a collection which will reflect honour on the public spirit of those who lend their valuable pictures and other precious works of art for the enlightening purpose of promoting art education, and of cultivating a refined and liberal taste amongst the people. There are many possessors of curious and valuable works of art, whom our circulars may not reach, or to whom we may not be able to make direct application. It is believed, moreover, that scattered throughout the country, and often in remote places, are many rare and precious objects well deserving a more public appreciation, but of whose interest and value the owners themselves are scarcely conscious. In pointing out to the committee the existence and locality of such specimens, as well as in using their influence to induce owners to become contributors, effectual assistance may be given by all who are interested in our undertaking; and on their cooperation the committee confidently rely. The finance committee, as representing those who have undertaken to make good the deficiency, should the receipts of the exhibition be inadequate, will exercise a general control over the expenditure, no outlay being incurred without their sanction. It must consist of members of the Royal Dublin Society, being also contributors to the guarantee fund. The guarantee fund now amounts to £9,055, and a correct list of the subscribers up to the present time is now submitted; but additional names may be still received.

"G. Sanders,
"Chairman of the Art Exhibition Committee.
"11th January, 1861."

The War-office has purchased thirty acres of land adjoining the Thames, below Gravesend, for the erection of extensive fortifications.

We learn from the *Kilkenny Moderator* that a bill "to authorise the mayor, alderman, and burgesses to make a general market in the city of Kilkenny, and for other purposes, is to be brought before parliament next session."

Mr. Joseph R. Kirk, sculptor, is engaged on a marble bust of Sir Leopold M'Clintock, R.N., the distinguished commander of the *Fox* in the successful Arctic expedition, to be placed in the museum of the Royal Dublin Society.

Mr. Malcomson has purchased Mr. Dargan's interest in the Foynes Railway for (it is said) £32,000.

THE FIRE-ESCAPE MOVEMENT.

Appropriately at this particular period, when public attention is so much directed to the necessity of ample facility being afforded for escape from the ravaging element, Mr. Moncrieff Wilson, Secretary to the Patriotic Insurance Company, prepared and read before the Statistical Society—affiliated to the Royal Dublin Society—an able and comprehensive paper, in which he advocates —"That a brigade for Dublin should consist of a captain and forty men, with eight engines, together with iron stakes, and the other requisites; that it would be desirable to have the brigade composed of police constables, the captain to be under the control of, and responsible to, the corporation of Dublin, or the Commissioners of Police; that a list of the names of all the men in the brigade should be published, with the rank, standing, and address of each; and that a copy of this list should be furnished to every policeman in Dublin; that there should be a central fire-station in College-green, and at least six other stations in different parts of the city; that the captain of the brigade should reside at the central station, and that three of his men should be constantly on duty there; that there should be a man on duty, night and day, at each of the other stations; that each fireman should have a board over his door with 'Fireman' printed in large letters on it; that fire-plugs should be set down all over the city, not more than seventy yards apart from each other; that on the wall opposite each fire-plug, a white board, black lettered, should be placed, indicating the exact distance of the plug from the wall; that the captain of the brigade should be held responsible not only for the state of discipline of his men, but also for the engines and other requisites being kept in the highest possible state of efficiency; that the captain of the brigade should report periodically to the corporation or Commissioners of Police as to the efficiency of the fire-plugs, especially during frosty weather, and that he should be held responsible for the fire-plug directions being kept in a legible condition; that at fires all engines, whether brigade or volunteer engines, and all men employed, whether brigade-men or volunteers, should be entirely under the command of the captain of the brigade, and implicitly obey his orders and directions; that at fires iron stakes should be used with a sufficient quantity of rope to afford a clear space in front of the premises for the exertions of the brigade; that when a fire occurs, the policeman on duty in the neighbourhood should instantly set off at full speed for the central fire-station, sending the first policeman he may meet to the nearest district fire-station; and that both men as they run should tell every policeman they meet where the fire is, in order that all the firemen may be duly summoned; that the captain of the brigade should have such control over the water supply, as at any moment, in any part of the city, to be able to command a sufficient supply for his purposes; that general orders for the guidance of the brigade and the information of the public should be published; that a certain number of the men belonging to the brigade should be formed into a fire-escape and salvage corps under the command of a sergeant, subject to the control of the captain of the brigade; and that the sergeant of the fire-escape and salvage corps should be sent for training to Liverpool or London; that there should be a fire-escape at each fire-station; that in each case of fire, the expenses connected with it should be borne equally between the owner of the property or the company with whom he may be insured, and the corporation or police; and adds, that the expenses of all indicated, after deducting sums recovered from owners of property and insurance companies, need not much exceed £1,000 a-year, also an inquest should be held on every fire."

TURKISH BATHS IN LONDON.

A favourable site for the first set of Baths has been secured in a central and populous part of the West End, and the directors expect to be in possession thereof in a few days. A plan of the building, drawn under the direction of Dr. Barter, has been submitted to the Directors, and arrangements are in progress for its erection, the success in the construction of the Dublin, and other Turkish Hot-Air Baths in Ireland, being a sufficient guarantee to the Shareholders for the perfect carrying out of the work. The building will contain twelve sets of hot-air baths, with divans, dressing-rooms, &c., fitted up with every convenience and comfort which modern refinement requires. It is intended to erect additional baths, within a short period, in other districts of London, when the shareholders shall deem it prudent.

COST OF THE FIRST SET OF BATHS.

Building	£15,500
Preliminary Expenses...	500
Furnishing	2,000
	£18,000
Add 10 per cent contingencies ...	1,800
	£19,800

THE NEW PRESBYTERIAN CHURCH AT SYDENHAM, BELFAST.

The beautiful design for the new church at Sydenham, in connexion with the General Assembly, and which is now in progress of erection, is by William J. Barre, Esq., the architect of the Ulster Hall, and includes a church with tower and spire, having sittings for a congregation of 500 persons, and schools (male and female), giving separate accommodation for 100 scholars in each. It is being erected on a well-chosen site on the Holywood-road, overlooking the bay, commanding an extensive view of the opposite coast, and will, when completed, from the novelty of many of its constructional features, as well as the elegance and picturesque beauty of its design, prove one of the most interesting of the many religious edifices of this town and its neighbourhood. The entire of the building, the tracery of the windows excepted, will be executed in brick, with dressings, weatherings, &c., of the same material. The walls of the church and tower will be built in red brick, with dressings of white, and further relieved by varying arrangements of other colours, in bands and devices. White brick, glazed on exterior surface, will alone be used in the spire. The church, which is 65 ft. 5 in. in length, is arranged with nave and transepts, having semi-octagonal ends. At the south-eastern angle of the nave is placed the tower, with an entrance and stair to a small internal gallery placed over the end of the nave. The principal entrance is in the eastern side of the nave by an open-timbered porch adjoining the tower, a second entrance being provided in the gable of the opposite transept. In the rere wall of the transepts is an arched recess, in the centre of this a door leading into a passage which communicates with the vestry and session-rooms, and with the hall of the schools. The school building projects from the rere of the transepts, and is two storeys in height. On the ground floor is the boys' school, 30 ft. by 21 ft. It is separated from the church by a hall, with a porch entrance for scholars; and in the hall rises the stair to the girls' school, which is immediately over that for the boys, and is of the same dimensions. The design is in the pointed style of the thirteenth century, but modified to suit the requirements of the present age and the employment of the materials adopted. The elevation facing the road will present the principal gable of the nave, with the tower and spire rising at one extremity. It will be divided into two compartments in height by coloured bands also marking the position of the gallery in the interior. The lower of these compartments is broken in the centre by a buttress, and pierced on either side by couplet lancet windows, deeply recessed. Over the buttress, in the upper stage, is a large lunar-headed window, with tracery, of five lights, while above rises the barge of the steeply-pitched roof, its apex terminating in a richly-floriated finial. The tower, which rises square in the plan to about the height of the eaves of the church, is buttressed at the angles. Over these buttresses it is weathered into octagon shape, and further up is lessened in diameter by two courses of weatherings in white bricks, with an intermediate dye of red. Above these weatherings rises the shaft of the belfry, pierced in each of its compartments by a lonored lancet light, and crowned by a deeply projecting cornice, from which rises the spire to a height of 79 feet from the base, its outline varied by trefoiled spire-lights, and terminating with a floriated iron vane. The western elevation will present a corbelled dormer rising into the roof, and lighting the gallery by a double lancet window, the buttressed side of nave, with its single-light windows, and the octagonal end of transept. In this transept end will be the second entrance to the church by a lunar-arched doorway, with deeply-recessed and chamfered jambs, while over in a dormer gable will be a spheric triangular window filled with traceries. Beyond this transept will extend the elevation of the schools, their lower storey buttressed and lighted by double and single light windows alternating, the upper having dormer gables pierced by couplet lancet lights. The eaves of the church will be composed of a moulded gutter supported on a course of corbelled brick. The elevation of the eastern flank will be varied from that of the west by the open timbered porch, and transepts gable being occupied by a five-light window with mullions and traceried head. In the interior the church will be fitted with open sittings wrought and chamfered, their ends cut to an ornamental shape and pierced by foiled and moulded sinkings. In the nave these sittings will be arranged in three rows—a central one of double width and two side ones of single—and will be approached by aisle passages four feet in width. In the transepts they will be arranged in two rows, one against each wall, with a broad central passage of six feet between. These passages will be laid with Minton's encaustic tiles in diamond-shaped patterns and in colours—buff and white alternate—while the seated portions of the floor will be laid with wood. Over the extremity of the nave will be placed the gallery, supported on columns, its front panelled and moulded, and projecting on richly traceried corbels. Immediately opposite in the transept wall is the arched recess before referred to, the head richly moulded and supported on jamb shafts, with floriated capitals and moulded vases. In front of this recess, on a platform of three steps, will stand the pulpit, which will be in the form of an open screen, with carved and traceried front. The walls of the church and schools will be plastered on the interior in fine grey stucco. The roof will be open-timbered, the rafters wrought, and stop-chamfered and panelled between, and will be supported on framed trusses resting on richly moulded corbels. The entire of the woodwork of roof and fittings will be stained and varnished. Mr. Edward Armstrong, of Belfast, is the builder. The new church will supply a want much felt in the rapidly rising suburb of Sydenham. The beauty of the design is in the highest degree creditable to the architect. Towards the erection of the building, Thomas M'Clure, Esq., J.P., Belmont, has most generously contributed the large sum of £1,000.—*Belfast News-Letter.*

PROPOSED JUNCTION OF THE DUBLIN RAILWAYS WITH A CATTLE DEPOT.*

On the north side of Dublin we have the Midland Great Western Railway, which forms with the Dublin and Meath running into it at Clonsilla, the entrance channel of the whole of the western and north-western traffic of the country. The Dublin and Drogheda Railway, commanding the whole of the direct northern traffic, crosses the Liffey branch of the Midland, and can be easily connected with it, by which means all the north and west of Ireland, besides the midland counties, will be enabled to deposit their cattle in the proposed market.

The Great Southern Railway, with its dependencies, commands the Dublin traffic of all the south of Ireland except the coast traffic to the county Wicklow. The junction I recommend to bring it into the Midland line would commence near the goods store at the King's-bridge station, would cross the Liffey by a viaduct, would have a covered way under the Phœnix-park only 600 yards in length, and would run through the townlands of Grangegorman to the point near the seventh lock of the Royal Canal, where the Liffey branch leaves the Midland Great Western Railway.

The position of this line in the vicinity of the King's-bridge is governed by the necessity for having the shortest possible tunnel in the best position under the Phœnix Park; but the actual point for leaving the Great Southern and Western Railway might be at or near Inchicore, if preferred by the company.

The junction I propose at the seventh lock would be at a point where the Midland Company possess a large area of land, and where extensive sidings are intended for the junction of the Liffey branch, and it is there that goods and cattle trains from the Great Southern and Western Railway should be brought to lie safely waiting for the engines of the Midland company to take them on to the North Wall, or, if it were so agreed upon, for the Great Southern and Western company's engines to take them on as soon as the line was ascertained to be clear. No other arrangement would be so safe or practicable. Besides cattle, there is an enormous traffic in goods of every description from both the great railways to the Liffey at the North Wall. This traffic amounts to at least 150,000 to 160,000 tons per annum. and is now carted through Dublin, to the great incumbrance of the streets, and at an expense of about £16,000 per annum.

In the case of coals, of which 28,000 tons annually go to the two railways, for their own consumption, there is breakage in loading and unloading as an additional inconvenience and loss. Neither is this important trade, as regards the public supply, half developed under present arrangements. The coal trade is in itself one, the development of which would be a blessing to the inland country, and it would be peculiarly beneficial to the railways by affording them return loads for their cattle-waggons, which now go back empty to the country.

The Liffey branch of the Midland line runs along the edge of the docks, half a mile long, of the Royal Canal, opening by tidal gates into the river Liffey. These docks, after some not very extensive alterations, would receive all the colliers for the railway business, and enable the companies to take the coals direct into their waggons. The same process would apply to other goods, in all cases where complete cargoes, or a large part even, were destined for inland consumption.

The railway companies themselves consume vast quanties of heavy goods, such as iron, timber, coals, and other stores, and it would be a great advantage to them to have a connection with the Liffey by rail, were it only to save the painful transit of boilers, locomotive engines, and rolling stock made in England, and dragged by long teams of horses from the Liffey through the streets of Dublin to their termini.

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* Extract from the report of George W. Hemans, Esq., C.E., to His Grace the Duke of Leinster and the Right Hon. R. M. O'Ferrall, M.P.

I have not as yet alluded to the connecting of the Dublin and Wicklow Railway with the North Wall. This does not appear to me to be a matter of very great importance at present. Being chiefly a coast line, its trade in cattle to Dublin will not be very considerable, and it is well known that there is no goods traffic from the Kingstown and Bray section of it. Both the Harcourt-road and Westland-row termini might be connected with the Great Southern by a line along the banks of the Grand Canal, or more inland, parallel to the canal, if necessary. Mr. Blakiston, C. E., has proposed a direct junction from the Liffey branch to the Kingstown line by a tunnel under the Liffey. This would be a very complete and convenient mode of effecting the object, but I apprehend that for some time to come the cost of it would be considered an insuperable objection. Should the packet service from Galway to America increase as greatly in importance as it is hoped it will, there would no doubt be a great advantage in communicating without break of line from Kingstown Pier to Galway Pier; and this tunnel would in my opinion be, setting aside expense, the most direct way of obtaining it.*

The Liffey branch at the North Wall will have lines into the proposed cattle market on one side, and along the canal docks on the other side. Steamers to be freighted entirely with cattle from the railways may be run alongside the rail in the docks.

The discussion of the best mode of uniting the railways entering Dublin would be incomplete if I omitted to state, that it has recently been proposed to lay down *tramways* through some of the principal thoroughfares, especially those leading to Rathmines, but I am not aware whether the promoters contemplated eventually joining all the railway termini or the extension of their lines into the cross streets. Tramways, or street rails, have been laid down in nearly all the large cities of the United States. They unite the railways entering them, and carry on, at least, the passenger traffic of the principal thoroughfares; and I am sure they have, on the whole, been worked with considerable profit.

It is quite possible that in some of the main streets and suburban roads in Dublin, tramways might be laid down without difficulty, and be worked at a profit for passengers; and I am also of opinion that the termini of all the railways might be united by them; but even if this were accomplished in despite of existing difficulties, prejudices, and want of confidence in their value as a commercial enterprise, I am still of opinion that the junction line which I propose to run from the King's-bridge station of the Great Southern and Western Railway, to the seventh lock on the Midland Railway, at the commencement of the Liffey branch, and the branch line from the Drogheda railway to the terminus of the Liffey branch, near the North Wall should be executed, and for these reasons:—It can never be hoped that long trains of goods, cattle, or agricultural produce, intended to be shipped direct for England, can be carried straight on from the King's-bridge station or the Wicklow station through the streets of Dublin to the proposed New Cattle Market on the North Lots or the North Wall. Without going into details, it is sufficient to say that the obstruction such trains would cause to public thoroughfares, even at night, would be too great to contemplate; nor do I believe any traction would suit for them except the locomotive.

A NEW GENERAL CATTLE MARKET.

The description of the proposed market would be as follows:—A space of fifteen to twenty acres would be purchased. There would be a sufficient wall or enclosure all round, and the level of the space so enclosed would be brought up to a proper height by the surplus earth (of which there will be a large quantity) excavated in the course of the construction of the Liffey branch, and the proposed junction line between the Great Southern and Western and the Midland railways. The market for cattle, sheep, swine, &c., would therefore be at the same level as the rails of the Liffey branch, the wharves of the Canal Dock and the North Wall. Five acres would be covered in and systematically laid out in departments for cattle, calves, sheep, lambs, and swine. The whole area would be paved with the hardest bricks set in cement, with the proper channels for the urine and dung; part would be arranged in stalls, and part would be devoted to pens, but all would be covered and well lighted from above. Ventilation would, of course, be not forgotten, and receptacles would be placed at most convenient situations for the collection and removal of the excreta. Water pipes would be laid on from the third lock of the Royal Canal as well as from the Public Water Works, so that an amply sufficient supply would always be attainable, at a small cost, for complete purification by regular scouring with deck brushes after each market day. A small part of the covered space would be reserved for the offices of the salesmen and for banking purposes, and a comfortable house of refreshment would be erected in each corner, these houses would in such a situation, no doubt, let at very remunerative rents. Convenient standing room also under cover would be provided for butchers' carts. The whole market would, in fact, present very much the appearance of an unusually large railway station, covered with an iron roof supported on iron columns; the offices of the salesmen, clerks of the market, and banks being placed along one side, the gates for the admission of the animals from the railways and roads occupying another, while a side also would be devoted to the exit gates to the canal dock and North Wall; the fourth side would be adjacent to the slaughter-houses, through which there would be passages. I may conclude by stating, that the building would be fire-proof.

With reference to that portion of the above document which advocates the removal of the present market at Smithfield, Messrs. Ganly, Sons, and Parker, eminent salesmasters, have addressed the following to the Irish press:—

"Gentlemen—Although, as Smithfield salesmen, we have much to be affected for good or evil by removing Smithfield market, yet, in justice to the agricultural interests of Ireland, we most readily admit the necessity of some change to meet the wants of an increased supply of stock to our market, poured in by railway facilities from all quarters. No one who will for one day witness the thronged state of our present market, and the vile abuse given the cattle, forcing them through crowded passages, can reasonably resist the absolute necessity that exists for some remedy against it. We are also of opinion that a free, spacious and open market, where every man can sell for himself, or employ a salesman at pleasure, is due to the Irish feeder. *The place to hold the new market* is the all-important point to every one concerned. The North Wall, recommended by Mr. Hemans in his official report, is by no means the proper place, simply because there are no grass lands in that neighbourhood, and because the sale and shipping of stock differ in details from all other merchandise. Stock arriving at the North Wall on Tuesday or Wednesday, for seven or eight months of the year, for Thursday's market, should be driven back through the city to the grass fields available round Inchicore, the banks of the Liffey, Richardson's fields, Glasnevin, &c., to await the market day; they should then once more be driven back through the city to market. When sold, they should again come back through the city to grass, awaiting the shipping days—Fridays and Saturdays, when they should a fourth time pass through the city on their way to the shipping. The question is, why not establish your new market in the open fields midway between the termini of the Great Southern and Western and Midland Great Western lines, where the stock can go to grass and livery stables,—both of which are already established in those localities,—avoid long driving of the cattle, inconvenience to the citizens, increased freight on the owners, and serious abuse of their cattle? By holding the new market in that locality, the great majority of railed cattle by the two principal lines would be landed beside the market, and close by their grass fields. Those driven by road from the feeding lands of Ireland, it will be seen by the geography of the country, should arrive at those established grass lands without touching on the city. Thus the whole nuisance of cattle driving through the city could be avoided; for it could be no great additional trouble to shippers to drive their cattle from that locality to the shipping by the Circular-road from Phibsborough; or, even if they did drive through the city, it would only have to be done once, instead of four times, as already shown.

"With the project of a railway joining all the termini to the intended Liffey branch, as far as general merchandise is concerned, we have nothing to say or do; but we take this early opportunity of forewarning all whom it may concern that what suits merchandise, that eats nothing, is wholly inapplicable to stock, that must be fed seven or eight months in the year on pasturage, which, by the shortest process of selling and shipping, must be two and sometimes three or four nights on pasturage near Dublin. For the house-fed cattle there is already ample provision in the suburbs of the city adjoining this locality; so that general convenience seems to say, leave us in the fields.

"We do not hesitate to affirm that a share in a market at the North Wall for sale of cattle would be difficult to turn into cash; but why all the farmers' hay and straw would be hawked through the city to the North Wall, and back again for consumption, is what we cannot see the utility of. If it shall so happen, the sooner a new Carlisle-bridge, of treble its present breadth, is built, the better for the public. We write principally for the sake of our agricultural friends, to whom we are so deeply indebted for many years' patronage; but it may not be amiss to say to our fellow-citizens, keep the cattle, pigs, loads of straw and hay, &c., outside your city, if you wish to have a clear pass, and avoid serious obstruction."

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* A steam ferry across the Liffey at or about the same point has been talked of, but this, for many obvious reasons, I consider quite inadmissible.

A NEW PAINT.

Being in Paris last autumn on a short professional tour, I sought for any thing that, within the architectural circle, might appear new, or even applied in a different manner than with us at the present time. Whilst descending the staircase of my hotel I was much struck with the appearance of the treads of the steps. I found on examination that the strings were painted and grained in the usual manner, but that the treads and risers were covered with a thickish coat of some hard mixture, having rather a glossy surface and somewhat of a yellowish orange tint. This was laid on each side of the steps—carpeting occupying the centre part as usual. The top water-closet was out of order, and early on the following morning workmen were engaged remedying the defects, and I found it already painted with the peculiar coating I had noticed on the stairs. Not only were the seat and riser of the closet covered, but also the wall, to a height of about three feet; the floor also, which was of tiles, had the same preparation of it; all dry and comfortable to the touch. The same day, while going over the fine library of St. Geneviéve, and in the ground-floor rooms, those devoted to the manuscripts, I observed that the floor of tiles was likewise covered with a similar preparation, which had been put on some time; the recesses between the cases appeared nearly as good as when first done, but the passages were worn in some places quite down to the tiles. The attendant spoke much in favour of the cleanliness of the preparation, which he said was of a resinous character. I noticed that it was the same as that employed at the hotel, but could not obtain from him any further information respecting it. Since my return home I have endeavoured to gain some knowledge of the material from those more conversant with French productions; but it is only very lately that I have seen a notice of this "new paint," described in a public journal, and as I am sure the merits of it are not publicly known, I have ventured to submit my knowledge of its use for the benefit of your readers.

This new vehicle dries, it is said, as rapidly as glue, and is as supple and solid as oil. It is composed in the proportion of 10 lbs. of purified yellow wax, 10 lbs. of linseed-oil, 8 lbs. of spirits of turpentine, and 5 lbs. of common resin. The wax is dissolved separately in the linseed-oil, and the resin in the spirits of turpentine, by heat, and are subsequently intimately mixed, when they form a pasty compound. In this condition it may be employed as a *priming*, being nearly *colorless* after application. When it is to be used as a vehicle for color, the pigments, ground up with oil in the usual way, are added in the proportion of one-third of the volume of the vehicle, and then spirits of turpentine in quantity sufficient to produce the desired amount of liquidity. So soon as the turpentine has evaporated, the coat of paint will support rubbing, if not too hard, without damage; but it takes a long time to become *completely* hard.

For this information as to the formation of the compound, I am indebted to the *Building News*, and perhaps should not have felt so interested in it, but for the practical knowledge gained previously. I did not see any use of it out of doors, but should imagine from its composition that it would withstand the effects of the weather; nor am I at all able to give any criterion of the expense in comparison with our usual painting. As I before remarked, it is laid on thick, say about one-sixteenth of an inch, or somewhat less, and for two at least of the purposes above mentioned, I should expect that the cheapest mode of completing the work would have been preferred; if so, this would of course be in favour of the "new paint."

There did not appear to be any smell such as is always given out by the common paint, and it was done in one application, whereby the household was relieved of the well-known disagreeableness attendant on two or three coats, and the stickiness whilst drying during the next three, four, or more days, according to the weather. Perhaps some of your "painter readers" may be inclined to try the recipe given, and report the result in your journal. I much regretted that the few days' stay in Paris prevented my giving more attention to the subject, but its being a first visit, with plenty to look at in a few days, must plead my excuse.

I am sure it is worth a consideration by the architect, even in these days of "no shams," for there are many occasions when such a preparation would be invaluable, as for floorings, covering old woodwork, &c.; and probably its colorless quality would render it applicable in cases where outside work was necessary to be protected from the weather, and yet where it might be desirable to exhibit the material itself.

W. P.

North of Ireland Railway Bills.—In the list of railway bills for next session we find the following from the north of Ireland:—Banbridge Extension, Enniskillen and Bundoran, Londonderry and Lough Swilly, Downpatrick and Newry Junction, Dublin and Antrim Junction, Portadown, Dungannon, and Omagh Junction.

Correspondence.

BUILDERS' TENDERS.

TO THE EDITOR OF THE DUBLIN BUILDER.

Sir—Thanks to your very useful publication, an initiative has been assumed in the matter of supplying bills of quantities, and checking to some extent the extravagant differences which occur in tenders; indeed I often thought you should have made a stir in this matter before, but better late than never. It is really monstrous the expense I (and of course every one like me) am put to in supplying estimates. I am frequently called upon by architects to send in proposals for works which it afterwards turns out are never executed; and if I am busy I must employ a surveyor at considerable cost, because without giving offence and losing the chance of future patronage, I cannot refuse; but how many builders are there who cannot take out quantities at all, and who are in every instance obliged to be at the expense, which is only occasional with me, or tender by guess, as you have described? Surely it is not too much to ask, if either information is wanted, or a building really intended, that it is done without serious cost to the party supplying it. In numerous instances in private practice, estimates are called for merely for the purpose of cutting down the price (if he will submit to it) of the builder intended to be employed; and here where a direct saving is intended to be effected, it is rather hard that I should be made the medium of reducing my brother builder to a low profit, at an expense of several pounds to myself. Some of the architects, I fear, will not go the whole hog with me in this, as I am convinced the juniors frequently inform their patrons that a building can be erected for a sum much beneath its value, and they are not anxious to go into detail, fearing it would then come to too much money; but this is really very foolish, and I wonder these young men would not foresee the consequences to themselves—the buildings, in many cases, left unfinished, a large amount of annoyance produced to all parties, and an injury done to the fair builder, who would have taken the work at a reasonable profit.

It is hard to change people out of old practices. I am getting old now, yet I hope to live to see the day when supplying bills of quantities to builders will be the rule and not the exception.—Yours, &c.,

A Builder.

A subscriber in the south of Ireland writes as follows with reference to the leader on "Builders' Tenders" in our last impression:—"I am frequently obliged to incur much trouble and expense in making estimates of buildings that are never carried out, or the plans changed. I have made *three* for a Roman Catholic church in Co. Kerry, and *three* for an addition to a marine villa in same place, according to plans by a London architect—that is, six tenders for *two* works for *one* person! Of course the architect must be paid for making new plans and altering others, and why should not the builder ask for some recompense for enlightening the proprietor?"

COMPETITION ESTIMATES.

TO THE EDITOR OF THE DUBLIN BUILDER.

Sir—Building is a noble profession if properly attended to, and one of which all in connexion with it might feel justly proud. But there are so many drawbacks, or what I may call grievances—many of our own creation—with which the builder who intends to act fairly has to contend with, that I am often inclined to throw my avocation aside in disgust. In your last No. you have taken up a subject of much moment, and one which indirectly affects the entire machinery of building—namely, the preparation of estimates for competition. There can be nothing more annoying than after having spent possibly a week in carefully preparing an estimate, and when you have sent in your proposal to find some reckless, hair-brained fellow has been declared the contractor, at a sum little more than half what you well know to be a very moderate and scarcely remunerating price. Although this generally finds its level within a short period, it effects an incalculable amount of injury: depriving the fair builder of his business and connexion, and having him set down as monstrously high in his charges. "I would never employ," said the proprietor of a monster house to me one day, "any but the builder whose estimate was lowest; because, in the event of extra work, the others, I am convinced, would lay on in proportion to their respective amounts." But little did this gentleman know the contrary would be the fact, and that the highest tender could often be the cheapest bargain in the end, as I am positive he has since found out frequently to his cost. But this system is never-ceasing and continuous, as no sooner is one mushroom striken down than another rises in its place; while it sometimes happens these people fare better than honester folk, as by some hook or crook they manage to get out of their contract liability, and then the work is all measured, and the highest rates allowed, by which means their employers, who would not listen to any hints in the beginning, generally find they have to pay a pretty round sum for their whistles, and, to use a very homely phrase, "the d——l's cure to them." I often thought a remedy could be devised for this, and I think you are in a fair way of providing it. I am not one to blame the architects, because when a cheap John is recommended to their principals, they cannot—without appearing to have an object in view—say against him; but I think they ought in all cases to prepare themselves with an approximate value, so as to be able properly to pronounce upon the amounts, and the only way this can be done is by following your advice.—I am, Sir, yours,

A Subscriber.

Gaslights in Railway Trains.—A very successful effort has been made on the East Lancashire section of the Lancashire and Yorkshire Railway to light the carriages of a passenger train with gas. The invention is Mr. Newall's (the inventor of continuous railway breaks), and the gas is kept in a flexible receiver, in the guard's van. From the van iron tubes carry the gas over the tops of the carriages, the connexion between the pipes on each carriage being made of flexible tubing. From the pipes over the tops of the carriages short suspenders drop into each compartment of the carriages, to which are attached neat brackets and glass globes. Thus a flood of light by which passengers may read comfortably is obtained, and considerable warmth is imparted by the lamps, while all foul air escapes through the roof.

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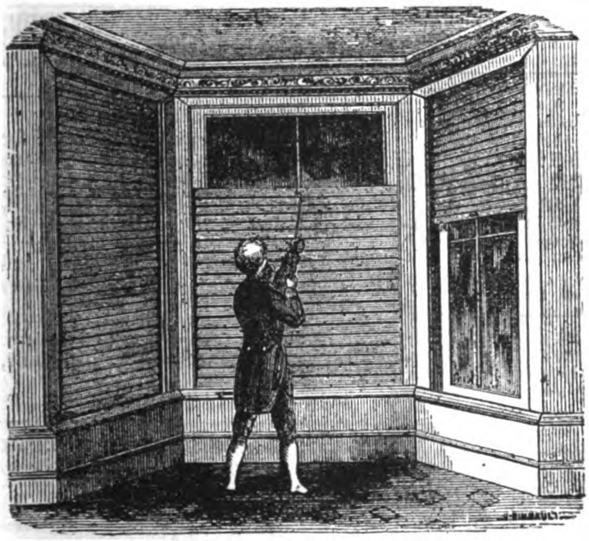

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The Dublin Builder.

VOL. III.—No. 28.

RECREATION FOR THE WORKING CLASSES.

THE boy Æsop is said to have humbled a venerable sage —descanting on loss of time occasioned by indulgence in play—by the simple theory "that the bow always strung soon becomes unfit for its purpose;" hence the moral is deducible that the faculties of man, be they the mental or the physical, engaged in active pursuits will ultimately lose their capacity if not refreshed by recreation. To no member of the community is an occasional respite from labour more essential than to the toiling artizan, who lives by the sweat of his brow; and when such combines the double element, its advantages are considerably enhanced. Education and the usages of modern society have taught him to feel that he has an opinion of his *own*, and moreover that he has a *right* to exercise it, as well as him to whom Dame Fortune has been more propitious in the distribution of her worldly favours, also that he and his master are alike creatures of the same species, and that the same Almighty Being presides over the existence and destinies of both. They have taught him to claim proportionate privileges for his resources, and be prepared morally to oppose monopoly or innovation.

A most laudable movement is being proceeded with in this city for the simultaneous elevation of the working classes on the social scale and contribution to their physical recreation, in the endeavour to induce the Royal Dublin Society to permit the opening of the Botanic Gardens at Glasnevin on Sundays. The following is an abstract of the particulars of an important meeting which took place on the evening of the 12th inst., in the Hall of the Regular Bricklayers' Society, Cuffe-street.

A deputation, consisting of Mr. James Haughton, Professor Hennessy, Mr. O'Mahony, and other gentlemen, with Mr. M'Evoy as honorary secretary, waited on the body for the purpose of urging co-operation. Each of the above-named addressed the meeting—which was somewhat thinner than would have been otherwise, owing to its being a festival night—to the following purport:—That as the Royal Dublin Society derives so much of its income through Governmental hands from the pockets of the masses, the claims of the latter to participate in one of the chief advantages of the institution, the Botanic Gardens—and, owing to their avocations, only available to them on Sundays—ought to be regarded; moreover that a precedence is afforded for the reasonableness thereof by the fact of the Queen herself having caused the Botanic Gardens at Kew to be opened, and that no detriment arose from the boon by misconduct or infringement of the rules.

Mr. Haughton observed that for three years an ineffectual agitation had been pursued to induce the Society to grant this privilege, that a majority of the members were antagonistic, and that *they*, individually, not the Society as a body, were to be censured. He also alluded to the fact, that the grant of a similar privilege by the Royal Zoological Society was the means of preserving that concern from decay, owing to failure of the funds, and that the conduct of the crowds frequenting the Gardens in the Phœnix Park was most praiseworthy. Should the Dublin Society still persist in refusing, the alternative was left to apply to higher quarters, and it should be resorted to. Mr. M'Evoy followed, and said that those who knew Lord Granville—to whom in his official capacity they should apply to compel the Society to acquiesce—knew that he was ever anxious to contribute to the public benefit, and would not turn a deaf ear to this request. Mr. Flood (one of the body) remarked that the Botanic Garden was a *bona fide* garden, and as such should be open to the public. He referred to the influence of botanical study on the arts of architecture, painting, sculpture, and others; to the origin of the Corinthian capital, suggested to the sculptor Callimachus by the Acanthus leaf; and to a circumstance which came under his own immediate observation of a friend and companion—a silver-chaser—stooping to pick from the roadside, during an excursion, leaves from which to model his foliage. All the speaker's remarks were peculiarly trite and suitable, evidencing a very uncommon amount of ability of which many in a much superior worldly position might be proud. He concluded by proposing a resolution declaring "the closing of the Botanic Gardens on Sundays to be a grievance which should be redressed."

Mr. O'Mahony reviewed the arguments of those opposed to the opening of the Botanic Gardens, and exposed their fallacy. He denied that the public of Dublin had ever been guilty of such an act of Vandalism as wantonly to injure or destroy any objects, whether rare plants or works of art, exhibited in places of public resort, and commented on the hypocritical plea which would fain deprive the public of healthful recreation on Sundays, calling on the tradesmen of Dublin to unite in obtaining what was sought for, not as a boon, but as a privilege and a right to which they were justly entitled.

Mr. Glynn moved the adoption of a petition to Parliament for the object above stated. It was seconded by Mr. Denis Byrne, and passed unanimously.

Professor Hennessy combated the objections which had been raised to the proposition of opening the Gardens to the public, and pointed out the public benefit certain to result from the concession of such a privilege to the citizens.

A petition for the above purpose was then signed by each member present, and several volunteered to procure additional signatures in the Mansion House Ward.*

Now we are not disposed to question the right of any person to do what he pleases with his own property—every man is the king of his castle—but we must in plain *parlance* ask can it be possible that in the midst of an enlightened body of universal renown—such as is unquestionably the Royal Dublin Society—there is to be found even a minority of members with "soul so dead" as to selfishly oppose the right of the poor man—to participate in an enjoyment paid for partially out of his own pocket. It is one of the many *privileges* of each member of that body to visit every day of the week, *Sunday included*, the gardens in question; moreover in the latter case they freely avail themselves thereof, introducing visitors and their families. "The glowing privilege of being independent" is indeed here truly but partially illustrated; however, we doubt not that the remonstrance now addressed so universally by the artizans, will convince the society of the injustice to the exclusive system.

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* With the same object in view the deputation was received by the Regular House Painters' Society on the evening of the 13th inst., and the proceedings were somewhat similar to those above reported. A meeting is also to take place in the Tailors' Institute, with a like object.

INFLUENCE OF COLOUR ON THE MIND.

THE power of colour to produce strong emotions of the mind has been at all times recognised. Thus, when the sacred writer desired to raise in the mind a picture in the highest degree poetical of the Holy City, he represented that the building of its wall was jasper and its foundations as being garnished with sapphires, with chalcedony, emerald, and all other stones of resplendent colours; the gates were of pearl, and the streets of pure gold. No doubt the value and rarity of these precious substances were also calculated to excite the imagination; but their beautiful colours were evidently an important ingredient of the vision. Sometimes our admiration of an object is excited by describing it to be "like unto a jasper," or "to a sarden stone," or even to "a rainbow." The Bible is, indeed, full of evidences of the high appreciation of colour as a source of beauty and pleasure. In the Homeric writings also we may find abundant evidence of this natural and pervading feeling. Azure and vermillion are constantly used as typical, as it were, of regal splendor. No doubt every classic scholar can greatly extend these illustrations.*

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* Mr. Sydney Smirke at the Royal Academy.

NEW FIRE ESCAPE.

An apparatus designed to supersede those now in vogue, for the above purpose, has been patented by Mr. James Magill, coach builder, of Mercer-street, in this city, at whose establishment a model may be seen. The lower portion comprehends an open van to contain fire plugs, additional ladders, ropes, &c., &c., suited to emergencies, fixed on ordinary carriage springs, and with *four* open wheels; on this is placed a platform with a central strengthening column, and four others at each angle sustaining a second platform, constructed at a higher level by six feet, and ascended by a ladder; this is about 13 feet from the ground, and intended for direct access to first floor windows, it is also protected by a surrounding safety handrail, it being the chief point of the brigademan's operations. Thence rises the escape ladder, 16 feet to the first joint, and connected with another folding length fitted with a crank free from friction, both being capable of adjustment to any angle by means of ropes passing over double sheaves, and communicating with a windlass near the ground which may be worked with facility. Through a pulley attached to the crank above alluded to is intended to pass the rope suspending the safety basket from the apex of the second ladder; and again to the bottom of the basket is attached another rope, by which it is guided with its living freight to *terra firma*. The ladders are capable, by a simple adjustment, of attaining any ordinary height, and when not in use can be doubled up and caused to fall back against the strengthening column. The chief points in this design which would seem to suggest a question, are its comprehensiveness and capability of locomotion with facility. Though we are not in a position to calculate precisely from the model —which is roughly executed—the weight of the actual apparatus, nevertheless it seems clear that without the aid of a horse, or at least a half dozen lusty fellows, its propulsion would be impracticable. This objection, however, may be counterbalanced by the fact, that such excitement generally prevails during fires that there can be no lack even of human aid sufficient; however, these and other considerations we leave to our readers' perception, and suggest to all those sufficiently philanthropic to appreciate the movement, and well-directed intentions of the designer, to go and judge for themselves.

THE INSTITUTE OF CIVIL ENGINEERS.

The inaugural meeting of this body, now affiliated with the University, will take place on the 19th inst., in the New Museum building: Sir Richard Griffith, Bart., presiding.

THE BAROMETER AS AN INDICATOR OF STORM.

At a general meeting of the Royal Irish Academy, held on the 11th inst., Rev Dr. Todd presiding, Professor Haughton expressed his belief that there was a great deal of misstatement as to the indicating properties of the barometer with regard to the approaching storm. It was certain that in the early part of last week information was telegraphed from Greenwich to several places that a violent storm was impending. This information was, no doubt, founded upon the descent of the barometer at Greenwich, The fall was seen in Dublin on Monday last, but it was a remarkable fact that the prophecy was not followed immediately by a storm. In fact it was not till five days afterwards that a storm took place. From the fact that the wind did not shift, he was of opinion that the late storm was not cyclon. In cyclon storms the barometer always fell a good deal. In the present instance, therefore, it might be stated that the barometer did not predict the aproaching tempest, and that metorologists were at fault. The Rev. Professor Galbraith said the subject was one of great scientific importance, and the extracts which he would submit to the meeting were taken from the Observatory in the Park of Trinity College. A fall in the barometer took place between ten o'clock p.m. on the 4th instant, from 29 deg. 72 mins. to 29 deg. 37 mins., and ten o'clock a.m. on the 5th instant. The glass kept rising from 29 deg. 03 mins. on the 5th instant, up to 30 deg. 32 mins. at ten o'clock p.m. on the 9th.

Mr Wilde said that amongst country people there was a popular notion that the barometer did not fall suddenly, unless with an "easting" in the wind.

THE ZOPISSA.

What is the zopissa which has formed the subject for so much comment recently at the Institute of British Architects? is a question frequently asked us. Mr. Tite, M.P., first specially introduced it to notice in his remarks on preservative stone processes, and read extracts from Pliny as to the use of pitch which had been scraped together from ships which had lain at sea, which was called *zopissa*, and which was thought to be better and stronger by reason of the greater capacity it had from being exposed to sea-water; but remarked that to say *zopissa* was useful at the present day for the preservation of stone, was to use a very hard word with a very unintelligible meaning.

Mr. Ashpital writes to the above body to the following effect, viz:—"First, as to the *zopissa*, which has been asserted to have been mentioned both by Pliny and Vitruvius, in connection with encaustic painting. I find no such mention. Pliny describes it in the words cited by Mr. Tite, as the scrapings of ships' bottoms, composed of pitch and wax, which had been softened, or purified by the action of sea water; and in another passage he says *zopissa* is useful as a species of poultice (malagmata) to disperse gatherings. The same definition is given in Dioscorides, and the same one in the surgical work of Paulus Ogineta. Vitruvius, on whose authority so much stress is laid, never even mentions the word. I cannot conceive a respectable man would willingly attempt to impose on the Institute by false quotations, and therefore fancy Mr. Szerelmey has confused the *zopissa* with *punic wax*, which last material *was* the vehicle of encaustic painting. This was wax purified by boiling it with sea water, or with nitre. The *zopissa* may be said to have been purified by sea water; but to suppose that pitch was ever a vehicle for laying on delicate colours is quite absurd. Fancy painting such delicate figures as those at Pompeii out of a pitch-pot!"

And Mr. Szerelmey.—"I fully agree with the opening speech of the talented member Mr. Tite, M.P., as regards his remarks on the term *zopissa*, a word applied by the Greeks to a certain process for preserving the timber of vessels, but I respectfully conceive that he has not gone far enough; the processes of both *zopissa* and encaustic, although ever tending to produce the same result, were of a very varied and undefined nature, artists modifying them according to their judgment, or as might be considered expedient for the occasion. The only *zopissa* spoken of is that for ships; no mention is made of the secret processes used by the great masters, nor is it ever stated that *zopissa* and encaustic were confined to fixing colours and indurating wood. As the term is used by me, it has a far more comprehensive signification, implying a preservative compound without reference to its being applicable to wood or stone, but embracing both. It includes the processes employed by the earlier Egyptians in preparing the groundwork for their monumental inscriptions, the mixing and fixing of their colours and their preservation; the preservation of the sycamore and other woods of which their coffins were composed, the solidification of their cements, the ground-work of their simply concrete or cohesive masses.

"I have not stated, either publicly or privately, that I used the process described by Pliny, but on the contrary have given it to be distinctly understood that my composition varied with the nature of the work. Both these processes for the present remain a secret, the only mode left me, as a foreigner, of reaping the fruits of my grievous toil and application to acquire it."

PRESENTMENT SESSIONS.

The next of these periodical meetings for County Dublin will be held as follows:—

Balbriggan, February 14th. R. A. Gray, Esq., Surveyor, Skerries.
Swords, February 15th. A. Tate, Esq., Surveyor, Santry.
Blanchardstown, February 18th. Same surveyor.
Raheny, February 19th. Same surveyor.
Newcastle, February 20th. Same suveyor.
Dublin, Sandymount, February 21st. R. H. Frith, Esq., Surveyor, 51, Leinster-road, Rathmines.
Dundrum, February 22nd. Same surveyor.
Tallaght, February 23rd. Same surveyor.
County at large, Kilmainham, February 25th. Same surveyor.

The Sessions to commence each day at eleven o'clock precisely.

Improvement of Kingstown.—The commissioners being of opinion that the proposed bill for transferring from the Grand Jury of the County Dublin to them the management of the roads and bridges in said town, will conduce to the health and convenience of the inhabitants, as also tend materially to the improvement of the town, and lessen taxation, purpose promoting same, and defraying the expenses of an act to authorize.

Sir W. G. Armstrong has been elected President of the Institution of Mechanical Engineers.

THE ROUND TOWER CONTROVERSY.—THE BELFRY THEORY EXAMINED.

BY RICHARD BOLT BRASH, ARCHITECT.

(Continued from page 414.)

It is highly improbable that the early Christians in this country would erect such a lofty, imposing and enduring structure as a round tower, for the mere purpose of hanging a bell in it. Various writers have been struck with the very diminutive size of the ancient Irish churches, particularly those erected before the thirteenth century. Any person who has visited Scattery, Iniscaltra, Clonmacnoise, Glendalough, &c., cannot fail to be struck with the humble size and pretensions of the ancient churches which at present exist in proximity to the round towers in those localities. A reference to the sizes of some of those structures will illustrate my argument.

The stone-roofed church of St. Molua, at Killaloe, which was the ancient cathedral of the diocese, and not older than the tenth or eleventh century, erected at the seat of regal authority, and under the auspices of a powerful toparch, is but 29 feet in length and 17 feet in width, a very humble unornamental structure.

The principal of the churches at Inniscaltra, and which was erected by King Brian Boroimhe, towards the latter end of the tenth century, is but 30 feet by 20, exclusive of a small chancel subsequently added; the more ancient churches are of much smaller dimensions.

Teampull Fineen, at Clonmacnoise, which is at present connected with the round tower called *Clogaus beg*, is but 28 feet 10 inches in length, and 14 feet 6 inches in width, not including a small chancel. Several of the churches at Clonmacnoise are still smaller.

The above-cited examples were churches of some consideration in their day; but the fact is, that the majority of the churches whose antiquity approaches that of the round towers are of much smaller dimensions, of mean aspect, and in very many instances of inferior workmanship to the round towers themselves—in fact generally so.

It certainly must obtrude itself on us as a strange anomaly, and a very unlikely procedure, that a young and struggling church should spend its means and energies in erecting these lofty, massive, and useless towers, while they built the temples of the Most High small, low, and mean. The bell-tower or belfry was at all times looked upon merely as an adjunct to ecclesiastical buildings, and so secondary a one that it was sometimes erected of wood, as I have before shown; and it was very generally the last part of the sacred edifice that was completed; as indeed it is at the present day. How many rich and capacious churches have we at this moment whose towers have never yet been built, owing to the want of funds; the people naturally completing first, that which was most important and necessary.

I shall advance another reason why the round towers of Ireland cannot be considered as belfries or as ecclesiastical adjuncts, and it is this: that, among all the religious establishments founded by the early Scotic saints and missionaries in foreign lands, not one of them at present, nor yet in memory or tradition, can show us a single instance of a round tower of the true Hiberno-Celtic type. Scotland, it is true, possesses towers unmistakeably of the above class; but they happen to be in that portion of the country which came under the dominion of the pagan Dalriads of Ulster, and whose entire topographical nomenclature is purely Irish.

I believe that Christian antiquity furnishes us with no case of missionary zeal parallel to that of the early Scotic (*i.e.* Irish) churchmen; their enthusiasm no dangers could affright, no hardships deter, no allurements seduce, no ridicule turn aside: they were eminently single-minded, their one object being to glorify God in the conversion of the heathen. These earnest men did not always wander about from place to place: they usually fixed upon some spot suitable for their labours, where there was a population requiring their teachings; in such places they erected, first a church, secondly a school; for the Scoti were then famous in Europe for their learning, and with them learning was the hand-maid of religion. These schools subsequently, upon the spread of Monachism, became monasteries, many of them remaining so to this day. For illustration, I would here refer to some of the most remarkable foreign establishments of the missionary Scoti.

In England the following were founded, between the fifth and eight centuries:—Lindisfarne, Lestingham, Ripon, Gilling, Whitby, St. Bees, Abingdon, Malmesbury, Glastonbury, and Burgh-castle. St. Aidan preached to the people of the kingdom of Deira and Bernicia. St. Fursa converted the East Angles; St. Finian the Middle Angles. St. Kieran preached the Gospel in Cornwall, and is still the patron of that country, under the name of Piran. In Britain also preached SS. Brendan, Maidoc, Senan, Molagga, Aed, and Colman. St. Maccaldus, of Down, was the first bishop of Man, in the fifth century. In Scotland, St. Columba founded churches at Iona, Mull, Tiree, Islay, Lewis, and Oransey; St. Donaan at Eig; St. Brendan at Seil; St. Blaan at Bute; St. Molaise at Arran; St. Maelruba at Skye. Melrose, Coddingham, and numerous other abbeys were also founded in that country by Irish missionaries. In Germany they founded establishments at Ratisbon, Wurtzburg, Erfurt, Constance, Nurnberg, Memmingen, Mentz, and Cologne. In France, Belgium, Switzerland, and Italy, innumerable religious houses were founded by them, between the sixth and twelfth centuries. It would occupy too much space here to enumerate them and their founders; those who are curious on the subject may consult Beda, Aldhelm, and Willebrod; and among the moderns, Colgan, Ussher, Ware, Lanigan, and Adamnan's *Life of St. Columba*, edited by Dr. Reeves. Now, I ask, is it not a very singular and significant fact, that if the round tower was a purely ecclesiastical structure, and a usual and necessary adjunct to our primitive churches, why is it that, among the hundreds of churches founded by the Scotic saints and missionaries in foreign lands, not one can exhibit a round tower, —no, not even in memory or tradition? Surely such zealous men as Columba, Brendan, Senan, Kilian, Kieran, &c., who had round towers standing in proximity to their own native monasteries or churches, would, if such were really essential ecclesiastical requisites, have introduced them in the various places where they preached the doctrines of the Cross, and founded churches. St. Columba has certainly been traditionally a great church-builder, yet we have no trace of a round tower in any of the numerous localities in Scotland where he is said to have built churches: to my mind, the argument is a perfectly conclusive one against these towers being of Christian origin or uses.

There is another fact fatal to the belfry theory, and it is this: that there is not a single tower that presents any original *preparation for hanging a bell.* Had the towers been erected for this purpose, the builders, keeping an immediate eye to their particular uses, would have made a solid and substantial preparation for suspending the bell, by inserting beams of durable oak, and leaving solid corbels of stone projecting internally as a foundation for the frame-work necessary for that purpose. Now, I have myself examined most of the Irish round towers, and have never found any such original preparation for the hanging of bells. In such of the towers as are at present used for belfries, holes had to be broken for the insertion of the requisite supports, and the violence requisite to accomplish this has in many instances been the cause of permanent injury to the structures. For instance, at Ardmore, where a bell was hung until recently, two rude rough gaps were made internally in the conical cap, into which a beam was inserted; the breaking of these holes has greatly injured the roof by displacing the masonry, while, to allow room for the bell to swing, the piers between the attic windows have been cut away and hollowed out: the whole operation having been productive of great injury to this structure. Any practical builder who has carefully examined the towers, cannot fail to be struck with the make-shifts resorted to in adapting some of them to the purposes of belfries. The holes for the timbers are invariably rough gaps in the masonry, not regular, neatly-built openings formed during the progress of the original building: this is also particularly observable in those towers in which floors have been introduced, where rude joist-holes are observable broken through the internal masonry.

In my former notes on the round tower controversy, published in the *Ulster Journal of Archæology*, vol. vii. p. 155, I made the following statement—namely, that "the first notice that Dr. Petrie has been able to produce, of what he designates a round tower belfry, is in the middle of the tenth century." I must partially qualify this assertion, by referring to a statement made by that gentleman in p. 384 of his work, respecting the erection of what he considers to be a round tower in the sixth century; it is not indeed designated in the original by the learned gentleman, a *clochteach*, nevertheless he conceives he has good grounds for supposing it to be a *round* tower. The authority cited by Dr. Petrie is *Adamnan's Life of St. Columba*, as given in Pinkerton's *Lives of the Scottish Saints*, taken from a manuscript, in the British Museum, of the twelfth century. The passage rendered into plain English is as follows:—"Chap. 15. Of the angel of the Lord that came speedily to the assistance of the brother, who fell from the top of the round monastery at Durrow. Another time as the holy man sat in his cell, engaged in writing, his countenance suddenly changed, and he cried out from his pure breast, 'Help, help.' Two of the brethren who stood at the door, Colgu, a son of Cellach, and Lugneus Mo-cublai, enquired the reason of this sudden exclamation. The venerable man replied, saying—'I ordered the angel of the Lord, who was here, to go speedily to the assistance of one of the brothers, who fell from the highest point of a great church [de summo culmine magnæ domus] which is now erecting at Durrow.' And the saint subsequently remarked, 'how great and surpassing is the speed of angelic motion, like, as I imagine, to the swiftness of lightning. The heavenly spirit who fled hence, when that man began to fall, arrived there as in the twinkling of an eye, before the body reached the ground, and by this means saved him from fracture or any kind of injury.'" Now, in the first place, I entirely dispute the authority of this collection of very apochryphal legends in settling a matter of fact of so much importance as the one under notice; the so-called Life, is no biography at all, but simply a collection of wonderful miracles and doings of St. Columba, given in paragraphs, without any sort of connection, and bearing ample evidence of their middle age origin. But, for argument's sake, admitting that this miracle was really performed, and that the original narrative has been carefully and truthfully handed down to us from the time of St. Adamnan, I submit that the terms used do not bear the construction put upon them by Dr. Petrie. I should state that the heading prefixed to the chapter is not found in some of the editions of this work, and as it is upon this dubious heading Dr. Petrie labours to establish the point at issue, he argues that the more ancient editions of Canisius, of Messingham, and of the Bollandists, are wrong in omitting it; and that, as the manuscript from which Colgan published his edition agrees with that in the British Museum in retaining the heading, it ought to be received as a portion of the original text of Adamnan: admitting, however, that this point has been scrutinized by the learned through the various manuscript copies of eight or ten centuries, and the point settled that the heading is original, we come now to consider its bearing upon the matter in question.

Dr. Petrie's assumption is, that the designation "de monasterii culmine rotundi," signifies a round tower, or that we should so understand it, or that such a building was thus expressed. I shall give his argument on the passage—"The real question is, what the author could have meant by 'de monasterii culmine rotundi.' Not, certainly, that the monastery itself had a round roof, because we know that the monasteries of those days were a collection of small and detached cells, each devoted to a single monk; and certainly not that the church itself had one, as it appears, from the notice in the text of the chapter, that the 'culmen' was that of the 'magna domus;' and besides, from the quadrangular forms of all the Irish churches of this period, they could not have admitted of a dome roof. But more than all, supposing it was from the roof of the church that the monk was falling, or from any other building such as we know to have existed in connection with the monasteries of that period, the tower excepted, where would have been the danger, to escape which, the miraculous interposition of an angel would be necessary? Surely not to prevent him from a fall of twelve feet or so, which is the usual height of the side-walls of the abbey churches of this period; nor from the roofs of either the abbot's house or monks' cells, which, though usually round, were seldom, if ever, of a greater height than twelve feet, and from which, having rarely upright walls, there could have been no serious danger in falling. In short the miracle, to be a miracle at all, requires the supposition that the round roof on which the brother was at work must have been that of a building of great altitude, and from which a fall would be necessarily productive of certain death. Such a building, in fact, as a round tower, which was the only one of the kind the Irish had, either in those days or for many ages afterwards." We here find our author's argument to be founded upon the assumption that by the "top of the round monastery," a round tower is meant:—what authority is there for such an assumption? None whatever; the passage is plain and simple—the round monastery. Surely, if the writer intended a lofty, slender, pillar tower, he would have conveyed his meaning in plain and suitable terms to designate such a structure. What, then, does the writer mean by the round monastery? Why, he simply means what he says, that this accident occurred in a monastery of a circular form. For the information of those not versed in the primitive ecclesiastical architecture of this country, I would explain to them that these establishments usually consisted of a number of circular stone-roofed cells, or *clochans*, each inhabited by a single recluse, with the church in the centre, or elsewhere; the whole enclosed by a circular wall or *cashel*, sometimes of uncemented masonry, sometimes of earth and stones, sometimes entirely of earth. An admirable description of those establishments will be found by the reader in Dr. Petrie's own work (p. 126), with illustrations of some of these circular stone-roofed cells. The heading of the chapter quoted then reads plain and simple enough: that the accident happened in a religious establishment of this description, designated *round*, either from the form of its wall of circumvallation, or from the general form of its buildings, or from both. But why use the phrase "the top, &c.?" Simply because it is an ordinary and usual mode of expression; thus, it is common to say, a man fell off the top of the barracks, or the workhouse, or the college, though there may be twenty roofs or buildings in any of them, the ordinary acceptation of the phrase being that the accident occurred from some of the buildings composing the college or the barracks, &c. But the heading of the chapter having thus stated where this circumstance did occur, the narrator in the relation expressly states the particular building from the top of which he fell, and he declares it to be the "magna domus." Now what building was the "magna domus?" in simple English, the "great house;" or, *par excellence*, the church. It was called *magna*, great, because of its superior size, its importance, its sanctity; the word *domus* is constantly and generally used to designate the sacred edifice. Parker, in his *Architectural Glossary*, at the word *dome*, says—"So much does the cupola prevail in the old churches, both in Italy and Germany, that the Latin word *domus*, or house, applied to that of worship, *par excellence*, is retained in the Italian appellation *duomo*, and the German one of *dom*, given to the cathedral of each city." Most of the ecclesiastical writers of the middle ages use the word *domus* for church; and indeed the mode of expression used in this legend smacks more of the middle ages than of the primitive times of St. Adamnan.

But Dr. Petrie further objects that it could not be from the church that the monk fell, inasmuch as the walls of the churches of these times were but twelve feet or so in height, and that there could be no miracle in saving a man's life in so trifling a fall. As to the exact height a fall from which will kill a man, I am not prepared to give an opinion; suffice it to say, I have known a man killed from a fall of six feet, and I have known men survive a fall of over forty feet. But if we examine the construction and size of the churches of that period, it will give us some insight into the probability of such an accident occurring. I will not here oblige Dr. Petrie to adhere to his statement (page 160 of his work) of the Church of Armagh, erected in St. Patrick's time, being 140 feet in length, and argue from thence what the probable size of the church at Durrow may have been; because I do not believe in that fabled church, nor in the monster lime-kiln built to burn lime for it. I will confine myself to matters within the bounds of probability, and which can be verified by existing examples. St. Cormac's chapel, at Cashel; St. Flannan's and Molua's, at Killaloe; St. Kevin's, at Glendalough, and others of that class, will supply us with a type of what the "Magna Domus" at Durrow was. Now, if we take one of the most moderate sized of those moderate churches, St. Kevin's Kitchen (so called), at Glendalough, we find that, though the walls are but 11½ feet high, to the eaves, the ridge of the stone roof is 32½ feet high, and consequently of an exceeding steep pitch; again, St. Columba's house, or oratory, at Kells, the dimensions of which are but 24 feet by 21 feet, is within a fraction of 40 feet to the ridge of the stone roof. Will Dr. Petrie assert that it would be no miracle for a man's life to be saved in falling from the "culmen" of such an edifice. I was on the ridge of St. Kevin's stone-roofed church at Glendalough, and I assure my reader that a tumble from it would leave very few whole bones in any one's body. I have now done with this subject. I hope I have given a fair and unstrained exposition of this passage, which indeed needs little commentary if we take its simple statement, as given in the original.

CHEAP CISTERNS AND FILTERS.*

INSTEAD of incurring the great expense of excavating wells, stoning them, and supplying expensive pumps for obtaining water for the ordinary purposes of a farm-house or barn, a much cheaper and more satisfactory arrangement will be found in the use of my cheap mode of constructing cisterns and filtering the water. A cistern of the dimensions that I shall describe will hold 1,000 gallons, will cost about £1 12s., and its capacity may be doubled for less than 50 per cent. additional cost. One of the size above-named will be found sufficient for farmers' families generally, and will insure soft water, which is rare in wells.

Stake and line out a plat near the building 8 by 18 feet; excavate this 1 foot in depth; then set the lines in 18 inches on all sides; then excavate all within the lines, or 5 by 15 feet, to the depth of 4 feet in the middle, making the middle level some 9 in. in width, sloping the banks on all the sides and ends to the lines last placed, which will make a section of the pit either way V-shaped, except that 9 inches of the bottom will be level.

In digging the banks use care not to disturb the soil not thrown out. When the digging is completed, plaster the bottom, the level part, with a good coat of cement mortar, and place a board on it to stand on to do the balance of the work, cutting the board in two equal parts before laying it on the mortar. This done, plaster the entire surface on the ground to the lines last named, then remove one half of the board and stand on the balance, and build a 4-inch brick wall across the pit, about the middle, laying the bricks, which should be soft (common salmon brick), in cement, but plastering neither side.

Lay the wall to the line, then remove the balance of the board, and put a coat of mortar where it lay. The cistern is now complete, save the covering; this may be done by laying plank over the whole bedding, then on the surface of the first excavation in mortar; or splitting logs from the woods and laying them flat side down, and closing the joints with mortar. The pump pipe should be laid into one end, and the leader pipe from the house gutter laid into the other, before it is covered. This done, return earth enough to cover the surface at least one foot deeper in the middle than the surrounding ground; level it off neatly, and sward it, and you have a complete filtering cistern for 8 to 12 years.

Sir Joseph Paxton writes to the *Times*, respecting the loose manner of contracting for the building of the Great Exhibition of 1862, which will cost about £250,000, and only a few days are allowed for tendering.

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* *Architects' and Mechanics' Journal.*

THE RELATIONSHIP OF THE FINE ARTS.

On this subject Mr. Bell, sculptor, has been delivering a lecture at the South Kensington Museum, from which we quote the following remarks :—

" We must all see that the fine arts address us through our sympathies. Some, however, are more direct in this than others. Of these are painting and sculpture of the human form, for they represent our own race. Pope's well-known adage applies to this study : and painting and sculpture of the human form will always possess a more direct appeal to our feelings than any other branch of the fine arts. We may remark this in a building. No matter how admirable its structure and decoration, yet if it possess also paintings and sculpture of equal excellence, it is to them that the general eye will be attracted ; especially to the paintings which, in their art, leave nothing to be supplied by the imagnation. For this reason painting is ever the more immediately attractive of all the arts. Sculpture is more abstract. We may see the effect of this in any exhibition of the fine arts in any country. *Paintings* form the first attraction ; *sculpture* comes next ; then the *architecture ;* then the *decorations.*

" ' No one,' says Dr. Johnson, ' would write a book if he knew its leaves were at once to be scattered on the ocean ;' and who would elaborate a picture, or with many a studied stroke hew the statue from the block, if the moment of completion were to be the signal of their destruction ? In all our art works, we seek for sympathy. This is the hope, the dream, the prize of our efforts. No marvel therefore that this shews itself in the aim and direction of our higher art works, which use the form of man for their language. . . . .

" Thus it is in its movement amid the variety of surrounding nature, that the sympathetic key of art is at once responded to. It is the note starting from the human lips, which, ringing out amid the swell of instrumental music, thrills us more than all the billowy sounds beside. It is the voice in the storm that we catch with breathless interest, the footstep in the sand on which our gaze is riveted—the human form that steps out amid the works of creation and calls them all by name !

" It is in this respect that the arts of painting and sculpture possess their superior force. It is in their power in the direct representation of our kind that resides the immediate hold they have on our interest and sympathy. Nor can any form of mere architecture or decoration attract so *at once,* as the record of features which beam with intelligence, or the form which is the possessor and agent of that intelligence. In this walk of human representation these arts are directly of man and speak to man, face to face. With them, in this respect, architecture and decoration can by no means compete—which deal with parts of nature, animate or inanimate, which have less hold on our feelings, and thus, of the four arts, undoubtedly, painting and sculpture possess the more direct and shorter roads to our sympathy.

" It would thus seem, by this argument, that the pre-eminence rests with painting and sculpture over the other two arts. Architecture is an indispensable art—it is so directly useful. Painting and sculpture may be—architecture must be. The former were awhile in disgrace and lost to the world's sympathy. Architecture, like her sisters, had pandered to Pagan worship, and had built its temples for ages. But she was not overwhelmed by this obloquy like her sisters. She was too strong to go down before it. The world could not do without her, and her power survived almost without an interval. One of our finest styles, indeed, arose even amid the morning twilight ages—that of Byzantium—that of our own early church. Architecture was continuous, and moreover, after the lapse of some centuries, held out a helping hand to her sisters. She led them out of their captivity where, like the daughters of Israel in Babylon, they had hung up their harps and mourned ; after a while interceded with the world for their forgiveness, and by degrees restored them to their high places. And she had the power to do this because in her nature she is essential to us, and the world cannot do without her. Herein lies a great force and stability in her, on which a number of other forces are founded. We must have structures, and even as early records show, we must have them of various kinds. They should fulfil each purpose fitly : they thus become impressive and expressive in various ways. We may as well have them beautiful. It is at this point that architecture becomes a fine art ; before it was only a useful art. Yet have its most refined beauties the invaluable advantage of the substantial basis of the useful. It is on this solid foundation that this art rests. Loftily, airily, gracefully, and grandly as it may expand and tower into the beautiful and sublime, yet does its firm foot still rest on the rock of direct utility. This is a vast advantage, which in these practical days especially more than counterbalances the more direct appeal to our mind possessed by painting and sculpture. Painting and sculpture rest on our sympathies. Architecture greatly on our wants. Our sympathies may be in abeyance—our wants never. For their higher aspirations the three arts may tower together, but architecture is the base of the pyramid.

" But the fourth sister now claims our attention. In regarding her we must not forget our two-fold character. In her smaller province, Decoration, we may perceive, arises directly and chiefly from architecture. Ornament, so to speak, is the immediate parasite of architecture. It is the lichen that springs from it, a natural growth ; the ivy or honeysuckle that clings to its pillared trunk ; the mistletoe which buds out amid its branches.

" Advantageously as the sisters may all be seen together, uniting in practice as well as kindred in appearance, yet each has its individuality. Strong as the family likeness may be, still we may observe especial resemblances between some more than others, as we do in families. Thus we may remark that painting and sculpture seem much to group together, and architecture and decoration too have a similar affinity and disposition. We may notice one of the most striking of these points. Painting and sculpture both seek to represent the works of the Creator. Neither architecture nor decoration have directly this object. Decoration, to be thorough, must ever be more or less conventional ; if not in detail, yet in arrangement. The painter represents trees and flowers as they grow ; the decorator arranges a branch of foliage in a given line, and hangs his flowers in festoons. A similar conventionality or regular modification from nature distinguishes architecture. Deriving her styles evidently from natural objects, yet successful architecture is never the direct imitation of nature. The arch of Heaven may have suggested the dome; but the architect does not decorate it with the sun or moon, or portray a storm or sunset in it, but erects it with constructive embellishments of treatment which are without reference to the original type. The interlacings of a Gothic roof may have been suggested by the frondage of an avenue, and the pendentive ceilings of Alhambresque halls from the stalactite vaults of caves, cool and pleasant in a burning clime."

THE MYSTERIES OF SMITHFIELD.*

Smithfield professes to be a free market, and is, perhaps, really so for hay, but in practice it is not so for cattle. The houses surrounding the market are the property of butchers, dealers in the cattle trade, and others, who pay high rents and claim an area of the market square in proportion to the frontage of each house. On each area no one but the owner of the house or his tenant is allowed to place his beasts ; so that to any cattle owner desiring to sell in Smithfield there is no opening unless through the established agents, who consequently have the local trade as a monopoly in their own hands ; and who are, therefore, enabled to charge a commission of 2½ per cent. on all sales—certainly a heavy tax on so large a business. It is true that they are a very responsible and respectable body, and that sales effected through them are almost invariably safe, as they are liable by usage, in consideration of the commission on sales, for the amount of purchase realized to the proprietor of the cattle, who although he has not facilities to sell for himself, has at least the produce of his beasts in a manner insured from bad debts by the interposition of a solvent salesman between him and the actual buyer. The salesmen act also to a great extent as bankers, advancing money to grass farmers to stock their farms, and to the large class of cattle jobbers who attend the fairs to make country purchases, and who sell again in the Dublin market to the butchers. The same practice prevails through the same persons to a great extent as regards corn, hay, and oats.

OBJECTIONABLE SLAUGHTER-HOUSES.†

I must here refer to the extraordinary fact, that for the purpose of killing on an average so small a number of animals as 69 head of cattle, 274 sheep and lambs, and 165 pigs per day, no less than *one hundred and thirty-nine* slaughter-houses exist in this city. Three of these are public slaughter-houses, one being in Fish-lane, another in Cole's-lane, and another in Bull-alley. I have visited some of these slaughter-houses on business days, and regret to say that nothing can exceed the objectionable nature of the mode of operation, of the poisonous smells in crowded localities, and of the demoralizing publicity with which the whole affair is conducted. Animals are killed within sight of others waiting their turn, and blood is poured along the streets into the open gutters and sewers. All the other offensive relics of the slaughtering are scattered about in the lanes and yards.

I will only add, that there are, no doubt, some well-conducted establishments, especially amongst the pork butchers—for instance, that of Mr. M'Vey, the well-known provision merchant ; but these are only the exceptional cases—the rule seems to be as I have stated.

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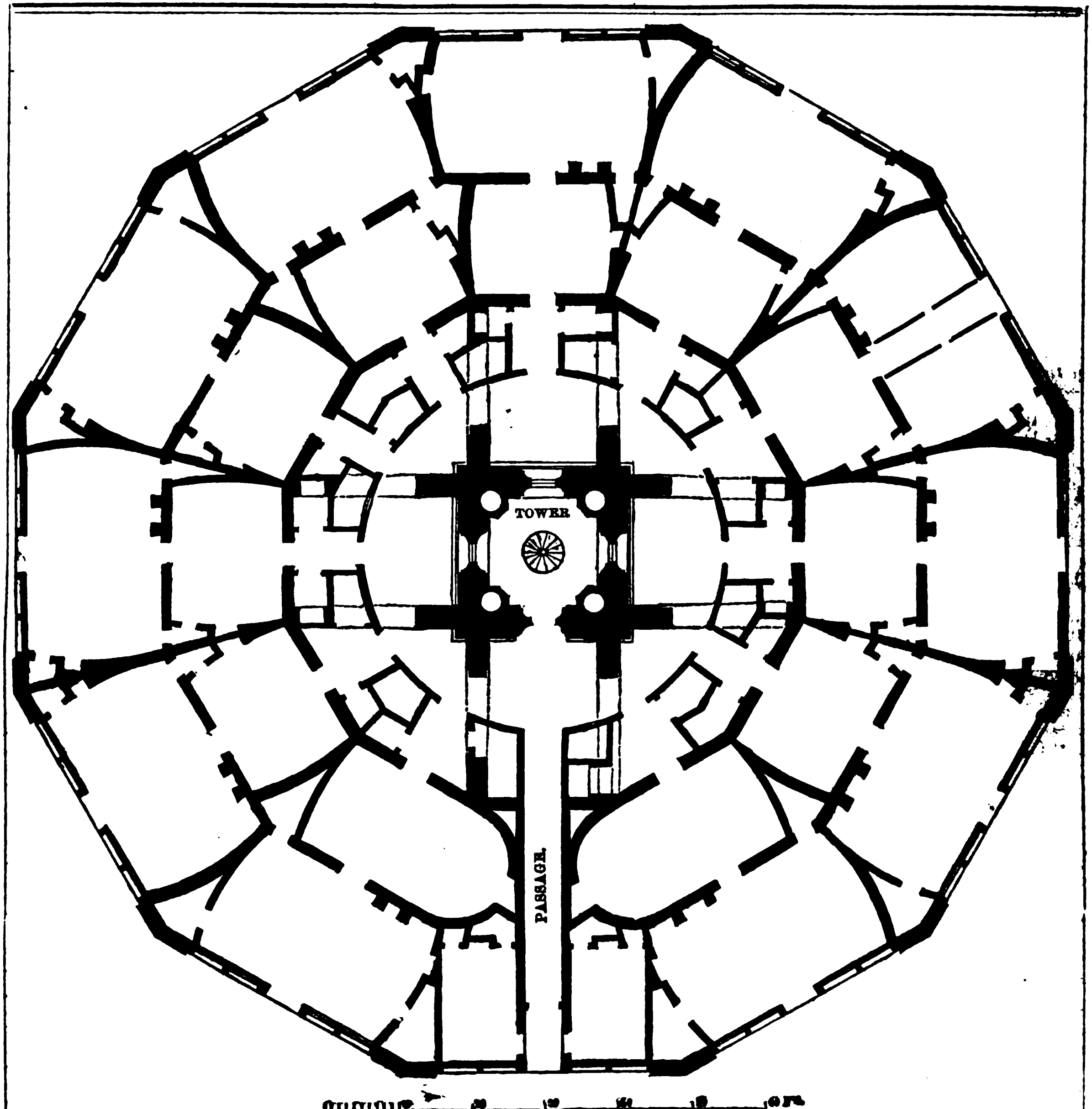
* Extract from the report of George W. Hemans, Esq., C.E., to His Grace the Duke of Leinster and the Right Hon. R. M. O'Ferrall, M.P.

† Ibid.



PLAN OF CLOCK TOWER AND OFFICES, CATTLE MARKET, LONDON.—Mr. Bunning, Architect.

(Referred to at A on Supplementary Illustration.)

THE METROPOLITAN CATTLE MARKET, LONDON.

We present two plans with this number—one showing the general arrangements of the entire market at Copenhagen Fields, and the other the design to an enlarged scale of the central building marked **A**, and comprehending bankers', clerks of market's, telegraph, and other offices, shops, &c., together with a lofty clock tower, which forms a prominent and architectural feature. The following descriptive particulars are from Mr. Hemans' recently-published report:—

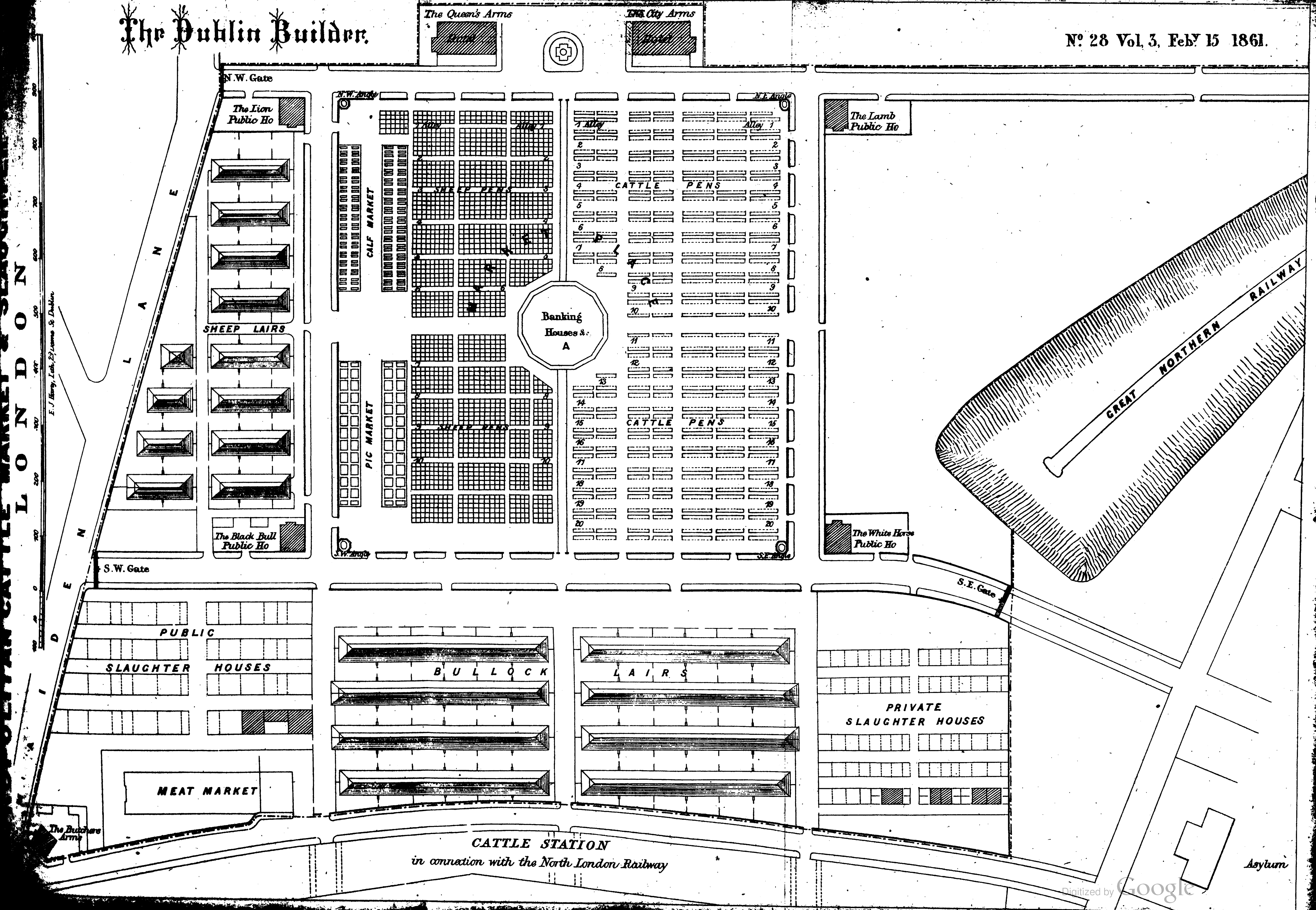
"The whole area of the land purchased by the Corporation of the city of London amounts to about 75¾ acres, of which about 7¼ acres, exclusive of roads, is devoted to an open uncovered space, divided and fitted up for the sale of horned cattle; about 4¼ acres are devoted to sheep pens, 1 acre to a pig market, and 1 acre to a calf market; making, in the whole, including passages and the space occupied by the bank buildings, an area of 15¼ acres (nearly) devoted to the public sale of cattle. In addition, nearly nine acres are devoted to bullock lairs, partly covered by sheds open at the sides, and 4½ acres to sheep lairs, also partly covered in the same manner. The building of slaughter-houses has been only carried out to a partial extent, and the probable area which will be covered by them cannot for the present be determined. Five large public-houses, two excellent hotels, banking houses, an expensive clock tower, and some other buildings have been erected in the most substantial manner. The whole area is enclosed by outer walls and inner iron railings of an expensive character, the lairs are paved with bricks, and the market-places with granite, and, in short, no expense has been spared to carry out the design in the most perfect manner. I am indebted to the kindness of Mr. Bunning, architect to the Corporation of the city of London, for the following details:—The cost of the land (75 acres 3 roods 15 perches) was £64,978 8s. 4d., the cost of the five public-houses and the two hotels about £79,000, and the outlay upon the roads, sewers, walling, iron railing, pens, paving lairs and a few slaughter-houses, amounts to £292,000; making, in the whole, an expenditure, up to this time of £436,000."

IMPROVEMENT OF LIMERICK HARBOUR.

A proposed new arrangement with the Treasury will cause the transfer of the management of the harbour to the Board of Public Works, and after paying a stipulated sum annually to the former body, leave a surplus of about £4,500 to be expended on improving the dock and pier accommodation, for which much need exists.

The Dublin Builder.

No. 28 Vol. 3, Feby 15 1861.



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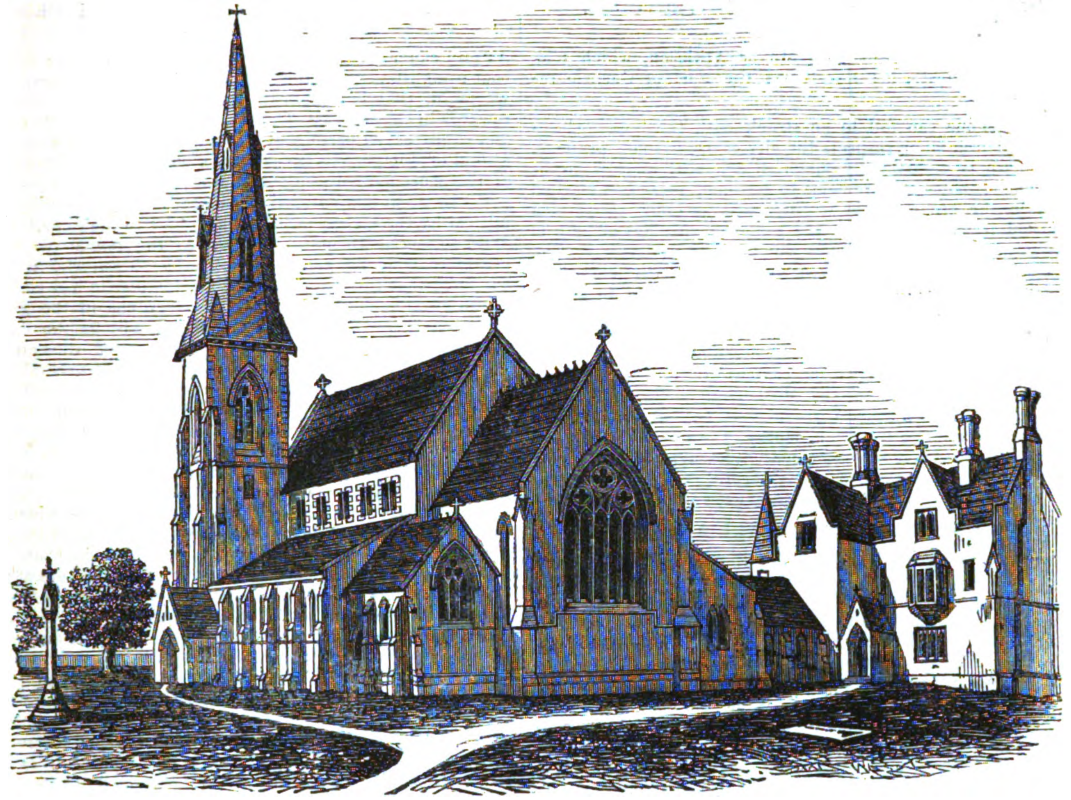

CATHOLIC CHURCH, COVENTRY.

THE GOLDSMITH MEMORIAL.

FOR some time past the model of the intended statue to "poor Goldy"—Mr. Foley, R.A., sculptor—has been on view at Mr. Cranfield's gallery, Grafton-street, and, as might be supposed, numerous visitors availed themselves of the opportunity so afforded, and one and all unite in admiration of its excellence. The *pose* of the figure is natural, easy, and graceful, and the likeness—judging from the admitted portraits—replete with fidelity. In the left hand, which is elevated above the level of the breast, is an open book, from which the poet seems to be reading, and in the right, which is fully extended downwards, and at a slight distance from the person, a pencil is inserted between the fingers, suggesting a supposition of its being used in annotations. The garments are characteristic of the fashion of the period, and in all respects the artist seems to have carefully studied his subject. It will be doubtless highly creditable to him, as well as to our national spirit, and substantially perpetuate the memory of one of Ireland's brightest luminaries in the hemisphere of talent. The pedestal question seems yet to be decided on, and we trust that the committee will use wise discretion in selecting a design in every way suitable, so essential to the harmony and effect of the whole structure. To his Excellency the Earl of Carlisle be the immortal merit of originating the project now on the eve of maturity.

ART UNION OF IRELAND.

IT is proposed to adjust the minor prizes, so as to give one assured prize of at least one guinea intrinsic value to every five consecutive shares, independent of the chances in the general distribution. Thus each subscriber for each guinea subscribed would have one chance in the general distribution, besides one chance of the minor prize allotted to every five shares. The subscriber for five shares would be entitled at once to select one of the assured prizes, besides having his five chances in the general distribution. The Lord Chancellor considers the plan would operate favorably under certain restrictions. The secretary states that he has made calculations, and even on 1,000 shares a sum would remain from the principal prize fund fully equal to what had been so allocated heretofore, and with larger returns, the proportion of expenses would diminish so rapidly as to leave a very important proportion of the funds available for the principal prizes. Of course there would be no minor prizes except those assured as one in five, and even to them the same option of selection or adding to the amount might obtain as heretofore.

ÆSTHETICS, OR THE BEAUTIFUL IN THE FINE AND ORNAMENTAL ARTS.

A SERIES of lectures on this subject was commenced on the 13th instant, in the theatre of the Royal Dublin Society, by Mr. Henry M'Manus, R.H.A., Head Master over the Art Schools, the purport of which is to afford a simple and easy view of the object and end of the fine arts as a producer of the beautiful, showing, by illustration and description, the origin and progress of this quality in all ages and in all parts of the universe—marking its development under varied circumstances, until it became common property of man, to be with him as long as he is an intelligent and cultivated being; also, to make clear at once to the perception what would take years of reading and study to achieve, owing to the very imperfect state of art-literature, and its want of connection with the practical part of the arts, the absence of true criticism on art, and the very imperfectly understood position of the fine arts themselves. The first lecture was illustrated by a map, showing the locality of the several historic styles from their centre to where they overlap and merge into others, effecting the discovery of transition styles, a circumstance not clearly comprehensible till placed before the eyes in a practical shape. All the audience, which comprised the pupils of the schools and numerous visitors, were highly gratified and instructed by the lecturer's excellent demonstrations.

Notice has been given at the British Galleries of the National Gallery at South Kensington, that henceforth no copy is to be made of any picture, the painter of which is living, without his written consent.

Preparations are now in progress for establishing a new line of electric telegraph between Paris and London by Dieppe and Newhaven. Three wires from Paris will meet one from Havre at Malaunay, and the four will cross the Channel from Dieppe to Newhaven. When this line is completed, France will be connected with England by twelve wires—four from Calais to Dover, four from Boulogne to Folkestone, and four from Dieppe to Newhaven. These last are specially intended to connect Lyons, Bordeaux, and Marseilles direct with London.

The very interesting and historical church at Waltham Abbey, celebrated as the burial place of King Harold, the last of the Saxon kings, has lately undergone a thorough restoration, under the direction of Mr. W. Burgess, the architect of the memorial church at Constantinople.

VICEREGAL OPINION ON ARCHITECTURAL PROGRESS.

At the inaugural banquet of Lord Mayor Atkinson, which took place on the 7th inst., his Excellency the Earl of Carlisle remarked:—

"I think no one can fail to be struck with the improved appearance which in many respects the city of Dublin now presents. Though there is undoubtedly much which still remains to be wished, and I hope still remains to be done, there is a marked progress in the architectural improvement of your shops and houses, and it is gratifying to see that the members of both of the two great religious persuasions which divide our society seem intent upon improving the character and enhancing the dignity of ecclesiastical architecture. I would not be thought to lay an undue stress upon these outward demonstrations of piety, but I think still there is an incongruity in seeing the skill and genius of our artists lavished upon our private dwellings, and the various purposes of civil life, while we are content to leave in comparative neglect the temples of the Most High. Warned by the experience of the last year, I trust that no long period will elapse before this city procures a supply of water both plentiful and pure, and also takes sufficient guarantees against the recurrence of loss to property and life from fires."

AN ARCHITECTURAL ALLIANCE.

At a recent meeting of the Architectural Association of London the following resolution was adopted with reference to an architectural alliance:—"That having received a communication upon the question of an architectural alliance from the Northern Architectural Association, the committee consider it desirable that facilities should exist for communication with the various architectural bodies in the kingdom, to obtain their opinion, and, if need be, their co-operation, whenever such shall seem needful; and the committee are of opinion that each secretary of an architectural association should obtain the addresses of the other secretaries, and forward to them from time to time any information of importance that may come into their possession."

THE DICTIONARY OF ARCHITECTURE.

We desire to direct the special attention of our readers to an announcement appearing in our advertisement columns, from the Architectural Publication Society, and to the effect, that unless there be a speedy acquisition to the subscribers' ranks, so as to justify a reprint of some of the early numbers of the work, not a copy will be available after a very short time. This society—whose members have been unremitting in their labours, and which, by the way, are doubly meritorious, being gratuitous—demands much more consideration from the profession than a mere subscription for an equivalent, and although its course has been somewhat more slowly pursued than might have been desired, and resulting from limited resources, nevertheless it is *surely* approaching the goal of completion, and in a manner highly creditable to all concerned, and we may add nationally so. We trust that those who have not yet contributed their quota of support will do so *at once*, and save the society from the suggested alternative of destroying the plates of the numbers in question; furthermore, that when in the course of professional practice any matter of novelty or interest presents itself, it will be communicated to the honorary secretary of the department, to be recorded for the general weal.

BIOGRAPHICAL SKETCH OF INIGO JONES.

This celebrated architect was born in London about 1572. He was bred a joiner, but his skill in drawing recommended him to the notice of the Earl of Pembroke, who sent him to Italy, where he acquired a complete knowledge of architecture. James I. made him surveyor-general of his works, which office he discharged with great fidelity. He continued in the same post under Charles I., and had the superintendence of the building of St. Paul's, Covent Garden, with the management of the masques and interludes for the entertainment of the court. This brought him into a squabble with Ben Jonson, his coadjutor, who ridiculed him in his comedy of *Bartholomew Fair*, under the name of *Lantern Leatherhead.* He suffered considerably during the time of Cromwell, so that grief, misfortunes, and age, brought him to his grave in July, 1651. In 1655 appeared his *Discourse on Stonehenge*, in which he attempts to prove it to have been a Roman temple. As an architect, Inigo generally, but not always, shines to great advantage. He designed the palace of Whitehall and the Banquetting-house, the church and piazza of Covent Garden, Coleshill in Berkshire, Cobham-hall in Kent, and various other buildings, public and private. The principal of his designs were published in folio, in 1727, and some in 1744.

APPEAL FROM THE NATIONAL LIFEBOAT INSTITUTION.

After enumerating particulars connected with the several lifeboat establishments in the kingdom during the past year—whereby we learn, that independent of a sum of £908 8s. 4d. voted as rewards in that service, £203 4s. had also been granted for saving 245 shipwrecked persons by shore-boats and other means, making a total of 455 persons saved from a watery grave—the committee of this most philanthropic institution earnestly adds:—

"This great and national work has, however, only been accomplished by the society incurring liabilities to the extent of £5,419. With so sacred an object in view as the rescue of our fellow-creatures from an appalling death by shipwreck, it might be supposed that the National Lifeboat Institution had claims which would come home to the heart of every one in this great maritime country. Such it may be hoped will be the case as its operations become more generally known, and thus an abundant harvest, not only of popular sympathy, but of general pecuniary support, will be the permanent result. The committee of this institution do not, therefore, hesitate to solicit most earnestly the support of the community at large in aid of the benevolent objects of the National Lifeboat Institution. They cannot but sympathise with the vigorous efforts now being made by this society, to save the lives of shipwrecked crews. Their help was never more needed than at the present time, when, through the extraordinary exertions the society has made within the past few years, it has now one hundred and eight lifeboats under its management, for the maintenance of which, in a state of thorough efficiency, a large permanent *annual income* is absolutely needed, if its humane mission is to be perpetuated. We may add, that contributions in aid of the philanthropic and national objects of the Lifeboat Institution, are received by all the London and country bankers, and by its Secretary, 14, John-street, Adelphi, London."

An appeal which we have no doubt will meet with a hearty and general response, and the necessity for which is more impressively suggested by the recent melancholy events at Kingstown and along the Irish coast during the gale, to which localities increased resources would enable the institution to extend its operations more efficiently than at present. The following will show that even to the extent employed, the society has been instrumental in saving numerous lives during the period in question:—

The lifeboat stationed at Arklow, belonging to the above institution, was instrumental during a terrific gale from the N.E., and a fearful sea, in rescuing the crew of five men from a vessel which had got ashore between the south pier and the rocks. Owing to the very tempestuous state of the weather, it experienced immense difficulty in accomplishing her mission of mercy, but at last succeeded and brought the poor fellows safely ashore. The schooner *Margaret Ann* came ashore near Skerries, and her crew of five hands were taken off by the lifeboat of this institution. The crew of the smack *Gipsy* of Newry, were also taken off by the same valuable lifeboat in the height of the storm, at the back of the Skerries Islands. The lifeboat's crew behaved nobly on both occasions.

CONDITION OF THE AGRICULTURAL LABOURER.

There is no drawback affecting the condition of the labourer which calls so loudly for the sympathy of the rich and the benevolent, as that of providing something in the shape of habitable dwellings, by which the lives, morals, and comforts of the toiling masses could be preserved. What could be more deplorable than a peep into the miserable hovels into which so many of the hard-wrought sons of toil retire to rest after their daily labour ceases? The outline of these cabins present every shape of geometrical figure, from a square to a polygon, whilst the interior, as regards comfortable arrangements, is equally defective. How many instances could be enumerated, where the same habitation accommodates the goat and pig in company with the owner! Government loans may be easily obtained for building a byre, a piggery, or a stable, but the idea becomes quite impracticable when the appeal is made with a view of erecting a dwelling for the ploughman, the reaper, or the herdsman. Again, we find the farmsteadings for our cattle carefully and substantially built—every precaution being taken to secure the necessary requirements essential for the lives and comforts of the animals. The drainage is perfect, the houses are clean and plastered, the ventilation adequate, the workmanship excellent, and the apportionment noted out to suit the size and convenience of the animals intended to occupy the stalls. The poor man's house is built of the roughest and most inexpensive materials, and these are even stuck together regardless of permanency, neatness, or practical utility. The wind and rain find easy access through the crevices of the walls, along the door-posts, or through the roof; whilst the pools and dung-heaps in front evolve those deleterious gases sufficient to generate disease and mortality amongst the inmates who inhale them. Neither sufficient draining, proper ventilation, nor the requisite subdivision of the dwelling seem to be considered in the building of a house for the labourer, though the idea *predominates* when we contemplate erecting a dairy or a fowl-house.

The same system of mal-accommodation presents itself in the dwellings of the poor in our towns and cities, and the evil becomes magnified during the summer and autumn seasons, when migrating gangs of labourers go forth prepared for a harvest campaign. From the indiscriminate manner in which bodies of these are huddled together, it is not to be wondered at that disease and pestilence should be engendered, and that immorality, vice, and other evil propensities should be contracted.—*Correspondent of Agricultural Review.*

A writer in same journal, questioning the appreciation of the labouring class for the efforts made to ensure comfort and cleanliness, says—"We have heard, also, of some very curious perversities in this respect, exhibited in Ireland, perhaps not fifty miles from Dublin. A number of what were regarded by the builders as very nice cottages for labourers, were built of stone and mortar, slated overhead, and plastered inside. Near to these was a sort of deep, wide trench made, with a roof of rafters and thatch thrown over, and sort of partitions erected, so as to divide this covered trench into a row of cabins. To the astonishment of the enlightened builders, the labourers chose the stalls in the trenches, and allowed the superior cottages to remain tenantless."

Referring to the condition of the same class in Scotland, Mr. M'Laggan, at a recent meeting in Edinburgh, said—"The great majority of the cottages in Scotland consist but of one room, which answers the purpose of kitchen, bedroom, sitting, and entry room, and to it perhaps a small bed-closet is added; and this is all the accommodation for father and mother, and four or five of a family; a cottage of two rooms is an exception, and one of three rooms a very rare exception. And when we compare the comfortable accommodation for the beasts on the farm with the state of this one-roomed cottage, with its earthen floor broken into holes, and its unlathed walls, we may feel ashamed that in a system of agriculture considered second to none in the world, and indebted for its superiority to an enlightened proprietary, and an intelligent and enterprising tenantry, the labourers who bear such an important part in it should be worse housed than the beasts on the farm. I have visited some such cottages when sickness had entered them; I have seen the beds occupied by three or four children with the flushed face of fever—on the one side the shrouded remains of the mother who nursed them, on the other the grief-stricken father, with all his joys buried in that coffin, and unnerved at the thoughts of the dismal future before him."

ESTIMATING DISCREPANCIES.

As an illustration of one of those numerous problems suggested in the course of building practice, which not alone completely puzzles the public, but the wiseacres of the honourable fraternity themselves, we beg to draw attention to the following, and to express a conviction that to whatever extent editors and correspondents of journals may exert themselves in unravelling the mysterious web, the discrepancies in builders' estimates will ever be a "*pons asinorum*," not to be solved by the most accomplished of our modern mathematicians:—

For the erection of a new convent and schools at Kenmare (as advertised in the DUBLIN BUILDER)—

Mr. Stokes, county surveyor, Tralee	£9,000 !!!
Mr. O'Callaghan, Killarney	4,200
Mr. M'Donnell, Kanturk	3,950
Mr. Murphy, Bantry (accepted)	3,853 !!!

For the erection of model cottages, at Blarney Road, Cork, for the Cork Association for improving the dwellings of the labouring classes; Mr. Richard R. Brash, architect:—

Thomas Walsh	£1,180
Murray and Meade	980
Edward Murphy	845
Martin Clayton	775
Simon Kenefick (accepted)	730
James O'Donnell	699

[NOTE—We shall esteem it as a favour by lists of tenders being sent to us for publication.]

OBITUARY.

February 1st, at his residence, 24, Queen's-square, Mr. Peter Martin, builder, aged 72 years.

We have heard of the death of Mr. George Gregory. C.E., son of Mr. John Gregory, C.E., formerly of this city, which took place, suddenly, in the State of Wisconsin, America, recently.

CONTINUED DECAY IN THE STONEWORK OF THE PALACE AT WESTMINSTER.

It seems that all the preservative processes applied to the stonework of this structure have up to the present proved unavailing, and it is still reported "to be rotting away and presenting a honeycombed appearance." Viewing it a few months since, it did not appear quite so bad as that, but it is sufficiently so to leave no doubt of its total decay being a mere question of *time.* Messrs. Ransome and Szerelmey, therefore, may rest—at least as regards this building—in their argument for priority of their respective processes; and we apprehend that all other remedies, but a total refacing with a better quality of stone, will prove quite useless. The First Commissioner of Works has decided on no further action in the matter until a committee of the first architects, engineers, and chemists shall have reported on the matter. What if the doctors should differ? Mr. Tite suggests the cause of the decay to have been the cutting of the stone from a quarry whose geological construction was only half developed.

Correspondence.

BRICK DRESSINGS—NEW PRESBYTERIAN CHURCH AT SYDENHAM, NEAR BELFAST.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR—In the last number of the DUBLIN BUILDER you give a description of the above-mentioned building, copied from a local journal, in which it is correctly stated that "the entire of the building, the tracery of the windows excepted, will be executed in brick, with dressings, *weatherings*, &c., of the same material." Happening to pay a passing visit to this building lately, it struck me forcibly that in it, as well as many other of our modern erections, the introduction of brick dressings is being carried much too far. In this case the "weatherings" have proved lamentably unfit to serve as such. Being composed of brick, and consequently requiring to be jointed with mortar, the latter material has so far given way under the combined action of rain and frost, that the brickwork has completely lost its "bond," and the consequence is, that the bricks forming the weatherings of the buttresses could be easily lifted off by the hand, and even many of the bricks themselves have either thrown off one or more of their corners, or a considerable portion of their surface, from the same cause. There is also a projecting string course of brick, of which much the same might be said. Would it not be well for those who admire "brick dressings" to confine their application to the *vertical* portions of the buildings in which they are adopted, and to form the "weatherings" and all such like projections, if not of stone, at least of some material that will not require too many joints looking weatherward?—Yours, &c., TYRO.

Belfast, 11th February, 1861.

Alderman George Roe addressed another letter recently to the *Freeman's Journal* about the College wall, the street disfigurements and encroachments going forward (so frequently pointed out in the DUBLIN BUILDER), and the desirability of another bridge over the Liffey opposite Lower Gardiner-street.

The standing orders have been declared complied with in the case of the following new undertakings:—Rathkeale and Newcastle junction, at a cost of £50,000. Enniskillen and Bundoran Railway. Cork, Blarney, and Macroom Railway.—For a line from Cork by Blarney to Macroom and branch to the Great Southern and Western, at a cost of £140,000. Great Northern and Western (of Ireland) Railway.—For extension at a cost of £85,000.

The bill introduced by the Cork and Youghal Railway Company for the purpose of extending the line to the quay at Youghal, and to enable arrangements to be made with the Cork Harbour Commissioners, has passed the standing orders. The cost of the extension is estimated at £35,000.

An unusually large number of bills relating to public undertakings in Ireland will occupy the attention of committees of the house in the present session. Indeed, since the memorable year of the railway mania, there has not been so good a prospect for the parliamentary bar. The contest between the Dublin and Meath Railway Company and the Midland Company for an independent station in Dublin will be resumed, and the agents of both parties speak confidently of success.

We regret to perceive that a destructive fire broke out lately at the establishment of Mr. Stanley, 3, Great Turnstile, Holborn, mathematical instrument and T square manufacturer. This is a very narrow thoroughfare, leading to New Square, Lincoln's Inn, and consequently presented great obstacles towards a speedy extinction. Much property was consumed, but not such as to affect the usual transaction of business.

Notes of New Works.

Extensive additions are being made to Grand Canal-street schools; Mr. Joseph Maguire, architect, Mr. Bolton, builder. Expenditure about £1,700.

An immediate extension of the railway terminus at Westland-row has been determined on, and plans prepared by the company's architect, Mr. George Wilkinson. The three houses respectively occupied by Mr. O'Gorman, auctioneer (corner of Great Brunswick-street), Chester and Holyhead or London and North-Western Railway Company, and Maguire the confectioner will be included. The front of the building will face Great Brunswick-street instead of Westland-row, as at present, and will be of an architectural character. The position is admirably adapted for a building which shall form an acquisition to our street architecture, and we doubt not that the proverbial enterprise of the company will ensure the desideratum.

A new National Bank house with officers' apartments to be erected at Ennis. Mr. Caldbeck, architect. Tenders are invited.

A clock tower is about to be erected in the town of Letterkenny. The site will be in the market square.

Additions and alterations are about to be made to Killadeas House, the seat of Captain Irvine, Co. Fermanagh; also a new parsonage house is to be erected close by.

The County Grand Jury of Cavan are desirous of receiving estimates and specifications for heating the Record Court.

Additions and alterations are to be made to Cormeen House, Ballybay, for J. Thompson Tennent, Esq., J.P.; Mr. Raffles Brown, architect.

The new police station at Ballybrack has been completed.

Extensive improvements are being made to Ormond Castle, Kilkenny, under the direction of Messrs. Deane and Woodward, architects. Messrs. Ross and Murray are executing some important hydraulic and plumbing works in connection therewith.

The above-named architects have submitted a design for the Great Exhibition building of 1862.

The neighbourhood of Ballybrack, on the Bray and Kingstown branch of the Dublin and Wicklow line, is the scene of much building improvements. A large mansion is being commenced under the directions of Messrs. Lanyon, Lynn, and Lanyon, architects, for the Hon. Judge Dobbs, and will cost some £4,000 or £5,000. Messrs. Deane and Woodward have also designed six new dwelling houses for different parties, amongst whom is Mr. Joseph Robinson, the eminent concert singer. The foundations have been laid out. The two houses in course of construction for Mr. Boyle will soon be completed. A villa is erecting in same locality for J. H. Curry, Esq., local manager of the Royal Insurance Company, under the directions of Mr. Joseph Maguire, architect, Mr. Brophy, builder, and will cost about £1,400.

Two dwelling-houses—semi-detached—have been completed at Vico-road, Dalkey, for Mr. Henry Gonne, after drawings by Mr. Lyons, architect, and present gabled cantilever roofs, with ornamental brackets, large bay windows, commanding magnificent views of the surrounding unsurpassedly beautiful scenery, and fitted throughout with storm shutters, essential during the winter months in this exposed situation. Internally the arrangements are peculiarly commodious and suitable, and externally they are finished in compo, lined in ashlar courses. Another, of somewhat similar character, is being commenced; same architect. The obstruction offered to the continuance of this road to Killiney, by *a wall built right across it*, is a serious drawback to the improvement of the neighbourhood; but we are quite sure that the characteristic amiability and consideration of the worthy lord of the manor of Killiney, and the no doubt *unwilling* perpetrator of this obstruction, Mr. Warren, will induce him "to take the bright view of the question," forgetful of all else, and accord to the public a very decided boon. A notice has been posted on the wall in question, stating that all efforts had hitherto failed to induce consent, but we are far from believing that that gentleman is incapable of yielding to persuasion, and feel convinced that the memorialists will *yet* have occasion to say, with Richelieu, "*never say fail again.*"

A new mansion house is in course of erection at Bray for Thomas Lefroy, Esq., Q.C., under the directions of Messrs. Lanyon, Lynn, and Lanyon, architects; Mr. Lee, builder. Messrs. Hogan and Son have contracted separately for all the plastering works. Expenditure about £2,000.

The National Gallery, or Dargan Institution, so frequently noticed in these columns, is now in progress of roofing, portions of the slating being completed. It is to be hoped that a proportionate delay will not arise from the present stage of the works to the final completion as that which has hitherto prevailed.

MONUMENTAL.

The Government have commissioned Mr. John Noble, sculptor, to execute the statue of the late Sir John Franklin, intended for Trafalgar-square, London. It will cost £2,000.

A competition is about to take place between Messrs. Keed, Noble, Bell, and Munro, sculptors, for the monument to Hallam in St. Paul's Cathedral.

Various opinions have been expressed upon the character the intended memorial to the late Sir Henry Marsh, Bart., should assume, some desiring that an hospital should be erected and endowed; others, that suitable statues be placed either in the College of Physicians or in some of the public squares or thoroughfares.

We have seen at Mr. Kirk's studio, Jervis-street, a model of the intended Crampton memorial, but are not in a position to give a perfect description of it as yet.

A memorial is about to be erected (we presume at Glasnevin Cemetery), by subscription, to the late Rev. James Fay, C.C.

NOTES IN THE COURTS.

M'Donnell v. *Benson.*—Action for £46 for work done as an assistant civil engineer and surveyor to Sir John Benson, on the proposed Limerick and Cork line. Defendant lodged £6 in Court, but did not appear. Verdict, £59 over and above that amount.

A. J. Bergin v. *John Star.*—Action for £81 alleged to be due under a builder's contract for work at Adam and Eve chapel. Defendant lodged £28 in Court, the amount stated to have been agreed on for same. Plaintiff claimed £53 in addition for authorised extras, and maintained that an agreement was entered into between him and defendant, that the latter should contract for the work, and the plaintiff to be sub-contractor. Verdict, £40 over and above the sum lodged in Court.

Heffernan v. *the Crookhaven Mining Company.*—Action for the sum of £190 for work and labour alleged to have been done for the defendants in mining shares taken, making maps, issuing prospectuses, &c. The plaintiff was a civil engineer, and was engaged by Mr. Hemming, the secretary of the company, to perform the services specified. The defendants did not deny that services had been rendered, and had lodged £80 in Court as the sum to which they considered the plaintiff entitled.

Forster v. *Worrall.*—Plaintiffs are lithographers, and sought to recover from the defendant, Mr. J. Worrall, county surveyor of Tipperary, a sum of £128 1s. 8d. for work done and materials provided. The defendant pleaded that having been engaged to make surveys of estates sold in the Incumbered Estates Court, employed the plaintiffs to lithograph and colour maps; that it was agreed to pay them 50 per cent. of the amount as taxed by the officers of the court; that the defendant received £71 12s.; that the plaintiffs were entitled to £35 16s., the half of this amount; that defendant paid plaintiff £30 in part payment since the action was commenced, which plaintiff accepted; and that £19 0s. 6d. remain due, which defendant lodged in court. Verdict for plaintiff for £47 2s. 2d. over the sum lodged in court.

Cosgrave v. *Ellis.*—Action for work and labour, and recovery of damages for breach of contract. Plaintiff is a clerk of works, and defendant a builder. Plaintiff was employed by defendant, he alleged, on the following terms:—To make out plans and specifications of works for which defendant intended to contract, without charge in the first instance; but in case defendant became contractor, plaintiff was to be his superintendent, at a weekly salary of £1 12s. 6d. as long as the works continued. Plaintiff made out the plans and specifications, for which he claimed a sum of £25 1s. 10d.; he was engaged for sixteen weeks as clerk of works over the building of sixteen houses in Rathmines, for which defendant had contracted, and for which he charged £26, at the rate of £1 12s. 6d. per week; the whole of the houses would have occupied, upon the calculation that four of them had been completed in sixteen weeks, forty-eight weeks in the building after he had been dismissed from the defendant's employment, and for these forty-eight weeks he claimed £78; he also claimed damages for wrongful dismissal. Defendant denied the contract, and pleaded that by way of confession and avoidance, that it had been waived or rescinded by the plaintiff, prior to the alleged breach that the plaintiff had so misconducted himself in his employment, that he was obliged to dismiss him, and that he had paid him a sum of £37 17s. 6d. which was sufficient compensation for any work performed for him. The jury found for plaintiff, damages £24 11s.

Sweeny v. *Lemon.*—Action brought by plaintiff against defendant to recover damages for alleged trespass. An arrangement was come to, by defendant paying £50 and costs—the plaintiff executing a release.

We are gratified to notice that a couple of impending actions—previously alluded to—have been arranged to mutual satisfaction.

COURT OF BANKRUPTCY AND INSOLVENCY.

In re John Lennon.—The insolvent—a builder—was opposed by Mr. Joseph Kelly, timber merchant, on the ground that he contracted the debt by representing that he was to give an order on Captain Bailey, for whom he was performing a building contract, for the amount of goods supplied, and on the further ground that he put in a sham plea to an action brought against him for the recovery of the debt due. Mr. Robinson, a gentleman in the employment of Mr. Kelly, testified that goods were supplied for the purposes of the contract with Mr. Bailey to the amount of above £100, and Mr. Bailey offered to pay Mr. Kelly £50 of his debt, if the insolvent gave an order on him to that amount, but he would not do so. Another witness stated that the last portion of the goods was delivered on the express condition that Mr. Bailey would pay for them when he came home from the continent. Mr. Greaves, for the insolvent, denied that this was a true statement of the case, and said it would be contradicted by the architect of Mr. Bailey. Judge Berwick said that the insolvent appeared to have entered into an imprudent contract, and was unable to pay Mr. Kelly. He would adjourn the case until the architect was brought up, but in the meantime he would advise the insolvent or his friend to pay Mr. Kelly the costs he was put to by the filing of the alleged sham plea. Adjourned for a fortnight.

In re Hugh Kelly, a builder, saw mill proprietor, and importer of building materials, Sir John's Quay, in this city.—The bankrupt offered 8s. 6d. in the pound—2s. 6d. to be paid at once, and the balance by instalments, within a limited period, but the majority of the creditors refused to accept the composition. The appointment of a trade assignee will not take place for a fortnight.

THE ATTRIBUTES OF ANGELO.

Saints bent o'er him, sigh'd and wept,
  Angels hover'd to and fro,
Genius still her vigils kept
  By the couch of Angelo.

Ardent faith and holy love,
  Energy with youthful glow,
Inspiration from above—
  All were join'd in Angelo.

Painter, sculptor, architect,
  Unsurpassed in the trio;
Art encircling intellect,
  Time's immortal Angelo!

'Neath Saint Peter's glorious dome,
  In forum, fane, or studio,
What e'er he did—thy greatness, Rome!
  Was typified in Angelo.

In youth or age, around that brow
  Fame twined her golden wreath in blow;
And years alone could never bow
  The form erect of Angelo.

Most honor'd still through all extent,
  By Tiber, Thames, or Liffey's flow,
Thy name alone—a monument—
  Wondrous, gifted Angelo!

C. C. H——Y.

GAS LIGHTING AT STUART HALL.—The Right Hon. the Earl of Castlestuart having determined to light his residence by means of the patent apparatus of Messrs. Edmundson, of this city, that firm has been instructed to light up Stuart Hall, Stewartstown, county Tyrone, with gas works. A similar apparatus was recently erected by Messrs. Edmundson at Rossmore Park, in the adjoining county of Monaghan, for Lord Rossmore.

A project is on foot in London for uniting Piccadilly with the Strand by a gently curved street, commencing at the head of Coventry-street and continuing to Chandos and King William streets. This would necessitate comparatively little pulling down, and would open up a most suitable opportunity for extending the National Gallery, and having a handsome front for same building towards the proposed street.

The fifth evening scientific meeting of the Royal Dublin Society will take place on Monday evening, the 18th inst. Professor Davy will read a paper on the injurious effects of the employment of arsenical pigments; Dr. Danglish on the manufacture and peculiarities of ærated bread; Mr. Henry Shaw on a new patent railway break; Mr. Henry Hennessy on anonymous publications; and Mr. T. W. Connor on competitive examinations.

Reviews.

Examples of London and Provincial Street Architecture in the Victorian Age. London: F. Tallis.

JUDGING from the copies of the plates that have reached us, this work promises to be one of merit, with the suggestive and practical combined. Plate 1 displays a perspective elevation of the Promoter Life Assurance Company's offices in Fleet-street, with which we are quite familiar, but must remark, that the style of illustration is somewhat too pictorial, and a more subdued tone of colouring would be more suitable. Plate 3, representing premises in Birmingham, is decidedly better as to manipulation, and the details are a desirable addenda. From the great variety of subjects to be embraced by this work—presenting examples worthy of imitation in street architecture—we have no hesitation in pronouncing it to be one which, if carried on judiciously and spiritedly, will surely command an extensive patronage.

The Golden Quiver, or Poems for Children. By S. G. Stevenson. London: Darton & Co, 58, Holborn Hill.

First impressions are, said to be, the most lasting, it is therefore a reasonable assumption that educational training should commence in the cradle, and that *ab initio* it should be unexceptionally excellent. The majority of nursery rhymes published now a days are rather more calculated to distort the tender intellect of a child, than to furnish it desirably; all description of fabulous, vapid, and exaggerated nonsense, in ill-measured rhymes, being popular amongst all classes from the highest to the lowest, unquestionably leaving certain dregs behind that no subsequent cultivation will fully eradicate. We can pronounce this little work free from restriction, the poems being calculated both to gratify the youthful mind and cultivate a taste for the muse; the subjects, moreover, are most happily selected.

Strike among Workmen. Dublin: M'Glashan and Gill.

A PAMPHLET under this title, embodying a series of six letters addressed to Lord Brougham—but which the writer complains *were never taken any notice of* by his lordship—has been published by Mr. Thomas M'Anaspie, "for more than thirty years practical artist and *tradesman manufacturer*, &c., in both plain and ornamental departments in a branch of the building trade." The object of the pamphlet is to endeavour to illustrate the causes and consequences of strikes; the effects of the present and past state of the building trade on general taxation; the means for raising from *two* items *eighty-five millions sterling* per annum in favour of the Exchequer; take *all taxation off food*; rear, without *one farthing of outlay* to the State, an army of *two millions of well-disciplined men*; prevent *civil commotion between capital and labour*; secure for every tradesman of servitude, skill, and ability, the contracts, control and benefits of his separate trade; prevent jobbing; secure work 25 per cent. cheaper and 50 per cent. better, &c., &c. We can only excuse the alleged impoliteness on the part of his lordship—who in letter No. I. is designated a "public benefactor" and "man of great mind," and in letter No. VI. as "an English statesman without sympathy"—by assuming that his lordship, after an attentive perusal, became convinced that the scheme was far too comprehensive for an *ordinary* intellect, and was, therefore, content to leave the merit of its development *exclusively* to his correspondent, who has certainly displayed an unlimited amount of courage in grappling with *so many* items connected with political economy, each one of which forms a separate subject in itself quite sufficient to occupy at one time the attention of any of our modern legislators. We have no doubt that many tradesmen, equally enthusiastic as the author, will read the pamphlet with very great pleasure. The financial calculations are confessedly quite beyond *our* capacity, but we are assured that the author has framed them on most reliable data, carefully studied.

The Dublin Waterworks Bill has been read a second time before the House of Commons, and submitted to a select committee.

Miscellaneous.

GEOLOGICAL SOCIETY.—An election of officers has taken place with the following result:—Rev. Professor Haughton, *President*; Robert Callwell, R. Malley, James Apjohn, Professor W. H. Harvey and the Rev. H. Lloyd, *Vice-President*. Gilbert Sanders, and P. J. Sidney, *Treasurers*. Joseph B. Jukes, and R. H. Scott, *Secretaries*. Council—Lord Talbot de Malahide, Sir R. Griffiths, Bart., John Kelly, Samuel Dowling, J. B. Doyle, J. R. Kinahan, M.D.; Alexander Carte, M.B.; Edward Wright, LL.D.; S. Gordon, M.D.; W. H. Bailey, Alexander Gages, R. S. Reeves, G. M'Dowell, Rev. J. A. Galbraith, and W. Andrews. Sir Leopold M'Clintock was unanimously elected an honorary member.

IRISH ARCHÆOLOGICAL AND CELTIC SOCIETY.—The sheets of the following important works, now in progress of printing by the society, were submitted at a recent meeting:—1. The Book of Ancient Irish Hymns, edited by Dr. Todd, from a very ancient manuscript in the library of Trinity College, Dublin, printed to the commencement of Fiech's Hymn on St. Patrick. 2. The Irish Topographical Poems of O'Dubhagain and O'Huidhrin, printed to page 150, under the editorship of Dr. John O'Donovan, enumerating the various native families and their territories early in the 14th century, illustrated with copious notes and a dissertation by the editor on Irish surnames, their mutations, and Anglicised forms. 3. The Donegal Martyrology or Calendar of Native Irish Saints, and the localities with which they were connected, numbers of which still retain their names strangely altered and corrupted by time. This work, with large historical and topographical illustrations, is being printed by the society from the original text by the O'Clerighs, popularly known as the "Four Masters," now preserved in the library of the Duke of Burgundy at Brussels.

MECHANICS' INSTITUTE.—The following parties constitute the board of direction of this institute for the present year:—*Treasurer*, James Haughton, Esq.; *Auditors*, Messrs. Digges, P. Kelleher, and John Sullivan; *Committee*, (operatives) Messrs. Hugh M'Neill, James Pollard, A. Flannery, E. C. Ferris, Thomas Dobbin, John Gaynor, Edward Hart, John O'Driscoll, Joseph Owens, G. O'Connor, T. A. Bowen; (non-operatives) Michael Molloy, John Christopher Magan Campion; John Elwood, Cornelius M'Swiney, J. P. Moore, L. J. Walsh, and J. Kenny.

THE CONNOREE MINING COMPANY.—A half-yearly meeting took place on the 6th inst., Dr. Waller in the chair. Amongst other matters the report stated that "the great difficulty of procuring a sufficient and permanent supply of miners and labourers has been a subject of anxious consideration with the directors, and that they had come to the conviction that this difficulty could be removed only by building dwelling-houses for workmen and their families, and thus making it their interest to attach themselves permanently to the mines. With a view to this object the directors have under their consideration an arrangement for obtaining sufficient land suitably situated; and they have no doubt, when carried out, that a moderate rent upon the houses will yield interest upon the sums that shall be expended on their erection. The secretary read a lengthened report from the managing director, respecting several valuable discoveries of metalliferous deposit on the northern portion of land whereon the company's mining operations are being carried on, and giving a statement of the progress and present condition of the works in the respective shafts and adits, and described the character of the lode recently discovered as being peculiarly rich; also of the effective condition of the machinery, including the new pumping steam-engine, the machinery for dressing the ores, &c."

THE KINGSTOWN COMMISSIONERS AND THE DUBLIN WATER WORKS BILL.—There seems to be a desire on the part of this body to follow the example of the Rathmines Commissioners, and offer obstacles to the passing of the proposed bill for the better supply of Dublin. A petition with that object in view is being prepared.

THE BALDOYLE ESTATES.—The City of Dublin Corporation possesses extensive estates in this locality, and a reduction of rents has been sought for by Colonel White and Captain Darley, tenants, and recommended by a committee; but subsequently the opinions of Sergeant (now Solicitor-General) Lawson and Attorney-General (now Baron) Deasy were sought, and they were against the legality of the reduction. The question has been a subject for much discussion at a recent meeting.

PROGRESS OF DERRY.—Referring to the rapidly improving condition of this town and neighbourhood a local correspondent says:—"Derry is now taking the position Belfast did twenty years since; a large quantity of building is going on, and as much or more in prospective. Wages are advancing, and there is a complete run on materials."

NEW BRIDGE OVER THE THAMES.—It is proposed to construct a new bridge over the Thames from Kew to Brentford, and to make a road in connection with it in the parishes of Isleworth and Ealing. The Great Western Railway and Brentford Railway are to subscribe to the undertaking. It is to be a toll bridge.

INTERNATIONAL EXHIBITION OF 1862.—It is stated on authority that if an International Exhibition of Works of Art and Industry had not been announced to take place in London in 1862, it was the intention of the Emperor of the French that one should be held in Paris, but that now the French will give way to the British exhibition.

A GRACEFUL TRIBUTE TO MR. FAIRBAIRN.—A royal medal has been awarded to Mr. William Fairbairn, F.R.S., for his various experimental inquiries on the properties of the materials employed in mechanical construction, contained in the "Philosophical Transactions," and the publications of other scientific societies. The following is an extract from the address of Major-General Sabine, who, as chairman of the meeting, presented the address:—"Mr. Fairbairn's first scientific publication was, I believe, a small volume published in 1831, on 'Canal Navigation,' illustrative of the advantage of the use of steam as a moving power on canals. In this work he detailed the results of experiments made on the Forth and Clyde Canal, and on other canals in Scotland, and recorded experiments made about the same time by other parties as to the traction of light boats by horse power at high velocities. In 1837 he contributed his first paper to the Manchester Literary and Philosophical Society, being 'An Experimental Inquiry into the Strength and other properties of Cast Iron.' This was the first of many valuable papers on the same and similar subjects which have been from time to time published in the 'Memoirs of the Manchester Society,' in those of the British Association and the Institution of Civil Engineers, and in the 'Philosophical Transactions.' It is well known also, and has been warmly acknowledged by Mr. Eaton Hodgkinson, that Mr. Fairbairn rendered most valuable assistance to Mr. Hodgkinson in his experimental inquiries into the strength of iron, for which the Royal medal was awarded in 1841, by placing at Mr. Hodgkinson's disposal his works at Manchester, in which the experiments were conducted free of cost. In the transactions of the Manchester Geological Society, in 1841, there is a paper by Mr. Fairbairn on the economy of raising water from coal mines; and in Weale's Quarterly Papers on Engineering an account of his ventilating water wheel, a very material improvement in the construction of water wheels. Since that time his experimental researches and his contributions to various scientific bodies have been very numerous and important. Amongst these I may specify papers on fire-proof constructions; on the strength of iron, and the best forms of beams and pillars; on boiler explosions; on the collapse of tubes under pressure; on the density of steam; on the principle of construction of iron ships; and other kindred subjects—many of these being within the period required by the terms of the award of the Royal medal. Of separate works may be noticed a volume on the Conway and Britannia Tubular Bridges (1849), including his researches on the best form and strength of wrought-iron beams; a work 'On the Application of Cast and Wrought Iron to Building Purposes' (in 1854 and 1857); and a valuable compendium, entitled 'Useful Information for Engineers' (in 1856 and 1860). Perhaps it may be said with truth that there is no single individual living who has done so much for practical science, who has made so many careful experimental inquiries on subjects of primary importance to the commercial and manufacturing interests of the country, or who has so liberally contributed them to the world. Mr. Fairbairn, in presenting this medal to you from this Chair, I will venture to say that the award of the royal medal—the medal which her Majesty the Queen has been graciously pleased to place at the disposal of the President and Council—for scientific services such as yours, so eminently conducive as they have been to the general good, is even peculiarly appropriate."

THE LITTLE EASTERN.—A model of a steamship, propelled on a new principle, invented by Mr. Robb, of Glasgow, and christened as per title, was exhibited in the City Hall of that town recently. The propulsion of the vessel is effected by an apparatus placed at each side of it and at the stern, the idea being apparently borrowed from the fins of a fish, or rather the web-foot of a duck. The model is about 2 ft. 10 in. in length, and the stroke 1¼ in. It was placed in a trough 25 feet long, erected on the platform, and made the passage from one end to the other in about 15 seconds. The machinery is moved by springwork, merely to illustrate the principle of the new direct acting propellers, which, Mr. Robb avers, can be worked at a fourth of the expense of paddle-wheels.

DESTITUTION AMONGST THE WORKING CLASSES IN LONDON.—It is estimated that there are at present 50,000 labourers out of employment, and with their wives and families starving. What a state of things in wealthy London—the golden store of the world!

New Application of Peat.—Some improvements in manufactures from peat have been patented by Mr. H. Hodgson, of Ballyreine and Merlin Park, and Mr. P. M. Crane, of the Irish Peat-works, Athy. The invention consists in preparing from peat, in its natural state, blocks, slabs, or pieces of any size, form, or thickness, which blocks, slabs, or pieces are said, when so prepared, to be useful and economical in the construction of parts of buildings and for other useful purposes. They place these blocks between cloths of woven or textile fabric, or other suitable material, and the peat is placed between shelves, and submitted to hydraulic or other pressure. The water is entirely forced out and the peat solidified, and drying is effected either by exposure to the atmosphere or in a room heated artificially, or by any other process. They are then put again between the plates of a hydraulic or other press, and extreme pressure put on them. If the product of their invention be required for use for inside work in building, such as partitions, linings, inside roofing, or for other work, as a non-conducting substance, they do not require other further preparation than shaping, provided they are not to be exposed to wet. But the slabs or pieces used for roofing (instead of slates, tiles, or other things of that nature) they prepare to resist the wet or action of the atmosphere by steeping them in, or saturating or coating them with, some fitting material.

To Soften Old Putty.—In removing old broken panes from a window, it is generally very difficult to get off the hard dry putty that sticks round the glass and its frame. Dip a small brush in a little nitric or muriatic acid—to be obtained at the druggist's—and go over the putty with it. Let it rest awhile, and it will soon become so soft that you can remove it with ease.

Muslins Rendered Fireproof.—Messrs. Versmann and Oppenheim, of London, whose researches have been most carefully and scientifically conducted, advise the use of the following solution as the only one which can be recommended for laundry purposes:—A concentrated neutral solution of tungstate of soda, diluted with water to 28 degs. Twaddle, and then mixed with three per cent. of phosphate of soda. This solution is found to keep and to answer well. It has been introduced into her Majesty's laundry, where it is being constantly used. It is stated to be neither injurious to the texture of colors, nor in any degree difficult of application in the washing process. Its protecting power against fire is said to be perfect.

The Universal Private Telegraph Company propose to establish in offices and elsewhere a means of privately communicating by telegraph. For this purpose they extend a rope, containing a great number of fine insulated wires, over the streets and houses, and any one of those wires may be rented. To render such arrangements practicable, it was essential in the first place that the wire connections should be effectually made at a comparatively small cost. This object is obtained by Mr. Silver's process for insulating wires, by coating them with Indian rubber. The wires are very much thinner than bell wires, and a rope containing upwards of 30 of them properly insulated is barely half an inch in diameter. The rope is fixed on poles at the tops of the houses, about 200 yards apart, and it is said that the company have experienced no difficulty in obtaining the consent of the occupiers to have the poles fixed on their dwellings. This arrangement is so economical that the company offer to let out each wire at the rent of £4 per mile per annum. The instruments to be employed are the magneto-electric telegraphs, invented by Professor Wheatstone, slightly modified.

The Electric Light.—The tall pyramidal scaffoldings erected at different points within Paris for the triangulation of this capital with its recent additions, having been found to oscillate to and fro from the constant traffic through the streets by day, it has been at length resolved to proceed with the triangulation at night, by means of the electric light; and experiments are to be made with the light itself, in order to discover some convenient means of applying it to the lighting of streets.——Professor Way, says the *Critic*, has discovered an electric light far superior to any yet known. It is produced by the action of a voltaic battery on a moving column of mercury. The mercury is contained in a crystal globe, of the size of an orange, and is sent from a very minute hole, under the form of a thin metallic thread; it is received in a small cup, whence it falls into a basin below, to be again conveyed to the globe above. No sooner are the wires of the battery in contact with the thread of mercury, than a vivid light is produced, which disappears as soon as the contact is interrupted. During this process no evaporation of the mercury is observable.——The old oil lights which have been in use so many years on the Portland lighthouses will (says the *Southern Times*) shortly be discontinued, the electric light being its substitute, the Board of Trade considering the Portland lights of so much consequence to ships going down or coming up Channel, these having to pass in close proximity to that dangerous place, the Portland Race.

Mr. Scott Russell and the Great Ship Company.—In the Court of Queen's Bench, London, Mr. Scott Russell applied recently to show cause why the arbitrators' award should not be set aside. It appeared that he was employed by the first company who were engaged in constructing the Great Eastern to do certain work to that ship. In the contract there was a clause for the purpose of referring any dispute which might occur to arbitration. During the continuance of Mr. Russell's contract the company was reorganised, and a new set of directors took the places of those who constituted the original board. A dispute as to the meaning of the contract then occurred, and the matter was accordingly referred to arbitration; the arbitrators found for the plaintiff in the whole amount claimed, which included alterations which were not mentioned in the contract; and a rule obtained to set aside the award on the ground that the arbitrators had no jurisdiction to deal with any matter not in the contract. Mr. Bovill contended that the arbitrators had a right to go into matters contained in the articles of submission, and that these extras fairly came within that deed. Sir Fitzroy Kelly contended that the arbitrators exceeded their power in dealing with the extras, as the contract contained the words, "there shall be no extras," and the same contract only provided for the reference to the arbitrators of those matters referred to in it. There were an immense number of affidavits filed on both sides, and the arguments upon them occupied a very considerable time. There was a cross-rule calling upon the company to show cause why they should not at once pay the amount recovered under the award. Their lordships decided that both rules must be discharged, and the parties left to their remedy at law by action on the award.

A New Question in Naval Warfare.—At a recent trial of the new Blakely gun it was remarked by some professional artillerists—foreigners—present, that as "such was the velocity of the shot that it did not touch the ground until it had passed 60 feet beyond the target, although the hole in the hamper was found to be not more than a foot from the ground, it might after all be better to build the bulwarks of a ship very light, and let shot pass easily *through both sides into the sea.*"

A person writing from Melbourne, Australia, says the mass of temporary buildings erected for the emigrants drawn there by the gold fever is fast being replaced by fine edifices for domestic and municipal use. Within the last three or four years, besides the public works undertaken by the government—among which are the Houses of Parliament, the Treasury, the printing-office, new Post-office and new government offices—large and splendid houses have been erected for the various banking corporations, that would discredit no large city. Among other notable improvements is the establishment of a well-furnished library in a handsome stone edifice. The Observatory is also a recent erection.

White Oak Timber a Substitute for Whalebone.—Many unsuccessful attempts have been made to obtain a perfect substitute for whalebone, in the manufacture of the ribs of umbrellas and parasols. An ingenious manufacturer has at last found that white oak timber of the second growth, when selected from the butt-end of the tree, and straight and free from knobs, may, after subjection to a certain curing process, be employed as a substitute for whalebone. It is even said to be superior to whalebone in toughness and tenacity, and the ribs made from it always resume their original straight condition after exposure to the weather.

Galway Harbour.—At the special sessions recently held for the barony of Dunkellin, the following resolution was carried unanimously:—"Resolved—That the magistrates and cesspayers of the county of Galway deeply deplored the rejection by the House of Lords of the provisions in the Galway Harbour Bill (1860), by which the guarantee of this county for securing the necessary funds for the improvement of the Port and Harbour of Galway were proposed to be legalised; and that we hereby declare our readiness to give the said guarantee of one penny in the pound on the valuation of this county for securing the sums required for the improvement of the harbour and port of Galway, by the formation of a pier, breakwater, and of graving and other docks, and we trust that in a future session such a proposition may receive the sanction of the Legislature."

The Barravore Lead Mining Co. held a meeting recently to dissolve and wind up. The undertaking appears to have eventuated in an almost total loss.

NOTICE.

Post-office Orders and Remittances should be made payable to Mr. Peter Roe, *Printer and Publisher*, 42, Mabbot-street, Dublin.

☞ *NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the* Dublin Builder," 42, Mabbot-street. *All other Communications should be addressed to the "Proprietor and Editor,"* 17, Lower Gardiner-street.

Iron Founders, Plumbers, &c.

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KENNY'S PATENT.

The undersigned beg to call the attention of Engineers and the Public to the above description of Opening Bridge, as now being constructed for the entrance to the St. George's Dock, Custom-house Quay, Dublin, for the Board of Works, which will be found superior to the ordinary Swivel Bridge, both in point of simplicity of Construction and Cost.

Plans and Specifications furnished, and Licenses granted on application to

TURNER AND GIBSON,
Proprietors and Manufacturers,
HAMMERSMITH IRON WORKS, BALL'S-BRIDGE,
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KITCHEN RANGES, Drawingroom Bright Grates, Fenders, Fire Irons, and all kinds of Builders' Ironmongery. MAURICE BROOKS, SACKVILLE-PLACE, Dublin.

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34, 35, & 36, *CAPEL-STREET.*

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Bridges, Girders, Iron Lattice, Bowstring, Suspension, Patent Balance Rolling, and Swivel Bridges, and Floor Girders

T. and G. beg to refer, as specimens of *their work*, to the Iron Conservatories, Heating, etc., as erected at the Royal Botanic Gardens, Kew; the Inner Circle Botanic, Regent's Park; Cheltenham: Viceregal Lodge; Glasnevin; and various Works by them throughout the United Kingdom.

TO BUILDERS.—TO BE LET, in RATHGAR, on the Roundtown road, about 500 Feet of BUILDING GROUND, 260 feet from front to rere, at 4s. per foot. Also, in Rathgar-avenue and Beauchamp-avenue, 2,000 feet at 3s. per foot. Lease 999 years. The situation is unquestionably the best in the suburbs of Dublin. Apply to Dr. Beauchamp, 115, Baggot-street; or to F Armstrong, Builder. Baggot-street.

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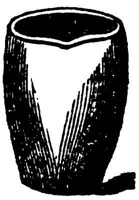

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PURE ITALIAN MARBLE, DIRECT FROM THE QUARRIES.

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Stucco Plasterers, General Cement Workers, Modellers, &c.,
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Beg leave to state that they are prepared to undertake Contracts in the above line. Ornaments for Cornices and Centre Pieces for Ceilings supplied. Fronts for Houses done in Portland or Roman Cement at first cost price. Country Orders strictly attended to, and first class workmen sent to all parts of the Kingdom.

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George Holmes and Co. are constantly supplied with the above materials of genuine quality, direct from the best manufacturers. Also Sewerage Pipes, Junctions, Bends, &c.

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Provisionally registered on the 1st of November, 1860.

"The perfection of Machinery consists not in a complication of appliances, however beautiful, but in rigid simplicity."

This Machine has been fully tested and approved of, will be put in competition with any of the kind brought before the public, being more simple, cheap, and effective, and washing with more safety to the clothes; the internal machinery for possing and raising a lather can be made of glass and covered with muslin; it is calculated to effect a saving of half the labour, soap, and fuel, used in the ordinary way of washing; there is no iron in the construction; will not be liable to get out of order; can be made to any size to suit families and public institutions; a twelve-foot plank will make a size to suit twelve in family, be as durable and nearly as cheap as a common wash-tub, and occupy so very little space, can be placed in any convenient apartment. A lady may become her own laundress, as the process can be got through by very gentle exercise, with safety to the most delicate hands.

It is deemed to be of such public utility. and so highly calculated to promote cleanliness, the Proprietor is desirous of making it available to the community at large, and is therefore prepared to appoint Agents in every town in the three kingdoms, to dispose of the *Design*, with directions for making and using it, at 2s. 6d. each, merely the cost of bringing it within their reach, and need not pay until satisfied of its utility.

Philanthropists are respectfully solicited to become Agents: terms liberal.

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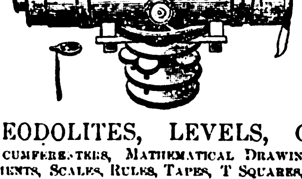

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JOHN ARCHBUTT, 20, Westminster Bridge Road, Lambeth. near Astley's Theatre, respectfully calls attention to his Stock of the above articles, manufactured by superior workmen. The prices will be found considerably lower than ever charged for articles of similar quality. An illustrated price list forwarded free on application. 8-inch Dumpy Level complete, 6 guineas; 10-inch ditto, 8 guineas; 14-inch ditto, 10 guineas; with compass, 1 guinea each extra. Best 5 inch Theodolite, divided on Silver, 18 guineas.

Auctions, Sales, [illegible]

Auction of Wood Goods.

JOHN MARTIN AND SON WILL OFFER BY AUCTION, on THURSDAY, 28th February, Instant, SEVERAL CARGOES of BALTIC and NORTH AMERICAN TIMBER and [illegible], including

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The Dublin Builder.

VOL. III.—No. 29.

PERPETUAL MOTION.

WHO amongst the community of "an inquiring turn" has not at some time of his life romanced on a prospect, "looming in the distance," of "immortal memory" being acquired by the happy discovery of that mystified object, "Perpetual Motion?"

Some more ardent than the rest—nay with fanatical zeal—pursued the phantom till physical and mental strength became exhausted, and nature sunk beneath its labours without the consummation. Others, *a fortiori*, prudently halting after numerous unsuccessful attempts to storm the breach, and deeming it impregnable, made "virtue of necessity," and retraced their steps. Philosophers, mechanics, and "very fools too," have each tried their hand; victory was frequently declared, but failed in confirmation, and the problem submitted for solution centuries ago, still remains a mystery. *If* the unravelling of this Gordian Knot *be* possible—*we* dare not express an opinion thereon, not being amongst the experimentalists or enthusiasts in any of the above capacities—judging from the earnest desire manifested for its attainment, we must confidently rely—however discouraging antecedent trials—that "*labor omnia vincit.*" Be the result, however, what it may in this and succeeding ages, the present generation *does*, and the future *will*, as surely regard the subject with infinite interest, and pursue its history with like feeling as heretofore. Until very recently where was this history to be found? unless, indeed, amongst the ponderous tomes and musty files of Chancery-lane, with an occasional record of the most recent "*wonderful discovery*" in a stray newspaper. Here, indeed, was a want, and who would volunteer the Herculean task of collecting the scattered fragments? A spirit, however, sufficiently chivalrous at length appeared, and before us lies the result in a presentable volume, *plena laboris*, illustrated by numerous diagrams.

"PERPETUUM MOBILE, or *search for self motive power*, during the 17th, 18th, and 19th centuries," is the title of the work in question; Mr. Henry Dircks, C.E., the author, and Messrs. E. and F. N. Spon, of Bucklersbury, London—a highly respectable firm, to whose enterprise the architectural and engineering professions, as also the general public, are much indebted for some standard volumes—the publishers.

The author, in a comprehensive introductory essay, proceeds to describe the sense in which the term *Perpetuum Mobile* should be taken in its mechanical application, admitting it is capable of modification, and should not be construed too literally, remarking that,

> "Being thus accepted as one early, yet wrongfully, though popularly applied, it distinguishes inventions intended to be operated through the medium of their own peculiarly constructed internal arrangements, and seems afterwards, though improperly, to have been extended to ingenious automata, worked by external agents, as *magnetism*, &c.; which latter we reject entirely."

We would endorse the propriety of this rejection, especially in the case of *water* (presumed to be included in the etcetera) being adopted as a motive power, its evaporation proving fatal both in theory and practice, as also as regards "*air*," for obvious reasons, but we are not disposed to go quite so far in the matter of *electricity* or *magnetism*. However, we shall not now enter fully on this abstruse question, but referring to the former we must note, that amongst the numerous mechanical appliances invented for the attainment of "*perpetual motion*," those into which the elements of "air" and "water" entered, seem to approach feasibility the nearest, as long as the motive power is *supplied*, but when it fails, as *infallibly it will* at *some* time, the apparatus ceases to act, and consequently the theory becomes exploded. A popularly adopted principle by experimentalists, but tortured into an infinity of shapes and forms, is that of the "ever counterbalancing weight applied to the rotation of a wheel;" referring to this our author remarks that—

> "Any machine would deserve the distinctive character of being a perpetual motion that acquired its rotation, supposing it to be a wheel, from a property consequent on the arrangement of its external parts, always compelling one side to become heavier than the other; such motion being no other than the ability in a machine to generate and maintain its own power of movement." "The attempts to solve this problem would seem so far only to have proved it to be thoroughly paradoxical. The inventions resulting from it during the last three centuries baffle any attempt at classification, developing progressive improvement."

Upon this however, the author's opinion seems to vary somewhat, as he illustrates the inventions of the Marquis of Worcester, and of Councillor Orfyrreus, as "justifying an apology for the pursuit of perpetual motion;" adding, "that the upright character of the noble inventor of the steam-engine affords proof against likelihood of falsehood, and will go far to maintain doubts respecting the infallibility of all mathematical demonstrations adverse to the possibility of a self-motive power;" further that "in a mathematical point of view, we think this subject is far from being exhausted; and after what has been advanced may very properly be regarded as claiming grave consideration." The inventions above alluded to are stated to be "the only two accepted cases, but both prove secrets"—the latter resulting from the eccentricity of the inventor, who made and destroyed in succession four wheels or machines alleged to have attained the object; a misunderstanding arising subsequently between him and a princely patron, "causing the subject to lie dormant, and the invention to die with him." The particulars of the respective apparatus are briefly thus: that invented by the Marquis was a self and perpetual moving wheel 14 feet in diameter, rotated by the action of forty 50 lb. weights; and that by Orfyrreus, his fourth, or last, also a wheel 12 feet diameter, 14 inches broad, made of light oak framing, and covered with oilcloth, revolving *either* way, and with power sufficient to raise 70 lbs. weight to a considerable height.

If we are to attach any importance whatever, to the published accounts of the successful attainment of the object in question by these, the question of practicability is so far decided. Amongst the very numerous illustrations or specifications we perceive one by an old and respected fellow-citizen, with which by a curious coincidence we were ourselves associated many years since, though repudiating any claim either for credit or the reverse as regards the invention department. It was that of the late Plato Oulton, enrolled in 1854, and comprehending a "machine in which a stream of leaden or other suitable balls are made to supply the place of water, in actuating two or more main wheels, and in which provision is made for keeping up a constant supply or stream of balls to these wheels, by means of *head* and *tail* races and a peculiar arrangement of worm shafts." It *may* be that "Plato thou reasonest well" in theory, but we are free to confess with the author, that a reasonable assumption is suggested that the races named must ere this have in practice proved "a goose chase," and a very "wild" one too. While unquestionable mechanical ingenuity and originality of conception are displayed in *some* of the "attempts" herein described, others—though not altogether lacking the *latter* element, and in some instances to a vengeance possessing it—are pitiable exhibitions of delusion.

Reviewing in the abstract the *Perpetuum Mobile*, it is a book from which the reader may simultaneously derive recreation, wholesome caution against fallacies to be avoided in pursuit of what *as yet* has proved to be mythical, and likewise suggestions possibly serving as a stepping-stone to the future development of the means, *if at all* capable of accomplishment. The author in laudable spirit undertook his task, he has pursued it earnestly to completion, and may justly view both the retrospective and reality of his mission with much pride. We trust that the result will prove substantially remunerative.*

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* PERPETUUM MOBILE, or *Search for Self-motive Power* during the 17th, 18th, and 19th centuries, with introductory essay by Henry Dircks, C.E. London: E. and F. N. Spon, Bucklersbury.

AGGREGATE MEETING RELATIVE TO "THE WATER SUPPLY."

On 25th ultimo a most numerous meeting took place in the Rotundo with reference to this still *quæstio vexata*, and in obedience to the call of the Lord Mayor, who presided on the occasion. His lordship made some brief introductory remarks on the purposes for which the meeting was convened; the history of the movement for securing an improved supply; the appointment of the Royal Commissioner Mr. Hawkshaw; his report; and concluded by an appeal to all parties, however opposed in opinions, to discuss the question calmly. Dr. Gray followed, and was greeted with general applause—a compliment at this stage of the proceedings judiciously bestowed—fully illustrating public appreciation of his eminent devotion to, and his pre-eminent capability to deal with, this important subject. His statement occupied a lengthened period in delivery, refuting the alleged erroneous accusations made against the promoters of the measure now before Parliament, their general proceedings in connection therewith, as well as those of the Opposition Committee; the financial features, especially those referring to municipal taxation; its present unequal distribution on the rich and the poor; the position occupied by Master Fitzgibbon, who wrote a pamphlet of 53 pages against the Corporation, &c.

Mr. Benjamin Lee Guinness, whose rising was the signal for great applause, after some pithy and pertinent remarks proposed the first resolution, which was as follows:—

> "Resolved—That this meeting are of opinion that the Corporation of this city would have failed to perform their duty to the city, and would not have redeemed their pledge to abide by the recommendation of the Royal Commissioner, had they not introduced a bill to carry into effect the report and recommendation of the Royal Commissioner."

Mr. Codd seconded the foregoing, and urged that the Royal Commissioner should in common courtesy be sustained; and concluded an able confirmation of Dr. Gray's and Mr. Guinness' previous statements.

Professor Webb, as a member of the Opposition Committee, stooped to pick up the gauntlet thrown down by Dr. Gray, and maintained that the fact of the *large expenditure* to be incurred *violated the pledge* entered into with the Royal Commissioner by the Corporation and the city members. That pledge was that they would support any scheme which the Commissioner recommended, *provided the cost did not exceed from* £250,000 *to* £300,000. There was not a gentleman present would stake his character upon the assertion that £300,000 would cover the whole of the expenses. Many gentlemen had openly proclaimed their belief that £500,000 would not do, and if he were to express his belief, it would be that of Master Fitzgibbon, that before the works were consummated the cost would reach a million. He agreed with Dr. Gray that it was an unjust theory of taxation that the house rated at £5 and at £10 should pay the same amount, and that there ought to be a poundage rate; but he believed it was not true to say that the opponents of the bill were disposed to disregard the rights or claims of the *poor*, or to favour the *rich* at their expense. He was not in favour of unequal taxation, but he protested against a scheme that would introduce unlimited expense, and which would entail unlimited taxation. When the trade and business of the city was already overburdened with taxation, what would become of it under the additional taxation caused by this bill?

Colonel LaTouche said that it would be presumption in him to give any opinion on the engineering question; but on the *quality* of the water he was a competent witness, for all *his life he was in the habit of frequenting the Vartry*, and he could say that in a dry season, particularly at the Waterfall at the Devil's Glen, there *was not water enough to fill a four-inch pipe*. Then it was a *mineral* district, abounding in manganese, lead, copper, and iron. There had been occasions, when he had seen the water *as red as blood*; and again, he was certain that the supply of water required to keep full the spacious reservoir which would have to be constructed, and from which there should be immense loss by evaporation alone, would fail altogether in dry seasons.

Dr. Wilde, in proposing the next resolution, stated he had come there to impress upon them one great fact, that there was wanting, sadly wanting, to this city and to the citizens of all classes, water, *pure water*, and plenty of it, for public and domestic purposes. He denounced the canal water as impure, as did professors Apjohn and Donovan. If possessed of the wherewithal, he might have a choice of many sort of beverages, from a draught of sparkling champagne, rich Burgundy, or cool claret, to a pennyworth of swipes, or surely if athirst, he would not grudge his twopence for a small bottle of Guinness's double X. (laughter). But where was there a draught of pure, sweet, and wholesome water to be had? No where. They should remember that it was not for themselves alone they were seeking this priceless advantage, but for their children, and children's children, who would bless them in days to come for the means of health and comfort thus secured to them. He concluded by proposing the resolution as follows:—

> "That, for domestic and sanitary purposes, and for the more effectual preservation of life and property from fire, it is imperative that the water should be delivered at high pressure and on constant service."

Dr. Rawdon M'Namara, the seconder, said that, as a medical man, connected intimately and professionally with every question involving the well-being of a large section of the poor of Dublin—having charge of an extensive district under the poor law, inhabited by a dense population of the humblest poor; he felt it to be his bounden duty to declare his own experience of the insufficient way in which water was obtainable by the poor. He could say that the water supplied to that large class of people was *bad in quality*, *insufficient in supply*, and obtainable only at the expense of *great inconvenience*, *loss of time*, and *detriment*. It was his opinion, and he asserted it fearlessly, that the present wretched system of water supply, especially to the poor, was fraught with the elements of *disease* and *death*.

Professor Jukes would not say that it is impossible there could be mines in the valley of the Vartry; but can say that that valley is entirely separated from all the mining districts in which mining operations are going on by two other valleys—so that the only portion of the mountain district from which the drainage runs into the Vartry Valley is a small portion of the eastern side. But whether there be mines therein, I say it would be utterly impossible to devise any scheme whatever for getting water from Dublin, or any county in Ireland, to which the same objection would not equally apply.

Mr. James Haughton suggested that an expense of even £300,000 should not be incurred in trying to get water with the quality and abundance of which they were not satisfied. He called on the citizens of Dublin not to allow this bill to pass. *Perhaps* it was the *best* scheme, but at all events they did not know that, and he would conclude by saying to them *inquire, inquire*.

Alderman Reynolds addressed the meeting at considerable length, premising his observations that he was not so high an authority on *cold water* as his friend Mr. Haughton. They heard out Professor Webb patiently, and his speech would be reported fully in the opposition journals, interspersed with "great cheering," and "loud and repeated applause." Who gave that applause? The body-guard of young gentlemen whom he had brought with him from Trinity College—who were packed up in one corner, who cheered the professor during his speech, and when it was over made a rush out in a body, as much as to say we have done our work, and now we will go back to old Trinity and drink his health in a *draught of old October*.

Mr. Taylor—Will you answer this question? If on getting tenders for the works the corporation find the cost will exceed £300,000, will they pledge themselves to withdraw from the undertaking?

Alderman Reynolds—I will hand over the privilege of answering that to a better authority than myself, Dr. Gray.

Dr. Gray—If the estimates given in the bill, and deposited in the parliamentary offices, are not sufficient to cover all the works, the rules of parliament necessitate that the bill shall be thrown out upon that ground alone.

Alderman Reynolds—With regard to the pipes being able to bear the high pressure, said there were 80 miles of pipes for the conveyance of water through the streets. In eight years the corporation had laid down 18½ miles, at an expense of £1,000 a mile, and these—as had been tried by the maker in Scotland, and twice here,—were capable of bearing not only a pressure of 100 pounds to the square inch, which would be the maximum pressure required, but of bearing a pressure of 400 pounds to the square inch. But the professor might say that what was true of the 18½ miles of new metal main was not, therefore, true as to the remaining 60 miles. Mr. Crofton, inspector of water works, a practical man, of long experience in the city, informed him that when the old pipes were laid down the science of casting pipes of a slender description was unknown. The consequence was, that the old pipes were three times stronger than new ones.

After this speaker followed Dr. Waller at considerable length, as also Professor Sullivan, who proposed a resolution, and Mr. John Drew Atkin, who seconded same to the following purport:—

> That, in the opinion of this meeting, the water supply of the city ought of right to be vested in the elected Representatives of the Ratepayers, and it is satisfactory to observe that, while the Municipal Council seek to provide for the efficient supply of the City, they have also determined that the Tax shall be limited to a definite poundage rate.

The meeting soon after separated.

Enormous Anvil.—Messrs. R. Morrison and Co., of Ousburn, Newcastle-on-Tyne, cast lately an enormous anvil block weighing upwards of 34 tons, for the Elswick Ordnance Works. The melting of the metal occupied five hours, and the immense mass will take three weeks to cool, when it will be removed to its bed at Elswick.

NEW RAILWAY BRAKE.

At the last scientific meeting of the Royal Dublin Society, Mr. Henry Shaw exhibited a model of a new patent railway brake, invented by him, and also read a paper, from which we extract the following, descriptive of same, on the means or apparatus whereby a railway train in motion may be brought to a stop at a distance of from 50 to 70 yards:—

The mechanism which I submit to your attention is simple, exceedingly few in its parts, and most effective for the purposes intended. It is, moreover, inexpensive, and may be applied to the existing rolling stock without disturbing a single bolt.

The wearing parts are but the ordinary wood pieces, which, as at present, are pressed against the peripheries of the wheels, with this advantage—that as the work to be done is distributed uniformly over every wheel in the entire train, instead of being confined to a few, each piece of wood will last the longer time.

Referring to a report made by Colonel Yolland, Royal Engineer, and one of the inspectors of railways in the year 1858, upon the subject of brake power, and which report was directed by the Lords Commissioners of the Board of Trade to be laid before the respective railway boards in the United Kingdom, that eminent engineer gives it as his opinion "That the amount of brake power habitually supplied to railway trains is in most cases insufficient to prevent the recurrence of accidents." That is, brake power applied to but one, two, three, or four carriages in a train of eight or more, is but a small percentage of what ought to be employed.

In this apparatus you will observe that I have provided a brake to every wheel in the entire train of carriages, and that my means or apparatus for actuating them simultaneously is effective.

Colonel Yolland adds—"It is essential to the safety of a train travelling at a high rate of speed that the engine-driver should have power to stop his train after receiving notice of an obstruction." And again, that "it is desirable, in order to prevent *unequal* pressure upon any one part of the train, that the force employed to check the speed of a train should be, as far as possible, distributed throughout the train." Also that "It is essential that the rere of a train should be protected with brake power to prevent carriages from running back on inclines in the event of couplings becoming detached or breaking. That the *entire* of the brake apparatus on the several carriages be communicated by *one man*, in order to secure *simultaneous* action."

Referring to some patent brake apparatus which in that year was submitted to his experiments, he says:—"Without expressing an opinion that Messrs. Newall and Fay's brakes are superior to other brakes, I find that as many as *four* carriages *under favourable* circumstances may be actuated."

It is much to be deplored that the valuable advice given by that able officer in 1858—a report of which was sanctioned by the Lords Commissioners of her Majesty's Board of Trade, and ordered by them to be laid before every railway company throughout Great Britain—did not meet with more attention.

Railway trains continue to be run daily, at fearful rapidity, with heavy brake vans swinging on behind. The brakeman is stationed at the rere of the train instead of in the front; and that which elicited from the Board of Trade such a warm approval, a distribution of the force throughout a number of the carriages, has been adopted only by a very few companies of late years.

It is but fair, however, to both Mr. Newall and Mr. Fay to state, that the means or apparatus for actuating the brakes on railway carriages, and invented by these gentlemen so far back as the year 1852, are mechanical and well arranged, and goes far to meet the purposes for actuating brakes on continuous carriages. The difficulty, however, had yet to be overcome, and that difficulty, I trust, I shall be able to satisfy you is now at an end.

The inertia of matter is that when it is at *rest*, and it is also called inertia when it (matter) is in motion. The force applied to matter to give or aid its motion is called *momentum*, and the force which is applied to matter to give it rest is called *friction*.

These laws, how well understood in theory, how much they have been departed from in practice. "The first false step leads to many a woeful sin."

When railways were first established, the weight of an engine was fairly commensurate with its power and strength; now-a-days they can't make them too heavy, because engineers have lost sight of the laws of matter—they seek to do that by *brute* force which more properly belongs to nature. Heretofore the carriages of a railway train were linked or coupled slack to each other, and the force applied by the engine in front gave momentum to the contiguous carriage, the weight of which, added to the engine, soon communicated it to the one next in order, and so on to the remainder, and in this way was the greatest amount of speed attained. Neglecting the order of matter, engineers screw up their carriages one to the other as tort as it is possible to do so. And what is the reason given for so doing? That when the brakes on the heavy brake-van swinging on behind are put on, that the force, so applied, be forthwith communicated to the carriages not so braked, and thus, as far as possible, get rid of dunting—that is, one rolling carriage knocking up against that which is braked.

To say nothing of the expenditure of building engines of twice the weight that is necessary, the injury to the road by the greater weight, or the cost of haulage of material (heavy brake-vans included), the practice of screwing up the carriages tort to the buffers is attendant with very great danger, particularly when passing at a high speed round curves.

The *modus operandi* of the present day for stopping trains in motion is by means of an enormously weighted brake-van at the rere of a train, and by means also of the tender in front similarly provided with brake power: the intervening carriages are left without any brake power. On some few lines of railway some two or three carriages are in connexion with the brake van provided with brakes, and by means of Messrs. Newall and Fay's apparatus these last-mentioned carriages are actuated. That engineers admit the principles as laid down in Colonel Yolland's report to be sound and reasonable, is proven by their partial adoption of these continuous brake apparatus, is true: that they have not carried these principles out in their entirety, is a proof that they have not given their attention and skill to the subject.

The *force* to be applied to bring a train to rest is *friction*, but our engineers of the present day misapply this force, the consequences of which are often attendant with fatal results. A heavy brake-van at the rere of a train in motion, if too suddenly checked at a time when the engine in front is under steam, causes a *disjunction* of the train, or if at a time when passing over curves, the centre carriages will leave the rails; but what is of habitual malpractice is the wheels of the brake-van being continually *skidded*—that is, stopped from rolling—and dragged along the line for a distance of from 600 to 1,000 yards, becomes super-heated on their parts next to the rails; an expansion of the tire and a breaking of the wheel results, so that, that law which has its uses, if properly applied to all the wheels of a train, permitting them to revolve, at the same time pressing upon the peripheries with a light and soft material—as wood—is, by its abuse, rendered most objectionable, and attendant with danger.

The brake block as applied now so generally, I might say universally, to the wheels of railway break vans and tenders, is an instance of how the "many will follow a crowd," and it is therefore with the greatest diffidence that I raise my voice against this adaption for breaking the wheels of railway carriages. It, however, appears to me that the brake-block as it is at present applied to the wheel is most objectionable, and that, in consequence, its application is necessarily limited. You are aware that in its most improved arrangement or fixing on, it slides upon a rod stretching from axle-box to axle-box, and is made to approach the wheel in motion at or about its centre.

If the wheel was motionless at a time the brake block was pressed against its periphery, I could easily comprehend there could be no better arrangement for locking it; but when the wheel to be stopped or impeded in its revolution must necessarily be taken as in motion, then it is quite another matter.

Immediately upon the moment of contact of the block with the wheel the resistance offered by the wheel, to be thus trammelled, is immense; the friction affords no assistance, but on the contrary gives great resistance, and an amount of mechanical arrangement, manual labour, and waste of time is expended before any sensible effect is produced.

Have you not experienced that if the chisel with which you are about to operate upon a revolving piece of any substance was not pressed against the work it would not be effective? and you may possibly also know that if by any oversight you allowed the chisel to touch the revolving substance below its centre, that the chisel was drawn from you, and in all probability to jerk out of your hands. Now you will observe that in the model of my brake I make it approach the wheel at a point considerably below the centre. Thus do I make friction available to my purpose. Instead of meeting with resistance, I am assisted—instead of being rejected, I am accepted.

I have friction absolutely at my control to give any amount of pressure upon the wheel, to take it off or let it on just as I desire.

You will observe that I move round the wheel upon a point outside or eccentric to the centre, the wheel moves on, and this arrangement of mechanism secures to me the improvement I require. So does it also hold the wheel virtually on both sides at the one instant.

I will now conclude, simply observing, that as I have followed nature's law, so am I indebted to her for the ease, grace, and curity with which I travel over the earth, incline or curved line offering no impediment. There cannot in the least degree be *dunting* or knocking you about in carriages ; collisions with other trains is not to occur, and that odious practice of skidding wheels and loosening of tires is gone for ever.

The control of the engine, as well as that of the brake on every wheel of the train, is with the conductor in front.

The connexions may be formed in a moment, and the variety of rolling stock by the interchange of carriages of other lines in no way impedes their proper action.[*]

EXPLANATION OF THE ILLUSTRATION.

Fig. 1 is an elevation, showing the brake on each side of the wheel, and according to the direction the train is going, by the rotating of the brake-rod, is drawn to either side ; the centre on which the brake moves being eccentric to that of the wheel, the toe of the brake comes rapidly in contact with the wheel, the revolution of which assists the brake to go on. In ordinary use the toe of the brake never comes in contact with the rail.

Figs. 2 and 3 show elevation and section of the brake-rod, which is carried longitudinally underneath the carriage body, and upon which being rotated the screw traverses a transverse rod, which, in connexion with the guide rods attached to the brakes, actuate them.

Figs. 4 and 5 are elevation and section of a tubular rod for connecting the brake-rod of one carriage with the one contiguous. It is rectangular, with its aperture at each end, and which rectangle apertures are at right angles with each other, by which vertical and lateral play is afforded to the carriages, as well as that it gives ease when rotating the brake-handle, which may be any where on the train.

MR. S. SMIRKE'S LECTURES AT ROYAL ACADEMY.

FROM a series of lectures recently delivered by this eminent architect and scholar, at the Royal Academy, we quote the following:—

Fashion.—The leaders of the *ton* in the fourteenth century bethought them to prolong the toe of their shoes to an inordinate length. The servile crowd of imitators followed ; the passion grew with the growth of this superfluous appendage, till we find that by the middle of that century the toes of any well-dressed gentleman were tied up to his waistband. Again, some unsightly excrescence is supposed to have suggested to the coiffeur of Louis XIV. a structure of artificial locks, and not many years had elapsed after its adoption before the heads and shoulders of all Christendom were oppressed by the superabundant load of adscititious hair.

Judgment in arranging Colours.—In the distribution of coloured materials regard should be had to the retiring and advancing qualities of colour. Thus white, and bright yellows, and bright reds, appear to stand forward, whilst black, blue, and greys retire. Care should be taken not to outrage those prejudices of the eye ; for example, when dark and retiring colours prevail at the lower parts of an architectural composition, and the upper parts are of bright-coloured materials, the latter will inevitably appear to advance and overhang the former, producing a false effect that cannot be agreeable.

Whitehalls innumerable.—Our ancestors correctly appreciated the cheerful character of white by frequently designating halls erected for festive purposes Whitehalls. The hall at Kenilworth Castle was called the " whitehall." There was a " whitehall" in the Old Palace of Westminster ; and the Whitehall of Charles's intended palace is familiar to us all. There is also a " whitehall" in the Royal Palace at Berlin. Even our cousins across the Atlantic have taken over with them the tradition, and they have their " whitehalls" for festive and popular gatherings. It is a fact, and not without interest to any true-born Londoner, that the lofty building called the White Tower, in the mediæval citadel of this port of London, seems likely to owe its name to having been whitewashed externally. In a very fine illuminated manuscript of the fifteenth century, preserved in the British Museum, a carefully executed view of London is introduced, in the foreground of which appears this great fortress, and while the general masonry of the building is coloured naturally, and in a somewhat low tone, the tower, with its four angle turrets, stands out prominently and conspicuously white. So marked is the distinction that it cannot have been so represented in the manuscript without a special purpose, which was probably that of identifying the building.

The Poet and the Architect—I am very sensible that there is a vast, an almost incalculable, difference between the works of the poet and of the architect. The one has but his imagination to draw upon, whilst the other has to seek the materials of his work from a very different source, and too bold a draft upon his imagination would be the likeliest means of bringing his career to an untimely end. Still there is an analogy ; remote it may be, but real and, I think, manifest. I have said that I regard it as a principle of our art, in the treatment of colour in exterior architecture, that the colouring shall be consistent in character with the purpose of the building itself, and I have adduced various notable instances of the adaptation of colour to the nature of the building. The subject is, indeed, fruitful. I might easily adduce abundant proof to show that, as bright colouring has ever been regarded as productive of a gay and cheerful effect, so dark and sombre hues are equally effective in raising feelings in harmony with the grave and serious purposes of some buildings.

Decoration of Churches.—Even in the interior of a church it is, to my mind at least, open to question whether a true religious feeling is not better expressed by the grey, sombre tints of old stonework than by the gorgeous pageants of gilding and painting, inlaying and polishing, by which piety is supposed by some to be measured. Beautiful as are the St. Chapelle and the Church of St. Genevieve, at Paris, and the Hof Kapelle, at Munich, it is impossible not to regard them rather as æsthetic triumphs, than as evidences of the devotion of the builders It is very long since I saw the church of Sta. Maria Maggiora, at Rome, prepared for the midnight ceremonies of Christmas Eve ; but I have a vivid recollection of the enchanting effect of the bright polished marblesand the gorgeous gilding, the crimson satin embroidered banners, and the green festoons ; yet the impression produced on my mind was that I saw before me the most elaborately beautiful *salle a danser* in the world.

Expressiveness in Architectural Composition.—All objects that enter into the composition of a piece of architecture have some particular character which seems especially to belong to them, and which it behoves us to pursue. However, we may vary the treatment of them ; however much we may overlay them with ornament, we should be careful to do nothing calculated either to desguise or conceal their special character. Their motive and rational principle should be apparent and unimpeached ; and honesty and good taste alike demand that in the treatment of their details we should seek rather to display their purpose than to conceal it. Thus a column is a vertical support, and in designing a column its fitness as such should never for a moment be forgotten. Yet there is nothing, perhaps, which exhibits the waywardness of art more than a column. Its purpose is simple and obvious ; its duty is as apparent as it is possible for any architectural feature to be ; and yet it would seem that architectural ingenuity has been racked and tormented to devise modes of departure from that simple type which its mechanical duty seems to render so obvious. The Hindoo builder rests his weights upon fanciful and extraordinary compositions of animal and vegetable life. A similar barbarity was prevalent in Italy in the early mediæval period, when we see the shafts of columns poised most inconveniently upon the backs of monstrous animals.

Responsibilities of Great Masters.—The spiral flutes and beads suggested the twisting of whole shafts which are to be often found in early mediæval work, until at length the shaft altogether lost its character of a vertical support, and we find them coupled and intertwined and knotted, after a fashion more like ropes than cylindrical shafts of stone and marble. Raffaelle. in designing his immortal fresco of the beautiful porch of the Temple, incurred a grave responsibility in setting that example of spirally twisted shafts, to be too readily followed by those who knew not how to distinguish between the requirements of the painter and those of the architect. Had the composition been scored and cut up by the vertical lines of a number of ordinary columns, the effect would necessarily have been unseemly, and the painter was, therefore, tempted to give to them undulating forms which associated well enough with the accompanying figures. But it is worthy of note that this great master, when he worked as an architect, committed no such mistake as to give such substantial forms to real stonework. On the contrary, the few buildings with which he enriched our art are remarkable, even at that early period, for purity of form and propriety of design. M. Angelo by the caprices which he permitted himself to indulge in when he designed the tomb of the Medici, was little aware that he was paving the way to that monstrous progeny of broken pediments and other violations of propriety which often defaced the architecture of later schools. So his matchless contemporary, Raffaelle, by having traced on the walls of the Vatican those graceful contortions, so pleasing to the painter's eye, but so little adapted to execution in real stone and marble, may, perhaps, be regarded as the real parent of those fantastic masses of bronze and stone which are scarcely censured in the Baldachino of St. Peter's, the porch of All Saints' Church, at Oxford, and in a hundred other less distinguished localities.

Columnar Architecture.—At Liege we have it whimsically assuming the likeness of a gigantic baluster, an idea to which the quatro-centists of Italy had been also led by the loose rein which they were wont to give to their masonic fancies. At the Pavian Certosa we shall sometimes find their shafts divided into two distinct parts ; the lower part straight and normal ; the upper part degenerating into shapes fitted rather for confectionery than masonry.

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[*] The inventor had the honour subsequently of submitting the model to His Excellency and Major-General Larcom, who are stated to have expressed their approval of its ingenious features.

Ivory, an architect of some merit, and greatly employed in the north of Italy during the seventeenth century, exaggerating the faults of the quatro-centists, devised columns of which the upper part is twisted, like those of his predecessors, whilst the lower part is bulged out into the resemblance of a baluster. Perhaps one of the most attractive variations is that where the shaft is enriched by superficial foliage, some ivy or vine seeming to clasp the pillar, and to twine its tendrils round the ponderous cylinder. Many such cases occur in the buildings of the quatro-cento period, and there is no denying their beauty, though we may question their architectural propriety. During the mediæval period those sculpturesque shafts may often be met with at Melrose Abbey, but in greater beauty and variety in Italy. These varieties may all, perhaps, be regarded as the natural offspring of the beautiful stems of candelabra which abound in Classic art, and where the most exquisite delicacy of foliage was often indulged in without restraint, and of course without violation of any architectural propriety. To the period of Renascent art, that period so original and so fertile (at least in its earlier phases) in quaint and picturesque devices, we may attribute the introduction of another curious irregularity in columnar architecture, namely, the building up of shafts in what are called rusticated blocks, sometimes alternately cylindrical and square, sometimes vermiculated, sometimes roughly hewn as from the quarry, sometimes in alternate bands elaborately carved in an endless variety of ways. Before quitting the subject of columns it is incumbent on me to take this occasion to express my unqualified condemnation of the practice, however common, of converting a single insulated column into a monument. Neither the undoubted Classical origin of this form of monument, nor the graceful proportions of the column itself, can be regarded as any justification of this manifest misapplication and perversion of a great architectural feature. Even our silversmiths have ceased to make Corinthian candlesticks, although the solecism still lingers among some competitive candidates for monumental street architecture. By how much we may admire the true adaptation of a column, in form and proportion, to its purpose of supporting a vertical pressure, by so much are we bound to condemn it when we find it standing idle and useless, or with no duty but that of lifting up to a dangerous eminence, and beyond the reach of distinct vision, some vase or other insignificant object, or some statue of a bulk and weight utterly disproportioned to the shaft of so colossal a pedestal. The very form of the capital at once betrays the impropriety of this application of a column. Whatever the style of art, whether Egyptian, Greek, Roman, Byzantine, or Gothic, the capital invariably spreads itself out to receive a burden pressing on it perpendicularly; the abacus in some shape is expressly adapted for the reception of that burden, and when the burden is not there, the abacus becomes unmeaning and superfluous.

AN ARCHITECT'S AUDIENCE.

A PAPER under the above title was read by Mr. Druce at the meeting of the Architectural Association of London, on the 15th ult., and from which we quote the following:—

"Our building is designed, the foundation is laid, and from that day it has an audience. Whom does it begin to attract as it slowly rises from the ground? Who stops to gaze—do any, and, if so, how does it affect them? Do they stop long and wonder what building it is? Do they take an interest in it? Do they pass again and again? Do they purposely come by that way to see how it is getting on, and, as it grows higher day by day, does it seem to give greater or less pleasure? Does it please those who look at it the more complete it gets? or does it seem to disappoint? Do those who looked at it at first no longer look at it? do they seem to say, 'I thought from the first few courses that it would be fine, but it is not so; now we see the meaning and finish of the design—it is spoiled'? Or does every one that has watched it throughout its growth, seeing it improve every day, seem impatient to have every scaffold-board and pole removed, and every hoarding down that obstructs the view, knowing that in that building, as in every perfect design, they, although pleased with every step, and the more pleased the higher it got, have not yet seen the building in its full mature perfection? No! not till the crowning finial is in its place—no! not till the very iron cross or gilded vane surmounts that finial and glitters in the sunlight. And when at last it is finished, and when the interlacing screen of the scaffolding, that so long tantalised and yet enticed the gazers, is gone, and the towers and roofs and windows come out clear to view—when the hoarding is down and the base and lower limbs, as it were, of the building, whereon the appearance of its stability depends, are exhibited, and the building, for the first time in its existence, seems to stand firm, clear, and independent, like a ship just launched into the sea, and for the first time freed from the restraining timbers—then, who cares for it?—what do the papers say?—what the public generally? What is said in the drawing-room?—what said in the club?—what in the architectural societies?—what in the offices? And after this, when foreigners come to England; when countrymen come to town; when students from the colleges visit the place; when antiquarians, the learned, the curious, are in search of objects for study and admiration, do they visit it?—do they write of it? And the poet, the seer, the man gifted with special powers of impression and expression, when he comes wandering by, spending hours in its cloisters or beneath its shade, does he sing of it? does it give him the frame whereupon to weave his more magical, more ethereal, but not necessarily more sublime creations? And in those after-times, when the artist and the poet visit its crumbling walls, is it worth painting? —is it worth recording? When architects visit it, is it worth sketching? is it worth measuring? is it, in whole or part, worth repeating?"

Referring to the various employers with whom an architect comes in contact, the author read:—

"I repeat these three classes of our audience, to show that the taste of the educated classes has had much to do with the simultaneous practice of the several styles, out of which stage, I think, we are passing. I think that for some time, if not always, we shall have to consider the requirements and tastes of these three classes of employers, and critics in broad principles, if not in a continuance of the details and easily recognised features of those separate styles, even although we arrive, as we evidently are tending to two styles which may merge in one—of a free round arched style and a free pointed style. The three marked characteristics of the Classical, Italian or Renaissance, and Gothic will long be looked for by their respective votaries—being the results of education, suitability to their respective habits of living and thought, as well as their architectural taste.

"These are some of the heads or main divisions of our audience, and until quite of late years they were the only classes that were capable of judging or of enjoying what was put before them, as much of the enjoyment of the buildings lay in the knowledge of their correctness. But I am thankful to say that our audience is extending day by day; and what do I mean by that? Do I mean that so many more people are educated by the numberless photographs, and the less cost of architectural books and plates? There is much in that; but what I do mean is this—that the masses of the people, whether educated or uneducated, have always been, and will always be, fonder of sculpture and painting than of architecture that depends as much as it can upon itself alone, and that it is only quite lately that architects, occupied by their surveying, their necessary business, and their measured proportions, or copied mouldings, have only just begun to be anything like as fond of it as the general public itself. You will now get an audience wherever the chisel rings—wherever you work bas-reliefs and interesting stories on your walls. Where such carvings as there are at the Oxford Museum, or at one or two churches now building, every one will visit you; where there is painting like that at All Saints, all will be attractive.

"You may please the classic student, if you will, with grandeur of proportion and severity of effect; the lover of mediæval architecture by solemnity; the lover of Renaissance by richness and luxuriousness; the man of business by careful and business-like arrangement of plan, and fittings, and boldness, and massiveness of style; the artist and poet by picturesqueness and poet thought; the workman by good work and skill: but depend upon it, in whatever style you work you cannot fail to win all these, and add to them the uneducated and the poor. If you find room in your capitals and your walls for rich and varied sculpture of sacred subjects and lives of great men, framed by the leaves of the wood and the flowers of the field, thus and thus only can we make the most sensitive among our audience—the poet—sing in far-off future of our works:—

"'Everywhere I see around me
The wondrous world of art,
Fountains wrought with richest sculpture,
Standing in the common mart;
And above cathedral doorways
Saints and bishops carved in stone,
By a former age commissioned
As apostles to our own.'"

An exhibition of works of the Society of Female Artists is now open at the Gallery, Pall Mall, and amongst the contributors are the well-known Madlle. Rosa Bonheur, Miss Raynor, Mrs. Burr, &c.

M. Hugoulin, an apothecary in the Imperial Navy, has discovered a mode of preserving impressions of footmarks or otherwise made in sand, &c. A thin iron plate, with lighted charcoal thereon, is placed over the impression; then an application of finely divided stearic acid, rendering compact the loose atoms, and subsequently of plaster of Paris, effects the preservation both of the original and supplies any number of moulds therefrom.

THE TOWNSHIP OF RATHMINES.

THE Commissioners for this important suburban district became incorporated in 1847, since which year, thanks to their enterprising spirit, the township has been rapidly improving, and is now the most important adjunct to the south wing of the metropolis. The roads are half as long again as they were at the above-named date; new avenues, squares, &c., have been formed, and are maintained in an excellent state of repair by a special body of men under the direction of the Commissioners' surveyor, Mr. Henry Johnston, C.E Again, other roads are projected, and two are at present in course of construction—one forming a connection between Ranelagh and Leeson Park, and the other through Lord Palmerston's grounds leading from a well-selected spot in Upper Rathmines to the new station lately erected on the Dublin and Wicklow Railway near Milltown. This latter is beautifully situated, commanding southern aspect and some fine mountain views, and will undoubtedly present most desirable sites for detached villas—a class of house very much needed in the township. We learn that overtures have been already made for several lots thereon, and doubt not that the project when matured will both prove a valuable acquisition to the township and amply recompense the railway company for their liberality in providing so great a public convenience as a station at the point in question. The wall enclosing a part of Lord Palmerston's property in Upper Rathmines from the roadway leading to the Dodder has been taken down and rebuilt, affording an additional width to the latter of about 20 feet, which previous thereto was, from its narrowness, most inconvenient both to equestrians and pedestrians. About 5 acres of his lordship's property has been taken by Thomas Drury, Esq., J.P., on which he is now erecting four handsome and costly detached villas. On the adjoining cricket ground Mr. Fawcett, now the possessor, is about to commence a large mansion. Amongst the others engaged in building in the township are Messrs. Davis, Chambers, Elvery, Roberts, &c., in Kenilworth-square; Messrs. Tiernan, Dunnill, and Draper, at Grosvenor-road; and Messrs. Collis, Gilbert, Johnston, Roberts, &c., at Leeson Park. A large extent of new and suitable sewers has been constructed, which effectually contribute to the sanitary welfare of the township, and moreover prevent the possibility of a recurrence of the former much-complained-of "under water annoyances" after autumnal rains. In 1847 there were but three houses for public worship, now there are *nine!* including the Molyneux (illustrated in this journal[*]) and the Roman Catholic Church on Rathmines road. Outside the Commissioners' boundary, at Rathgar, two handsome buildings for the Church of England and Presbyterian congregations respectively are in progress, and a Baptist Church is likewise in course of completion at Grosvenor-road, and a Roman Catholic do. on Rathgar-road, within the township. Nearly all available building ground has been taken. About seventy houses, some of fair architectural pretensions, were erected during the past year, and yet the demand for good dwellings exceeds the supply, and rents are on the increase.

Perhaps the only historic association connected with the town of Rathmines is a great battle, said to have taken place in August, 1649, between the Royalist army and the Parliamentarian forces, wherein the former, to the number of 11,000, under the Marquis of Ormonde were completely routed. Ludlow describes it as in his time encompassed with a wall 16 feet high, enclosing *ten* acres! but we are not aware that a single trace of this wall remains extant. The value of the property is increasing considerably and proportionately with the extent of the population from year to year.

The "water question" is just at present occupying much of the attention of the inhabitants and the Commissioners, the latter including several gentlemen of eminently practical minds; but we must postpone any reference to "the merits of the case" till a future occasion.

A FREE PUBLIC LIBRARY FOR DUBLIN.

A CITIZEN urges on the consideration of the Lord Mayor the propriety of adopting the necessary steps for securing the above most desirable object, submitting as a model that established in Manchester, and comprising a reference library of 30,000 volumes, four lending branch libraries, containing upwards of 22,000 vols., with public newsroom in addition to each; the library rate being limited to 1d. in the pound on the assessable property in the borough, producing £4,000. This institution is not open on *Sundays*, which would seem to cause much of its intended benefits for the working classes to be lost. In the town of Salford, which is as much part and parcel of Manchester as Rathmines is of Dublin, there is also a large free library, in connection with the Peel Park, forming a delightful sojourn for the public; so if the poorer inhabitants of Manchester, with such facilities as these, be not an educated class, who should?

INAUGURAL MEETING OF THE INSTITUTE OF CIVIL ENGINEERS IN IRELAND.

THE first general meeting of this body since its affiliation with the University was held on the evening of the 19th inst., in the New Museum building. Sir Richard Griffith, Bart., occupied the chair, and delivered an able and lengthy inaugural address, reviewing many matters of great professional interest, but chiefly referring to railway progress. He described the circumstances under which some of the principal lines were constructed, the great success which had generally attended such undertakings in this country, advocating the county or district guarantee system for assisting in the making of future branch and connecting lines, and spoke favourably of the tramways, which he stated would be highly useful if properly carried out in the places suited for them. In conclusion he referred to the fact that he had been upwards of fifty years performing public duties, and many years connected with important boards and commissions.

After the usual courteous ceremony the meeting separated at an early hour.

PROFESSOR DONALDSON AMONGST THE PYRAMIDS AND CATACOMBS.

THIS veteran architect, and one of the "fathers of *our* bar," has just returned after a tour of business and pleasure combined amongst the relics of ancient Egypt, and even in this the evening of his life he pursued—availing himself of a short leisure period—the investigation with the characteristic indefatigability and acumen of his palmier days. In a highly-interesting paper, read before the Royal Institute of British Architects, on the 18th ult., he referred to M. Marriette's excavations at Ghizeh and Saccara, the pyramids, the tomb near the great Sphinx, the serapeion of Memphis, Arab architecture, the catacombs at Alexandria, Pompey's pillar, &c., &c. A vote of thanks was accorded unanimously by the institute.

AN INDEPENDENT COMPANY (?).

MR. WM. HAUGHTON, the newly-elected chairman of the Great Southern and Western Railway Company, in the course of his able *resume* of progress and general affairs, when presiding at a recent general meeting of the shareholders, characterised "an independent company" as one *not* with plenty of cash in pocket, but more generally a company *independent* of cash, remarking that, "a few gentlemen meet together; subscribe a small amount of capital; call in an *engineer*, a *solicitor*, and a *contractor* to their aid, and *c'est tout fini*. The engineer takes a certain amount of shares, so does the solicitor, and the contractor is expected to take a large number of shares. He signs the parliamentary contract: it is understood that he is to get the contract for the work, and he is to be paid a schedule of prices precisely in proportion to the risk he incurs in taking the stock—viz., whether it is likely to be saleable in the market or not. They get an act of parliament; they scramble through difficulties for a few years, and ultimately the railway is opened in a very incomplete state with regard to public accommodation. And further claiming to be entitled to state a broad fact—namely, that not one of these railways made by *independent* companies has up to the present time paid even a moderate amount of dividend to its proprietors." On this principle there are many speculative insurance *schemes* projected, with this distinction, however, that "*the faculty*" is an indispensable ingredient in their constitution.

PAN-ORAMA AND *DIO*-RAMA.

A CORRESPONDENT asks us to oblige by a definition of the above terms.

The former is a picture exhibiting a succession of objects upon a spherical or cylindrical surface—the rays of light being supposed to pass from all points of external objects through the surface to the eye in the centre of the sphere or axis of the cylinder, and was invented by an English artist named Robert Barker, A.D. 1794; the latter a scenic exhibition on a flat surface, viewed through a proscenium, and light powerfully concentrated thereon, but capable of diminution at pleasure, while the spectators are left in comparative darkness. The diorama, by varied and ingenious contrivances, is capable of displaying the greatest difference in its pictures, and is especially adapted to the display of architectural interiors, moonlight scenes, sudden gleams of sunshine, &c., and was invented some few years since by two French artists, Daguerre and Bouton.

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[*] See No. 16, Vol. ii.

WATER FOR THE *POOR* AND *RICH* MAN.

ONE of the best evidences that can be adduced in favour of a new bill for improved water supply to Dublin, financially regarding the question, is, that under the present *regime* a determined opponent to the new Corporate measure (submitted to Parliament for its sanction, and passed the second reading), occupying a mansion in Merrion-square, and holding a judicial appointment worth nearly £3,000 a-year, pays for water rate *two pence halfpenny* in the pound, and an inhabitant of Lombard-street *three shillings and sixpence* in the pound. There is surely something "very rotten" here!

ARCHITECTS' PECUNIARY RIGHTS.

A CORRESPONDENT in Belfast desires to be informed on the following question:—"An architect prepares plans and specification, which are approved of, and he is directed to procure tenders according to same. This being done, the client determines on carrying out the work in *two* portions, necessitating the preparation of new drawings and specifications, according to which tenders are *again* sought and received, and the work superintended to completion. *Query*—Is the architect entitled to charge for the drawing and specification in the *first* instance, he having been engaged in the *second* instance; and if so, what amount?"

Answer.—The fees to which an architect is entitled are 2½ per cent. for drawings and specification *only*, and if required to superintend, to an additional 2½ per cent.—total, 5 per cent on the *actual* value of the work provided for by the drawings, &c. Moreover it is customary when the tenders are received and the contractor declared, for the architect to draw his commission of 2½ per cent. for same, closing the transaction so far. In the case before us that point of right was reached when the *first* tenders were received, and consequently the architect is entitled to charge his 2½ per cent. thereon, independent of subsequent claims. For the second set of drawings, &c., if prepared *de novo* to suit client's wishes, and not from any misapprehension on his own part as to the expenditure intended to be incurred, the architect is also entitled to a second 2½ per cent. commission in addition to that for superintendence, which should be calculated on the *actual* expenditure according to same.

Of course, the above statement as to rights refers to the recognized *custom*, and is not presumed to offer a *legal* solution.

ARSENICAL PIGMENTS IN THE USEFUL ARTS.

THOUGH very much has been urged of late in the way of caution to the public against the adoption or use of such materials in the decorative arts as contain arsenical pigments, nevertheless, in the matter of "paper hangings," numbers refuse to be warned, but yielding to a gratification of vanity, because the colours so produced are gay and striking, they hesitate not to introduce into their dwellings deadly poisonous elements, which sooner or later, as incontrovertibly proved, act most detrimentally, if not fatally, on the system. Though we can expect but little of novelty of argument to be now infused even by the most scientific experimentalist into "the principle" of the objection, nevertheless the subject cannot be too often or too earnestly urged for public consideration, and with that view we refer to the excellently practical exposition of deleterious effects and their causes in an elaborate paper read by Professor Davy, the eminent chemist, at the late scientific meeting of the Royal Dublin Society. The Professor referred particularly to the beautiful pigment known as Scheele's green, and also to the colour of a higher tint, known as emerald green, both of which were of arsenical character. It is well known to medical men that the deleterious effects of these salts of arsenic were felt not only by the artizans employed in the manufacture of the room-paper, &c., in which they were used, but also by those who habitually occupied apartments hung with these papers. Doctor Apjohn, the distinguished chemical professor, had been one of the first who had called public attention to this subject. Doctor Healy, residing in England, wrote a letter thereon, stating that he himself had experienced a variety of painful symptoms from sitting in a room hung with green paper, coloured with arsenical pigment. He lost the use of his left side, and, when under medical care, removed to a room with another paper. He speedily recovered his strength, but on returning again to his study, where the green paper was on the walls, all his bad symptoms returned. He caused the paper to be tested, and it was found to contain arsenic in large proportion. He had the paper removed, and his health became restored. Dr. Taylor and Dr. Hynd had also commented on the subject. The professor cited several other cases wherein parties had suffered well-marked symptoms of arsenical poisoning by occupying rooms hung with paper of this kind.

A COLUMN FOR CRAFTSMEN.

HEREWITH we commence a series of articles embodying considerations on the pursuits of the numerous trades identified with the building profession, and which, though necessarily in a comparatively limited compass, is presented under increased trouble and expense, in grateful acknowledgment of the excellent support accorded, by the artizans of Ireland especially, to this national organ, THE DUBLIN BUILDER, since its first establishment, and with the sincere trust that it may conduce, even in a degree, to their combined instruction and enjoyment.

NO. I.—CARPENTRY.

Comparatively little of the actual history of the "carpentry art" has been transmitted to us by the ancients, yet allusions being made thereto even in Holy Writ, when in its rudest state, and subsequently in the works of Pliny and Vitruvius to "the selection and felling of timber," its employment by the Greeks and Romans, as well as those considerations which common sense will supply as to the wants of all the inhabitants of the earth at those and every period, no question can be raised as to its antiquity. Moreover, the members of the fraternity may, without the least disparagement to their brethren the masons, stonecarvers and cutters, bricklayers, &c.—to all of whom we shall, in future articles, endeavour to do every justice—claim some precedence for the versatility of handicraft assumed to be possessed by every skilled workman. The word CARPENTER is peculiarly comprehensive in its signification, and embraces under that title—derived from the French *charpentier* (*charpente*, timber), or more probably from the Latin *carpentarius*, an artificer in timber—more meaning than is ordinarily understood by the public. It may, however, be reduced to three heads—the *constructive*, the *descriptive* (a term applied by the celebrated Monze) and *joinery*; the first having reference chiefly to such portions of a structure as possess roughly the element of stability; the next, the application of geometrical principles to the fashioning of forms; and the last, the more ornamental and accurate portions, requiring great delicacy of manipulation, such as mouldings, mortising, tenoning, rebating, &c. Independent of these, there are numerous subservient departments, in which, as an accessory to the other trades, the skill of the carpenter is called into extensive requisition. In this or any other branch the craftsman of to-day, unlike his predecessors of some centuries since, has no excuse for not being pre-eminently a master in every detail—the best substantial precedents being, practically and theoretically, afforded him, within reach of his humble means, and from his earliest boyhood elementary instruction placed at his command, through Governmental sources, if he will avail himself of it. Nevertheless it must be conceded, that "progress" has not been compatible with the facilities presented, and that in workmanship—excepting so far as relates to economy of material—there is comparatively little distinction between the ancient and the modern artizan, and even in that regard the advantage is, and has been, too often perverted by those who indulge in false notions and overshoot the mark. The employment of iron in modern structures has caused a serious innovation on the carpenter's rights as established by usage; but though we live in a progressive age, when one spurred by emulation will surely endeavour to tread on the heels of him who leisurely precedes him, the carpenter nevertheless will—as he always did, since time immemorial—maintain intact, to a certain extent, his privileges; moreover, he can pride himself on being an indispensable requisite and auxiliary, now and for evermore, to his brethren, and that come what will in the shape of mechanical appliances, his craft will always *command* universal regard. It may not, perhaps, be out of place here to remark that in this craft especially "the Irish" maintain amongst their brethren of the United Kingdom a most prominent position for dexterity and skill; nor would it indeed partake of exaggeration to state, that their competency is universally acknowledged and appreciated.

The earliest proof afforded that the application of carpentry to the formation of human habitations contributed to the advancement of architecture is to be found in the primitive hut, whose upright, rude, and cumbrous posts unquestionably suggested the column, so classically fashioned subsequently, and whose horizontal and transeverse projecting beams are *said* to have originated the metopes and triglyphs of the chaste Grecian Doric order. Who but those who read and choose to understand illustrated facts would feel disposed to admit the possibility of such a simple "cause" producing so material an "effect" on the future of a glorious art.

(To be continued.)

AIR, SUNSHINE, AND FLOWERS.

Apropos to the movement at present on foot for the persuasion of the Royal Dublin Society to open for public recreation on Sundays the Botanic Gardens at Glasnevin, the committee have appealed by circular, partly under the above title and in the following terms:—

> "When the poor artizan has paid for the bare necessaries of existence out of the wages earned by incessant toil during six days, what has he left for rail or car hire to take him, his wife, and family out into the country to breathe the pure air, and enjoy themselves on the day granted them by kind Providence as a day of rest? How often may his little one appeal to him to gratify her longing for flowers and birds, and meet with the reply: 'These things are for the rich, not for the poor!' The child of the artizan is thus left to the gloom of a miserable apartment, or to run riot through lanes and alleys, demoralized and demoralizing. And why is this? Simply because the child has had the misfortune of being born in Dublin! In all parts of Continental Europe the public gardens, parks, squares, and pleasure grounds being freely thrown open, the poor man can go there with his family on the Sunday, and for a time forget his and their poverty, as they participate with the highest in the land in soul-elevating enjoyment and healthful recreation. Are *our* artizans, *our* tradesmen, *our* people so inferior to the English, or French, or Germans, that they are to be shut out from a Botanic Garden, maintained at Glasnevin out of the public taxes?"

STAINED GLASS.

The ancient Egyptians are said to have made and coloured small ornaments of glass, but it does not seem to have been much used by any of the ancients, though small pieces are found in Roman mosaics, and some larger plates have been discovered at Herculaneum, which are supposed by some to have been used as window glass. Stained glass for windows was probably in use as early as the ninth century, but no example exists in England of earlier date than the twelfth century, to which period belong the remains at Canterbury. These consist of panels of various forms containing subjects on a deep blue or ruby ground, the spaces between being filled up with mosaic patterns in which ruby and blue are the prevailing colours, the whole being surrounded with a border of foliage and scroll work. During the early English period the glazing consists of panels, circles, quatrefoils, and other forms, including that of the vesica piscis, and these contain subjects; the intermediate spaces are filled with coloured mosaic patterns, and the whole contained in a border of leaves and scroll work. Sometimes the entire space within the border is filled with scrolls and foliage, on a deep blue or ruby ground, the scrolls, &c., being either of coloured glass or only in black outline in plain glass; in the latter case panels formed by strips of coloured glass are sometimes inserted.

Quarry glazing, in which the windows are formed by lozenge-shaped pieces of glass with a small pattern in each, is first used in this style. In the decorated style quarry glazing becomes of frequent use, and the panel system loses ground; where panels occur, the ground is covered with patterns of foliage of a more flowing and natural character than in the preceding style; the vine and ivy leaves are favourites. Sometimes the entire window is filled with such foliage, which is often only in outline, and frequently only some portions of the pattern are stained yellow. Quarries contain small patterns of leaves, rosettes, &c., sometimes in plain outline, but frequently coloured yellow, in foliage patterns, in which the vine and ivy leaves predominate, the stalks of the leaves are often so arranged as to form one continuous flowing pattern throughout the window, and at other times one edge of each quarry had a coloured stripe, so that when put together they each appeared surrounded with a coloured border. The entire design is surrounded in most cases with a running border of foliage and flowers. At this period single figures surrounded by canopies begin to appear, at first in small size—two or more being contained in one light—but afterwards they became large, and were disposed one in each light. In the perpendicular period this practice begins to increase; the figures and canopies are of a larger size, more than one being seldom contained in one light; at last whole windows containing several lights were filled with one large grouped subject. Quarries still continued in use, but the devices do not flow one into the other, consisting mostly of rosettes, flowers, fleurs de lis, and heraldic devices, the latter being frequently and generally adopted in this style. Coloured inscriptions on bands or scrolls are frequently seen running diagonally and at regular intervals across windows, from top to bottom. With the decline of Gothic architecture stained windows fell into disuse, and with its revival it is now occupying a great deal of attention, and is executed by several manufacturers with considerable taste and skill.

INGENIOUS INVENTION—NEW FIRE-ESCAPE.

Ingenuity, in whatever channel it may be directed, always commands a certain amount of interest; but when the inventive faculty is brought into requisition in matters of philanthropic tendency, where the alleviation of human suffering or the saving of life is the object, its merits becomes considerably enhanced, and in according space for publicity of such, we always experience a two-fold pleasure. For the third time since the late unfortunate calamity at the Kildare-street Club House, our attention has been specially directed to models of contrivances, professing to supersede those now in vogue to facilitate the escape of inmates from burning buildings. On two of them we have already expressed our opinion, but to the subject of this notice we would urge more than ordinary consideration and appreciation. We may premise that an interesting feature connected with the matter in question is that the inventor is a mere boy, scarcely entered his "teens," and moreover a recent pupil of the Royal Dublin Society, by name William Clayton, residing at No. 40, Waterloo-road. In the absence of a diagram, which limited time prior to publication prevented us from including herewith, the following will be found perhaps sufficiently intelligible to convey a description of its particulars:—

The apparatus is designed somewhat on the telescope principle, being capable of elevation to any ordinary height—say 50 feet, but when closed is only 20 feet, or some 6 feet shorter than the present escapes. It comprehends three separate double ladders, each of different width to the other, the undermost being the widest—3 feet—and forming the framework of the escape, the second slightly narrower, and the third narrower again—so as to slide freely beyond each other, as may be required, according to circumstances. At one end of the framework thus formed, is a pair of ordinary five feet diameter carriage wheels, the axle of which also forms a drum, worked by a windlass, to elevate the ladders, and is the fulcrum on which the whole apparatus depends for raising to a required angle; at the other is a pair of smaller detachable wheels, to facilitate the locomotion in a horizontal position. Connected with the former is a box for spare ropes, windlass handles, &c., and a moveable framework, which thrown back offers perfect facility by a simple leverage action for elevating the ladder or ladders to any required position. Assuming, therefore, that it becomes desirable to supply the escape to a first floor window, the height can be attained by the apparatus in a folded state; or if a *second* or *third* floor are to be reached the simple turning of the windlass—before described as attached to the axle of the carriage wheels, on which revolves a single rope, passing through a pulley—serves to elongate the other ladders with extraordinary rapidity; but they are capable of being checked and held in their course as desired by the combined action of a pall on the drum, and a peculiar form of Z hinges, clasping the framework at the bottom of each length. In the construction of the ladders a much more than ordinary facility is afforded, owing to their width, and the sides are protected with trussed handrail and wire, so that without the brigadesman's assistance ascent or descent is easily accomplished. The divisional or vertical bar presents a travelling rail for the cradle to slide upon, a groove being formed in the back thereof prepared to receive it. The cradle, which is waggon-roofed with fire-proof material, it will be seen instead of—as at present—being placed at the back of the escape moves along the uppermost side of the ladders, and is impelled by a wire rope attached to its end, passing through a pulley at the apex of the escape, and thence to the ground, coiled round the drum, so as relieve the weight in the transmission of the living freight to *terra firma*. It is proposed to make the apparatus of ash and oak, and the inventor assures us that the entire weight would not exceed 600 cwt. As yet this is the most ingenious, effectual, and simple contrivance of its kind submitted to our notice; and in all probability the public will have an opportunity ere long of judging of the apparatus full size.

George A. Boyd, Esq., D.L., and Deputy Chairman of the Midland Great Western Railway, has most liberally placed his gallery of pictures at the temporary disposal of the committee of the exhibition in May next, at the Royal Dublin Society House.

A workman of Paris has just discovered a means of preserving water and gas pipes from rust, by enveloping them in a thick coating of clay. The city of Paris has granted the man a pension for life.

The Birkenhead Commissioners are trying the experiment of lighting the cabins of their river steamers with gas, a quantity of which will be carried on board each steamer daily.

MODERN ROAD CONSTRUCTION.*

As already noticed, the present generation is greatly indebted to the late eminent engineer, Mr. Telford, for the improvements in the construction of roads, but there are very many other names amongst our present professionals which should likewise be honourably associated with this department of the science. Foremost amongst them is that of Sir John M'Neill, who devoted his eminently practical mind and scientific research to this branch, and which have been called into extensive requisition, as regards the roads of Ireland especially, in the course of his professional career. As far back as the year 1836 we find Sir John pursuing experiments to show that the force of traction is in every case in an exact proportion to the strength and hardness of a road, the following being the results on a well-made pavement:—"The power required to draw a waggon is 33 lbs.; on a road made with 6 inches of broken stones of great hardness, laid on a foundation of large stones set in the form of a pavement, the power required is 46 lbs.; on a road made with a thick coating of broken stone, laid on earth, the power required is 65 lbs.; and on a road made with a thick coating of gravel, the power required is 147 lbs.: thus it appears that the results of actual experiments fully correspond with those deduced from the laws of science." And in same year, in his examination before a committee of the House of Commons, he said:—"The great advantage of the roads appearing by the machine is certainly in proportion to their solidity and their strength, and their want of yielding. If it could be a perfectly solid mass of stone or metal, the least resistance would be presented; that is shown both on stone tramways and on metal tramways, and metal rails."

From another source we learn that "this foundation should be composed either of a rough paving of large stones, or of a sufficient bed of concrete, the former being the practice of Mr. Telford, and the latter of many engineers of the present day; the selection of either of these materials will depend upon their economy in various places; whichever is most accessible, may be safely used; but whatever material be used, it is necessary that the sub-stratum should be of uniform strength and solidity over the entire surface, otherwise, after the pavement has been laid, the weaker parts will give way, while the stronger maintain their position, and so the surface of the road becomes broken and uneven, rugged, and full of hollows; for this reason we prefer the use of concrete, which offers greater security against this defect than foundation made of large stones or rubble, though in many roads even concrete is not sufficient entirely to prevent it. The concrete foundation should be slightly curved, falling from the centre towards both sides, which form will assist to drain it, and also to give the proper form to the surface of the roadway. It is necessary that this lower surface should be properly drained, otherwise the water will lie there, and destroy the road. If the concrete were laid 18 inches thick, we should not deem the extra expense ill laid out for a good road. With respect to the other kind of foundations, Mr. Parnell says—'In streets where the traffic is not very great, the foundation should be made in the following manner:—A bed should be formed, with a convexity of 2 inches to 10 feet, so as to admit of 12 inches of broken stone being laid upon it: these should be put on in layers of 4 inches at a time. After the first layer is put on, the street should be kept open for carriages to pass over it. When the first layer has become firm and consolidated, then another layer of 4 inches should be laid on, and worked in as before, care being taken to rake the ruts and tracks of the wheels of carriages, so that the surface may become smooth and consolidated. The same process should be repeated with the third layer of stones, by which means a solid and firm foundation will be established, of 12 inches in thickness, for the dressed paving stones to lie upon.' Such directions deserve greater attention than we fear they usually receive; in all cases let your foundation be secure before you lay your roadway."

Mr. M'Adam was the first to maintain the opinion that an elastic road was equally good as one with a firm, unyielding surface, and not only so, but even preferable. In a publication on the subject, he says:—"That the foundation or bottoming of large stones is unnecessary and injurious on any kind of subsoil. That the maximum strength, or depth of metal, requisite for any road, is only 10 inches. That the duration only, and not the condition of a road, depends upon the quality and nature of the material used. That freestone will make as good a road as any other kind of stone. That it is no matter whether the substratum be soft or hard."

"The resistance," says Professor Leslie, "which friction occasions, partakes of the nature of the resistance of fluids; it consists of the consumption of the moving-force, or of the horse's labour, occasioned by the soft surface of the road, and the continually depressing of the spongy and elastic substrata of the road. In fact, on a yielding roadway, the carriage or waggon has to be drawn over a series of hillocks, for, as the load passes over, it depresses that portion of the road immediately beneath it, and has before it, to be passed over in its turn, a portion which has not yet undergone this process. The comparison between the tractive power employed on roads of different elasticities, has been well illustrated—thus:—An ivory ball set in motion with a certain velocity over a Turkey carpet, will suffer a visible relaxation of its course; but with the same impelling force it will advance farther, if rolled over a superfine cloth; still farther over smooth oaken planks; and it will scarcely seem to abate its velocity over a sheet of fine ice."

Various kinds of materials are used for the purpose of forming the upper coat of the road, and amongst those most frequently employed may be mentioned broken granite, flints, gravel, and cubes of granite of various sizes. Of these the broken granite and granite cubes are most useful—the one for general purposes, the other for roads which are subject to great wear and tear, such as those in the principal thoroughfares of London and Dublin; for although both descriptions of material are used for this purpose, yet we are inclined to think that the broken stone is scarcely durable enough for such work; and there is this further objection to it, that it is constantly requiring repairs, which must, to a certain extent, inconvenience public business. Besides this, as usually managed, they occasion a great deal of dust and dirt, while the draught of vehicles upon them is very heavy, and their maintenance expensive.

In the first place, as regards durability, the objection would be removed to a considerable extent by employing a good foundation, and laying the metal carefully upon it, providing for the proper drainage of surface and substratum as mentioned above, for the lodgment of water either above or below such roads is very injurious, and tends, perhaps, more than anything else to their destruction. Having obtained a good foundation, the next point is to cover it with a hard compact crust, impervious to water, and laid to a proper cross section, so that it may be speedily drained and no water be allowed to remain on the surface, which, besides its inconvenience to passengers, is very destructive to the surface of the road. A practice has come into vogue of late, of covering the road when made with a binding composed of the grit collected off the road in wet weather, and by the operation of water sweeping. The binding is laid on regularly and watered until the new material is firmly set, which it does very quickly, and when the binding is of good quality and properly laid on, it assists its formation very considerably, and altogether improves the condition of the road and economizes the material, for it saves the wear and attrition of the new stone. Some road-makers object to this binding on the ground that it destroys or rots the road, and that when the road is set it has to be carted away again; but this is only the case where improper binding is used, such as is swept from streets which are not properly cleansed, and therefore consists principally of mud, and not of grit, or rather of grit so mixed with dirt as to be for the most part useless for binding. This method of binding a road removes in part the objection which is made against the resistance occasioned by the loose stones of a newly-laid broken road.

Roads paved with blocks of wood are of comparatively recent invention, and offer many advantages over common roads, in the evenness of the surface, but more especially by the prevention of noise, which is a great inconvenience on paved roads. It is to be regretted, however, that with such advantages it has defects, which, until removed, will put an effectual bar to its general employment; we allude to its want of durability, and consequent expense, but more especially to its slipperiness in wet and damp weather. The former objection we feel confident may be removed by employing greater care in the construction and drainage of the substructure; and the latter has been remedied in some degree by spreading broken granite on the surface.

The principal points to be attended to in the construction and maintenance of roads are—viz., a good solid foundation, proper drainage, and efficient cleansing.

Iron ore has been discovered at Ballypallady, the nucleus being in the second cutting on the railway line west of the station.

The Wexford Harbour Improvement Bill has passed the standing orders in Parliament.

NOTRE DAME.—The work of restoring the exterior of Notre Dame has been resumed, and they are now repairing the rose window over the southern entrance to the cathedral. The whole of the south portion of the building is to be restored according to the original design. This part of the church was originally commenced, as an inscription on the wall tells us, on the 2nd day after the Ides of February, 1257, under the superintendence of Jean de Chelles, architect, during the reign of St. Louis, at which time Renaud de Corbeil was Archbishop of Paris.

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* In continuation of Ancient Roadways, from page 396.

Correspondence.

THE WESTLAND-ROW TERMINUS.

TO THE EDITOR OF THE DUBLIN BUILDER.

Sir—Referring to your publication of the 15th February, I notice that you allude to a proposed extension of the Dublin and Wicklow Railway Terminus at Westland-row, with a principal front in Great Brunswick-street, and it strikes me to enquire, if you or your readers are aware, that it was contemplated by the original plan to extend the line across the former to that point in the latter street now occupied by Clarendon's horse repository? How much more desirable for public convenience—carrying the line to the very heart of the city—such a work would be than that stated to be contemplated? and it may not be amiss, should space permit it, for you to refresh the memory of the directors thereon.—Yours, &c., C. E.

[The proposed extension of the present terminus, alluded to in the paragraph, was officially denied by the chairman at a recent meeting, although communicated to us by a correspondent on whose veracity we relied.]

RAILWAY PROGRESS.

The Engineer to the Dublin and Meath line reports that "the works, owing to the difficulty of getting land, are more retarded than would otherwise have been the case, but late arrangements have been effected, and the contractors put in possession of a large extent of land on the division from Kilmessan to the Black Bull. On this portion of the line the works are being vigorously pushed forward. They will soon be in possession of more land, which will bring them near the point at which the direct line to Dublin is proposed to commence. At the Navan end; of rock and clay 128 000 cubic yards have been removed, 17,000 lineal yards of fencing made, six miles have been ballasted and are now ready for the permanent way. The viaduct over the River Boyne, of 196 feet span, has been completed; four public road bridges, four farm road bridges, and other necessary works have been constructed. These are 2,000 tons of rails, chairs, &c., on the company's ground; and 25,000 sleeper blocks have been delivered and are lying, part at Navan and part at Dublin. A short piece of permanent way has been laid from a public road to where the sleeper blocks are to be deposited preparatory to their being prepared by the cutting machine. This machine will be shortly at work, and thus remove the only delay to the laying of a portion of the rails. From Kilmessan towards the Black Bull the contractors are working over a distance of 5½ miles: 20,000 cubic yards of excavation and 10,000 cubic yards of ballasting have been removed; 6,300 lineal yards of fencing have been completed; and upwards of one mile and a half of the line formed. Two public road bridges and their approaches are finished, and four others, with various other works, are in progress.

The excess of expenditure on the Fermoy line was only £2,600.

The recent railway accident at Cork cost the Great Southern and Western Company £6,000.

The North London Railway Company being sued by an architect for damages in consequence of injuries received through an accident on their line, consented to a verdict for £550.

The bill for the third extension of the Great Northern Railway from Castlebar to Westport has passed the standing orders, and, being unopposed, will pass both houses.

The Midland Counties and Shannon Junction Railway Bill has also passed the standing orders.

Mr. Mullins, Ex-President of the Institute of Civil Engineers in Ireland, has been elected a director of the Great Southern and Western Railway.

The standing orders have been complied with for the Belfast and County Down Railway (Witney). The following bill has been withdrawn:—Killarney and Valentia and Monkstown Extension. The following postponed:—Great Southern and Western.

The Cork and Macroom Railway bill has been read a second time, and the prospects of the undertaking are said to be most favourable.

The rolling stock of the Great Southern and Western Railway of Ireland is £1,500 a mile.

The Malahide Viaduct.—This structure has been finally completed, and at a recent meeting of the Dublin and Drogheda Railway Directors, both the chairman, Mr. Murland, and Lord Talbot de Malahide took occasion to compliment the engineer, Mr. Harty, on the satisfactory manner in which the work was carried on under great obstacles, and without impediment to the traffic of the line.

Opposition to the Dublin Water Works Bill.—Petitions have been lodged by Trinity College, Lord Meath, the Midland Great Western Railway Company, the Wicklow Borough and Harbour Commissioners, Messrs. Brett, Toomey, Tighe, &c.

Notes of New Works.

The first stone of the new church of St. Fintan has been laid at Mountrath. It will be in the Gothic style, after drawings by Mr. John S. Butler, architect; Mr. Beardwood, builder.

A new Roman Catholic Church is to be built at Clare Island.

A new hotel after American fashion has been commenced at Bray, by Mr. John Brennan, a wealthy and enterprising gentleman, who has recently erected some houses on the Strand. It is thus described by the local correspondent of the *Freeman*: The front facing the Quinsborough-road—very similar to those of the other fronts, the building being somewhat of a square — presents four storeys above the basement, with 15 windows in each storey. The entrance will be composed of a fine portico, supported by eight Ionic columns, and ascended by a spacious flight of stone steps. Internal arrangements will comprise at least 155 bedrooms, a coffee-room, 20 by 40 feet; restaurant, 20 by 30; a great dining-room, 40 by 28, opening into a drawing-room, 30 by 40; some two dozen parlours and private sitting rooms will also be presented, the basement storey being allotted to kitchens, pantries, servants' rooms, &c.

Two superior class dwelling houses are in progress of erection in Harcourt-street, Messrs. Hall and Son, proprietors and builders, Mr. M'Alister, architect. We understand that it was originally contemplated to make the elevation of a novel and ornate character, which circumstances subsequently rendered undesirable.

A new glebe house has been completed at Fork-hill, according to plans by Mr. W. J. Barre, of Belfast, architect; Messrs. Hall and Son, of Dublin, the builders.

A new clock tower is to be erected in the Market Square of Letterkenny.

Mr. John P. Brady, of Galway, has been declared the contractor for the building of the new jetty.

Two important church structures have been built in the parish of Ballinaclally, County Clare.

The churches of Acton and Portadown, Co. Armagh, and of Killeshal, Co. Tyrone, are to be enlarged, according to plans by the Ecclesiastical Commissioners' Architects.

A new parsonage house and offices are to be erected at Kildare.

The town of Ballyshannon is about to be lighted with gas, and estimates are required for the execution of the reqnisite works.

The Tholsel, in Drogheda, containing the assize court, corporation offices, &c., is about to be modified, according to plans by Mr. John Neville, architect and C.E., county surveyor. The gaol in same town has also been undergoing alteration and improvement. We should, however, experience additional pleasure in noticing more *general* progress, which, as regards building operations, is not in fair proportion to that of other towns of equal commercial position. In sanitary matters the deficiency is fearfully manifest, and seems rather on the increase than otherwise.

A limited competition is about taking place amongst local architects for the erection of a new building for the Royal College of Surgeons, on the site of the old Kildare-street Club House, destroyed by fire.

Another competition of similar character is also going forward for a new house of worship for Unitarians, at Stephen's-green.

BANKRUPTCY AND INSOLVENCY.

In re Hugh Kelly.—Meeting for surrender, proof of debts, and choice of assignee. The bankrupt's liabilities amounted to about £18,000. Application was made to appoint as assignee Mr. Thomas Ball, a creditor for £324, and again on behalf of Messrs. Andrews and Alexander, of Belfast, creditors for £1,191, in favour of whom the majority of the creditors voted. To the latter objection was offered on the ground of "undue preference" in contemplation of bankruptcy.

The bankrupt, on examination, stated that last November he paid a bill of £700 to the latter, and subsequently on same day he received a telegram from Messrs. Patterson and M'Cully, of Liverpool, stating that a bill of £780, payable to them, fell due same day. Had no entrance of same, but in answer said he thought he would pay Liverpool creditors in full, as there were £508 due to him on a contract; did not intend to make any undue preference.

The Court said there was no imputation on Messrs. Andrews and Alexander, but as a question of "undue preference" had been raised, better appoint some other party.

Mr. Thos. H. Carroll was then appointed assignee.

Killen and Cunningham.—Meeting for final examination of bankrupts. Mr. Perry, on the part of the latter, applied for adjournment, and stated that he understood the estate would realise 20s. in the pound.

Review.

Brief Sketches of Booterstown and Donnybrook. (Second Part.) By the Rev. Beaver H. Blacker, A.M., Incumbent of Booterstown. Dublin: Geo. Herbert. London: Bell and Daldy.

When the first part of this little work reached us, we were justified and pleased in according to it a favourable notice. The sequel now before us is equally entitled to commendation, and the "painstaking compiler," as the author modestly terms himself, will doubtless reap both the honourable and the substantial benefit so justly due to his devotion to ecclesiological and archæological research. A lithographed copy of Yarranton's survey of Ringsend in 1674 is appended, and is characteristic of the eminence (?) attained in engineering draughtsmanship at that early period.

Miscellaneous.

New Hall, Kensington Gore.—This building, now in course of completion by the Royal Horticultural Society of England, at their gardens in Kensington Gore, London, is thus described by the *Gardener's Chronicle*:—" It is placed on that side o' the Garden next to the Exhibition Room, and is approached by a spacious carriage sweep on the east side, and on the west opens directly into a portion of the colonnade which surrounds the garden. The exterior is as yet in quite an unfinished state, but the interior is sufficiently completed to be available for the purposes for which it was intended. The Hall is sixty feet long by forty feet wide, and thirty feet high, a portion of this space being, however, occupied by architectural details. Its sides are formed by columns and pilasters of Roman Doric, surrounded by a handsome cornice, from which a series of semicircular arches takes its source. Three of these arches, on the east and west sides respectively, furnish openings which are to be used as entrances when required, forming a passage into the garden through the colonnades, and are at other times closed up by means of Clarke's patent revolving shutters. A fourth arch occupies the centre of the north end, and another the south, and in these are placed the entrances for ordinary use. The four angles are fitted with large mirrors, and above them, occupying the spaces between the arches, are several window-like openings to be fitted with ornamental castings, and intended to aid in ventilation. The ceiling consists of horizontal lights of ground glass, through which the gas pendents descend. The floor is paved with Minton's encaustic tiles. The heating is effected by means of hot water, the pipes for which are carried beneath the floor in channels covered by ornamental gratings."

Petroleum, or Mineral, Oil in Ohio.—This useful material has been discovered, according to the American *Gaslight Journal*, in another of the (dis-) United States. Two hundred rock-oil wells, as they are called, have been sunk in Warren County, Ohio, of which fifty to seventy-five are said to pay well. Thirteen steam pumps are in operation, and more are being set up. The average yield is 3,000 gallons per day, and more wells are being sunk.

The Geology of the Vartry.—Professor J. Bete Jukes, referring to the proposed water supply of Dublin from the River Vartry, says:—" The valley of the Upper Vartry (the part above the Devil's Glen) is mostly in Cambrian rock; its western side only consisting partly of lower Silurian. No drainage from the granite, and scarcely any from the mica schist, runs into the valley. None of the mines of Wicklow are in a Cambrian district, or even very near to one. The chances are, therefore, so far against the upper valley of the Vartry becoming a mining district. It is by no means impossible, so far as I am aware, that mineral veins should exist in Cambrian rocks—on the contrary, I believe there are some in Merionethshire in that formation. Whatever chance there may be for or against the rocks (either Cambrian or Silurian) which bound or lie below the upper Vartry containing mineral veins, there is an absolute certainty that the low ground traversed by the canals contains them. Any argument against the Vartry scheme derived from the possible existence of mineral veins in that valley, tells with double force against the canals, and would, moreover, be equally good against any scheme that could be devised."

A Cement for Glass.—A transparent cement for glass, it is said, is made by dissolving one part of Indian-rubber in chloroform, and adding sixteen parts, by measure, of gum mastic in powder. Digest for two days, and frequently shake the vessel in which these substances are contained. The cement is applied with a fine camel's hair brush.

The Great Britain Art Union.—From a correspondence that has appeared recently in the daily papers, originated by the secretary of this association, it would seem that the large sum of *ten pounds* was expended in the purchase of prizes at the Royal Hibernian Academy Exhibition, although " the liberal support of the Irish public" is acknowledged with thanks, and that said Art Union is established to encourage art *equally* in Ireland as in England and Scotland. The *result* certainly does not bear out the *profession!*

The Magnetic Telegraph Company.—The facilities for sending messages by telegraph appear to be gradually approaching the conveniences of our postal system. The Magnetic Telegraph Company are now issuing small adhesive stamps for franking messages throughout their lines in the United Kingdom. The principle is precisely similar to the postage stamp system. A message can be written wherever convenient, and, after affixing the necessary stamp, it can be sent either by post or messenger to the nearest magnetic telegraph station, and thence forwarded to its destination. There is said to be a liberal discount on these stamps in order to assist in bringing them into general use.

The British Museum.—The Department of Antiquities at the British Museum is to be divided into three sections, which will be placed under the care of Mr. Birch, Mr. Newton, and Mr. Vaux respectively. Mr. Newton's great and successful labours at Halicarnassus and Cnidus are fresh in the recollection of the public, and afford the best guarantee of the advantages that the Museum may expect from his appointment. The Archbishop of Canterbury, the Lord Chancellor, and the Speaker of the House of Commons have exercised their powers as Governors of the Museum with an anxious desire to secure the best men for the public service, and this infusion of new blood into an old establishment cannot fail to be of signal advantage.

How much Money is there in the Country?—The *Mechanics' Magazine* publishes a statement of the quantity of gold, silver, copper, and bronze coin at present in circulation throughout the United Kingdom. The number of gold pieces amounts in value to at least £100,000,000. Silver—Crowns, 2,320,027; half-crowns, 37,516,343; florins 10,000,000; shillings, 112,554,106; sixpences, 76,132,578; fourpences, 20,142,034; threepences, 7,572,437. The total current value of the copper coin is £1,250,000, and its weight 6,000 tons. Several hundred tons of bronze coin have also been issued, making the total number of coins in circulation throughout the British isles nearly 900,000,000.

THE THEATRE ROYAL.

At the Theatre Royal the pantomimic star " is still in the ascendant," though a supposition of its brilliancy being somewhat clouded might not in this, " the Ides of March," be unreasonably entertained. It has now been visible to the Dublin public for a period of upwards of two months—an unprecedented run—but affording the best possible proof of its refulgent powers. Having already alluded to it we will not add further than that (divesting metaphor), next to the scenic attraction, the vivacious acting of Mrs. Burkinshaw, a host in herself, justly claims our commendation.

To Correspondents.

C. R., Sligo (Custom of neighbourhood would partly determine; the old general custom, as admitted, was 1 foot superficial of extra labour for every foot lineal of hips and valleys to carpenters' work, and in slaters' same quantity of materials and labour for hips, valleys and under eaves; the only extra *now* admitted is eaves, or rather under eaves, generally 1 foot additional. Measurement of stone work as regards labour does *not* include beds, and was met by an *extra* charge); "Traveller" (Undesirable for insertion); E. W. O'R. (Send tracings early); W. T. M. (Elsewhere replied to); "Draughtsman," Belfast (Your better plan is to advertise when ready); J. H., Bermingham (Expecting, as advised.)

NOTICE.

Post-office Orders and Remittances should be made payable to Mr. Peter Roe, *Printer and Publisher*, 42, Mabbot-street, Dublin.

☞ *NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the* Dublin Builder," 42, Mabbot-street. *All other Communications should be addressed to the "Proprietor and Editor,"* 17, Lower Gardiner-street.

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WANTED, a respectable Young LAD, as Apprentice to the above. Respondent must have a slight knowledge of Drawing, and write a fair hand.

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Beg to inform Builders and others that they have added a MEASURING and VALUATION BRANCH to their Office, for which they have secured efficient Assistants, to enable them henceforth to supply Estimates, Valuations, and Measurement of Artificers' Works, as formerly carried on for many years by Mr. ISAAC FARRELL, of this Firm.

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MR. WM. DOOLIN, BUILDING SURVEYOR and MEASURER, is prepared to afford Contractors all information as to prime cost on all material; take out Quantities, and prepare Estimates.—Offices, 27, TALBOT-STREET.

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Recommended in "The Engineer", and "Builder." 42 in., 5s. and 7s. 6d.; 31 in., 3s. 6d. and 5s. 6d.; 23 in., 2s. 6d. and 4s. Improved Architects' Scales, Boxwood, 2s. 6d.; Ivory, 8s.; by post. Improved Architects' Drawing Instruments. List of Prices on application.

MANUFACTORY—3, GREAT TURNSTILE, HOLBORN.
LONDON, W. C.

NOTICE.

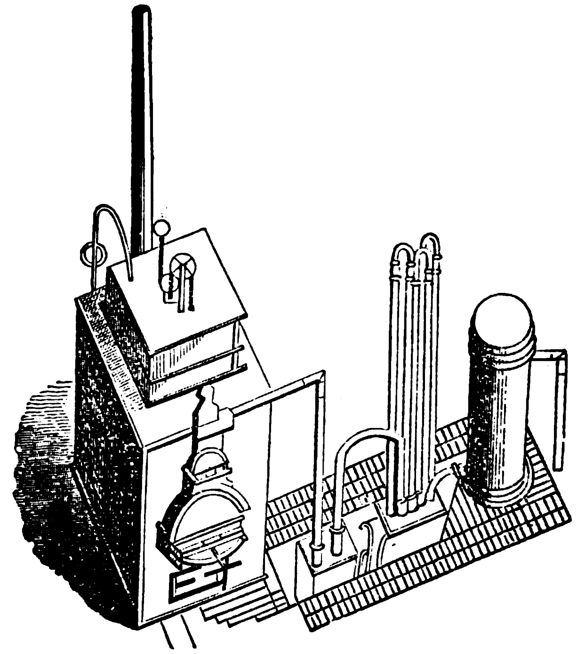
Gentlemen—To correct the impression that my premises and stock at 3, Great Turnstile, were consumed by fire on the 29th of January, as might be inferred from the reports in the London daily papers. I beg to state that three of my workshops only were burned, which were situate 3 houses from my selling shop. I can further assure my customers they will be served as heretofore with instruments of the best possible make, having taken more extensive premises for workshops, to meet my extending trade.

Yours obediently,
WM. F. STANLEY.

SURVEYING, ENGINEERING, ARCHITECTURE, &c. — PRACTICAL INSTRUCTION is given in SURVEYING, Levelling, Civil Engineering, Architecture, Building, Draughting, Mapping, Measuring and Valuing of Land, Timber, Buildings, &c., by Messrs. HYDE, SMITH, and LEWIS, Civil Engineers, Architects, Surveyors, etc., in a short Course of Instruction on moderate terms, including FIELD WORK and the use of the INSTRUMENTS. For Prospectuses, apply at the Offices, 24, Guilford-st, Russell-square.

N.B.—An Architectural, Engineering, and Mechanical Class for Architects, Builders, Engineers' sons, etc., on moderate terms, including instruction in Drawing, Coloring, Taking out Quantities, etc.

It is simple and inexpensive, and can be managed by any labourer or servant; is quite free from all unpleasant smell, and produces more Gas from a Ton of Coal than any other Apparatus.



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JOSHUA EDMUNDSON & CO. are Manufacturers of the above Apparatus, which is adapted for Lighting Towns, Noblemen's and Gentlemen's Mansions, Colleges, Mills, Manufactories, Railway Stations, Farm Steadings, &c.

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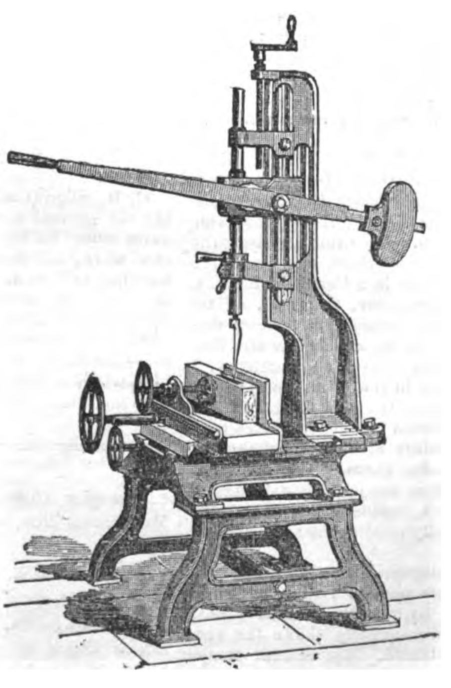
GALLON AND BEAN, LEEDS,

Cut & Wrought Nail Manufacturers, & Hardware Merchants,



RESPECTFULLY request all BUILDERS, CONTRACTORS, CARPENTERS, &c., requiring Mortising Machines, previous to purchasing, to examine and test *their patent combined Crank and Lever Machine*, which will Mortise (Tenon and Bore, if required) both Hard and Soft Wood, and is also adapted for Drilling and Punching Iron.

The superiority of this Machine over *all* others consists *in the substitution of a solid wrought-iron plate Crank or Eccentric, by which greater power is obtained, in place of cast-metal Rack and Pinion Wheel, the Teeth or Cogs in which are so liable to strip or break out*—in the direct and perpendicular action of the Lever and Crank on the Cutting Tool, and consequent diminution of friction—in being *stronger* and *less complicated* in its construction, and more *powerful* in its motion—in the *facility* of its *adaptation* to the various depths of material—and in its *non-liability to break* or get out of working order.

This Machine has now been adopted in preference to *all others* by some of the principal Builders in London, Glasgow, Edinburgh, Dublin, and Belfast, who will bear testimony to its being the most powerful and efficient yet made

For further particulars apply to the Patentees and Makers, GALLON, BEAN, and LUMB, LEEDS.

Extract from the Report of the Royal Dublin Society's Spring Show, 1859:—

"Gallon, Bean, and Lumb, Leeds, exhibited a very useful and complete Mortising Machine, which was highly commended."

N.B.—The Patentees respectfully intimate that this Patent extends to, and comprises Machines for Mortising by Steam and other motive power, as well as by hand; and makers and vendors of, or parties buying or using Mortising Machines, *are cautioned against any infringement*, as the patent right will be strictly maintained.

The Dublin Builder.

VOL. III.—No. 30.

THE VARTRY PROJECT—PATERNITY, CAPACITY, AND COST.

A CLAIMANT for the paternity of the Vartry project, as recommended by the Royal Commissioner, Mr. Hawkshaw, C.E., as the best source for supply of water to the city of Dublin, has appeared in the person of Mr. Hassard, C.E.; and the latter gentleman complains "that although his scheme has been recommended by the Royal Commissioner, and adopted by the Corporation, yet his name does not appear in the commissioner's report as associated with the Vartry project, otherwise than as an appendix, although his name is put forward on the plan accompanying the report in connection with another scheme for taking water from the canals, which he laid before the Pipe Water Committee in 1854." A grave charge from one professional gentleman against another; and although there is an unquestionable *prima facie* evidence of a good foundation therefor, we feel quite assured—judging from the high reputation of the eminent engineer honoured with her Majesty's commission to investigate and report on this question—that the matter complained of was more the result of *oversight* than *design*, and that on representation the *amende honorable* will be cheerfully accorded. However, be that as it may, there is a striking similarity between the *modus operandi* proposed by each of these gentlemen; in fact, excepting some comparatively insignificant modifications, the scheme originally submitted by Mr. Hassard is unquestionably that proposed for adoption by the Royal Commissioner; but as Mr. Mullins, C.E., chairman at the meeting of the Institute of Civil Engineers, on Wednesday evening last appropriately suggested, that "as Mr. Hassard claimed the *paternity* of the design, so also should he be prepared to undertake the responsibility;" we echo the sentiment, and submit that if any weight be attached to the projects of the other eminent professional gentlemen, or to the objections advanced by the opponents of the Vartry as a source of supply, either from its incapacity or its expensiveness in constructing the requisite works, should failure to any degree result, the claimant will require to have the shoulders of Atlas to sustain the weight of public odium sure to follow. Mr. Hassard, however, has made most careful calculations; he has studied the geographical and geological formation of the line between the valley of the Vartry and this metropolis, and is confident both that it is the best source for *quantity* and *quality*, and, moreover, that the expenditure to be incurred need not exceed £250,000. Nay, further, we understood Mr. Hassard to remark, *sotto voce*, that he should wish to have the contract for that amount. Well, this to a certain extent *is* a guarantee afforded by a competent professional engineer; but while attaching all due importance to his competency to form a judgment, we are nevertheless not disposed to regard it as *conclusive*. The *greatest mistakes* have sometimes been made by the *greatest men*. Let us now consider the question of *capacity*. Mr. Hassard maintains, that although "as far as he is aware no rain guages had been kept in the locality," yet, judging from observations made at Ballysmuttan and Dublin, respectively, an average annual rainfall in the Vartry valley will be 29·08 *plus* 11·62 = 40·70 inches, and in a very dry year, such as 1847, 24·04 *plus* 9·61 = 33·65 inches; further, that from this is is to be deducted the loss from evaporation and absorption, varying in similar formations from sixteen inches downwards, sometimes in hill districts falling as low as ten inches. In this instance, however, "as the upper portion of the collecting ground is steep, from which the water would flow off rapidly, and as the quantity of spring water in the lower portion is considerable," he considers that "it may be taken at fourteen inches, leaving 26·70 inches of rain as available in ordinary years, and 19·65 inches in a very dry year, such as 1847. The quantity of water obtainable will be as follows .—

			Gallons.	
At 24 inches of available rain,	..	..	24,823,230	daily
23 "	..	..	23,788,939	"
22 "	..	..	22.754,628	"
21 "	..	..	21.720,327	"
20 "	..	..	20,686,026	"
19 "	..	..	19.651,724	"
18 "	..	..	18,617.421	"
17 "	..	..	17,583,120	"
16 "	..	..	16.548,820	"

being rather more than 1,000,000 gallons daily for each inch of available annual rain-fall."

This is clearly a theoretical calculation, on the ascertained data that at Ballysmuttan—the site for the proposed reservoir—during a certain six months the average rain-fall was greater by 60 or 70 per cent. than that of Dublin, and that consequently, taking the Vartry rain-fall at *two-thirds* less than that of Ballysmuttan, an average of 40 per cent., yielding a minimum supply of 18,000,000 gls. per diem, may reasonably be assumed. How is this theory met by the opponents? Professor Galbraith—who, at least, it must be conceeded is competent to form a common-sense opinion—visited the locality on Tuesday, and states that "no rain fell there on that occasion, but that heavy clouds hung over the Jouce mountain and the adjoining hills. On the next day he went to the neighbourhood of Lough Dan, and was told by the residents that they had *a very heavy fall of rain there* at the very time that the catchment basin of the Vartry *was entirely free* from it." Moreover, the rev. and learned Professor believes that "from the configuration of the catchment basin of the Vartry, the rain-fall is not so great there as on the hills that bound on the western side; and that, the water that falls in that district might be said to be laid out to dry, exposed as it is on a flat surface to the sun and wind, which would cause evaporation to be greater than what Mr. Hassard calculated upon."

Again, Mr. Mallet, C.E., a gentleman of an eminently practical mind and who has devoted himself to the special consideration of the subject, maintains that "*far more water is obtainable from the Vartry than will be required to supply the city*," but is not an advocate for the scheme, believing that paramount objections of a totally different character are presented thereto. We need not here stop to consider *all* that has been urged by the advocates of the scheme on the one hand, and the opponents on the other, having already in our pages allowed every latitude for expression of the opinions of both, but one abstract fact is incontrovertibly apparent, viz., that *as yet there are no means afforded by practical experiment as to the capacity of the Vartry.*

Next, and lastly for the present, as to *the cost.* Mr. Hassard estimates the actual expenditure for works according to his plans to be £250,000, including the necessary reservoirs, conduits, &c., but with other contingent expenses amounting to £300,000! Mr. Mallet urges that "£400,000 will be nearer the mark;" others maintain that either of the above amounts are only about *half* what will be required. A trite though not very classical proverb reminds us that "between two stools one falls to the ground," and indeed unless prompt action one way or the other be brought to bear on the present question, it seems to our mind to be rapidly approaching that finale. "Better bear the ills we know, than fly to others we know not of," and better continue to drink the water at present supplied, than rush recklessly into a responsibility of £300,000 (*query* considerably more), till both the capabilities of the source be ascertained by *practical data*, and *unquestionable security* afforded of the works being constructed within the stipulated amount.

We must not be misunderstood as reflecting on the Vartry project, or questioning the good faith of its promoters; but we should wish to see their professions practically demonstrated before it is too late to retrace steps.

A rather extensive scheme for the establishment of schools of art throughout England is talked of in artistic circles. The want is too palpable.

Mr. Train has a permissive tramways bill before the house for the United Kingdom, while Sir. E. Colebrook has one for Scotland.

THE LAWS OF MOTION.[*]

The first law of motion is, "that a body always perseveres in its state of rest or of uniform motion in a right line, till by some external influence it be made to change its state." That a body of itself perseveres in its state of *rest*, is matter of most common and general observation, and is what suggests to us the passive nature of body; but that it likewise of itself perseveres in its state of *motion* as well as of rest, is not altogether so obvious, and was not understood for some time by philosophers themselves, when they demanded the cause of the continuance of motion. It is easy, however, to see that this last is as general and constant a law of nature as the first. Any motions we produce here on the earth soon languish, and at length vanish; whence it is a vulgar notion that in general motion diminishes, and tends always towards rest. But this is owing to the various resistances which bodies meet with in their motion, especially from friction, or their rubbing upon other bodies in their progress, by which their motion is chiefly consumed. For, when by any contrivance this friction is much diminished, we always find that the motion continues for a longer time. Thus, when the friction of the axis is lessened by friction, wheels applied to it and turning round with it, the great wheel will sometimes continue to revolve for half an hour; and when a brass top moves on a very small pivot on a glass plane, it will continue in motion very smoothly for a great number of minutes. A pendulum suspended in an advantageous manner will vibrate for a great while, notwithstanding the resistance of the air. Upon the whole it would appear that if the friction and other resistances could be taken quite away, the *motion would be perpetual.* But what sets this in the clearest light is, that a body placed on the deck or in the cabin of a ship continues there at rest while the motion of the ship remains uniform and steady; and the same holds of a body that is carried along in any space that has itself a uniform motion in a right line. For, if a body in motion tended to rest, that which is in the cabin of a ship ought to fall back towards the stern, which would appear as surprising when the motion of a ship is uniform and steady, as if the body should of itself move towards the stern when the ship is at rest.

SUBSTITUTION OF STEAM FOR ANIMAL POWER.[†]

The steam engine is acknowledged to be the most important modern agent of civilization. Much of the slavish toil endured by our forefathers in manufacturing and agricultural pursuits has been dispensed with, by its application. Sea and land are now traversed with an ease entirely unknown before its introduction, effecting intercourse with the remotest nations on the face of the earth. The iron horse harnessed to our carriages, laden with the heaviest goods, outstrips the fleetest racer,—enabling merchant and traveller to reap the benefit of a mighty power with an economy of time and money utterly unattainable by other means. The substitutution of animate for inanimate power has from facts been proved to be easy of operation and effectual in its results, and as the natural tendency of every operation in these days of progress is, or should be, to obtain the greatest return for the smallest proportionate outlay, there is no doubt that within a few years steam will be applied to most of the work now done by horses. From animal power being everywhere limited, and also expensive in its application, it is evident that some more powerful agent, more economical in working, becomes necessary; and for this purpose there is none more *powerful, useful, cheaper,* or more *manageable* than *steam* power.

A new plan, illustrating the City of Dublin, has been prepared with considerable labour, by Mr. D. E. Heffernan, C.E. We have no doubt that the enterprise of the originator will be substantially appreciated.

ANCIENT PAVEMENTS.

Several cities had paved streets before the commencement of the Christian Era; nevertheless, those which are at present the ornament of Europe (Rome excepted) were destitute of this great advantage till almost the 12th or 13th century. It is probable that those people who first carried on the greatest commerce were the first who paid attention to good streets and highways to facilitate same. We are told by Isidorus that the Carthagenians had the first paved streets, and that their example was soon followed by the Romans. Long before that period Semiramis paved highways, as appears by her own vainglorious inscription. The streets of Thebes, and probably those of Jerusalem, were paved during the time of its kings. In the year U.C. 188, Appius Claudius, then Censor, constructed the first real highway—the Appian Way—termed the queen of roads. Some allege that the pavement of the streets commenced in 578, others in 584, others in 459. Streets paved with lava, having deep ruts for the wheels of carriages and raised footpaths at either side, were discovered both at Herculanæum and Pompeii. Cordova, in Spain, was paved as early as the middle of the ninth century. Lutetia (Paris) was not paved in the twelfth century, and even in 1641 many of the streets had no pavements. London was not paved at the end of the eleventh century. Several of the principal streets, such as Holborn, were paved for the first time by Royal command in 1417, others under Henry VIII., some in the suburbs in 1544, others in 1571 and 1605, and Smithfield market in 1614.

ROYAL DUBLIN SOCIETY.

The fifth evening scientific meeting for the session of 1860-61, will be held on Monday evening, March 18. Chair will be taken at eight o'clock. Board Room—1. Mr. J. B. Doyle, to bring forward an instance of injury to gaspipes by rats. 2. Mr. John Locke, Progress of discovery in Central Australia. Dublin Statistical Society—1. Dr. George F. Shaw, on the Use and Abuse of Apprenticeships. 2. Mr. Randal W. MacDonnell, on some suggestions for better insuring the Prevention of Crime.

ROYAL AGRICULTURAL SOCIETY OF IRELAND.

At the last monthly meeting with reference to premiums for labourers' cottages, Mr. Hardy moved "That the Provincial Gold Medals be continued as prizes for 1861, on the same conditions as formerly." Adopted.

Major Scott was of opinion that if the £10 medal were awarded as a prize for improvement in labourers' cottages, it would prove more advantageous to that class than by being appropriated for newly-erected buildings, and conceived that a £5 premium would effect more good in this way than their £10 did hitherto.

The Chairman said that both objects were most desirable, but the difficulty was want of funds.

Mr. Donnelly moved "That the terms and conditions now in operation in reference to provincial medals for the erection of labourers' cottages be those upon which the county medals for a similar object are to be hereafter awarded," and remarked that eight ladies from the county Meath had come forward as associates. In every county where £5 was subscribed the society were prepared to add £5 more. Seconded, and passed unanimously.

Five plans of executed works were submitted during 1860 by the following, and judges from the society have been deputed to report thereon.

1. Lord Digby, improved cottages.	Leinster.
2. Do. newly-erected cottage.	
3. W. B. Smythe, Esq., newly-erected cottage.	
4. Mr. Mosly, newly-erected cottage.	
5. Lord Lansdowne, improved cottages.	Munster.

It is proposed by the inhabitants of Balbriggan and Skerries to memorialise the Board of Trade to construct a refuge harbour at the latter place.

A bill to faciliate the construction and improvement of harbours by authorising loans to harbour authorities, is being introduced this date into the House of Commons, by Mr. Milner Gibson.

New Designs for Measuring Rules.—Our attention has been directed by Messrs. Booth Brothers of 63, Upper Stephen-street, to recent improvements in the above indispensable article for all connected with building pursuits. In one case the *ferrule* or fishing-rod folding principle is applied, and the area of the rule is circular, not oblong as hitherto, thereby rendering it more portable; in another, by a sliding action, a rule capable of measuring a number of feet in one length is closed into a very small compass.

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[*] An account of Sir Isaac Newton's Philosophical Discoveries, in four books; by Colin Maclaurin, A.M. Third edition. Quoted in *Perpetuum Mobile.* (Spon, Bucklersbury, London.)

[†] "Steam on Common Roads." By C. F. Young, C.E. (London: Atchley and Co.) Reviewed in this No.

STEAM ON COMMON ROADS.*

Without professing to be members of the "far-seeing" community, we confessedly lean to the conviction, that wonders in the matter of locomotion are still in an incipient state in the womb of time, and that even the progenies of scientific research and skill so far developed, will prove little better than mere abortions when compared hereafter with those of our successors. Animal labour has been gradually paling before mechanical appliances, with or without—as the case may be—steam as an auxiliary; and again, for aught we know, steam in *its* turn may hide its diminished head when some new motive power presents itself. The application of "steam to common roads" is one which, in the present age, can suggest little of novelty or originality of conception; its practicability and desirability are admitted facts, and yet, shame on the lukewarmness of our national temperament, which in many things would seem to abhor innovation, it remains in a state of abeyance, is regarded as "a curiosity," but its practical utility as a public desideratum fails to be appreciated.

Under the above title, and to induce attention to this partially dormant element of locomotion, a valuable illustrated work has just issued from the press, treating the question ably in all its bearings, and furnishing an interesting history of the practical application of steam to ordinary road traffic. We find that "exactly a century ago, Dr. Robinson, subsequently Professor of Natural Philosophy in the University of Edinburgh, then a student at Glasgow, threw out some idea of applying the power of the steam-engine to the moving of wheel carriages, and that in 1769 a Frenchman, named Cugnot, completed and practically applied a locomotive carriage, on three wheels, and with a two single-acting cylinder engine, with pistons acting alternately on the front wheel, to common roads. This machine, when carrying four passengers, could not travel faster than *two and a-quarter miles per hour*, and the size of the boiler not being sufficient, it would not continue to work longer than twelve or fifteen minutes at a time; accordingly the inventor, seeing its deficiency, set about constructing a new machine, which produced more satisfactory results. Contrasting the above speed with that attained by the steam carriage of the Earl of Caithness, in August, 1860—viz., *fourteen miles an hour*—and moreover the outward appearances of each, it must be conceded that the principle has at least developed itself to an extent sufficient to justify important consideration on the propriety of universal adoption. Referring to the capability of the latter for its purpose, the *Banff Journal*, in August, 1860, says—"The Earl and Countess of Caithness and Mr. Ross started from Inverness in his steam carriage. Owing to its being market-day, the road was filled with horses and conveyances of all kinds, but the steam carriage passed through them all without any inconvenience to the general traffic or alarm to the horses. So perfectly was it under control, that it was stopped more quickly than an ordinary carriage and horses could draw up, which was done as often as there seemed any danger of horses being frightened. The run to Beauley (fourteen miles) was done in one hour and twenty minutes, including fifteen minutes for water and numerous other stoppages. When there was a good length of straight road, eighteen miles an hour was done with great ease. The carriage went up hills and down steep declivities in the most satisfactory manner, and they reached Clashmore successfully the same day, after a run of nearly seventy miles. The carriage is being run over the steepest roads in Scotland, and is proceeding to Barrogill Castle, a distance of eighty miles."

Assuming the above statement to be correct, and we have no reason to apprehend the contrary, the practicability of the adaptation is so far defined. A question, therefore, suggests itself—"*Why* is not steam traction more general?" and this our author ably answers in the following remarks:—"The greatest, the most determined, and at the same time the most contemptible obstacle it has had to contend with is *prejudice*; than this I know of none greater except it be impossibility. Engineers, as a body, seem to have been wrapped up in the belief, that it was 'impossible,' and they have not only 'believed' it to be so, but have spread and propagated this opinion with great zeal and perseverance. Unfortunately, however, for the traction engine, its chief advantage—namely, its *economy in application*—becomes a disadvantage to an important and influential class of persons who are useful in promoting speculative undertakings; because such large profits as are made on locomotive railways, in the shape of law expenses, percentage, &c., cannot be made out of them by lawyers and engineers, from their simplicity and facility of employment; therefore we find all such persons advocating railroads. Next, the *excessive tolls* on steam carriages, imposed no doubt from a determination on the part of the trustees to obstruct, as much as possible, the use of steam as a propelling power, arising from the erroneous idea that it *must* be more injurious to the roads than traction by horse power, has acted in such a manner as to totally prohibit their use in some parts of the country, if put on with a view to making them a profitable investment." We believe, however, that, as in all other instances, time will effectually remove misgivings as to this; public necessity will demand and compel it; and it may not perhaps be drawing unreasonably on our imaginative faculties to assume, that even before the present generation shall have passed away, we may see our street vehicles, omnibuses, &c., propelled by the iron horse, and moving through crowded thoroughfares with as much ease and grace as the participators in "a mazy dance."

In the concluding paragraphs the author introduces to notice a curious incident connected with an experimental trip through Hyde Park, of a road locomotive intended for the Brazils, wherein an engine and train of six four wheeled waggons, with all the latest improvements, became embedded in the ground over an old ballast pit, but was speedily righted, to the astonishment of all present, by removing a small portion of earth in front of the shoes, enabling the formation of an incline, by which the engine literally "walked out."

In the United States considerable progress has been made in the practical application of this principle to common roads, and it is stated that in Chicago, Ill., and Massachusetts, there are five or six steam cars carried on two "bogies," the engine on the front "bogie," and the boiler in the car, the steam passing down through the spherical joint which connects "the bogie" to the body of the car; moreover, that these cars have been found economical on branch lines. Our transatlantic friends are sure to set us example in this as in that of horse passenger tramways, about which latter, as applying to our city, some remarks may be found elsewhere.

It occurs to us that this principle of locomotion would fitly present a desirable field for the enterprize of capitalists, to introduce under the auspices of a public company, into the suburban districts of important cities and towns, public conveyance propelled by steam power, and whatever amount of prejudice might beset its path at the onset, we have no doubt of its proving substantially remunerative. Some years ago (perhaps twenty) a huge cumbrous engine traversed our streets, tearing up the roadways, causing horses to take fright, &c., and the outcry became so general that its progress was forbidden by the authorities; but we must bear in mind that so great are the improvements since effected, that an engine of 15 tons weight, and train of 18 tons, will scarcely leave more weight on a soft and even spongy soil, than an ordinary coal waggon, and, moreover, that the outward appearance is considerably diminished in bulk, and consequently the probabilities of accidents through fright to animals lessened. Should a decided movement for practical application at any time henceforward result, the author of this interesting and admirable work may congratulate himself on being the medium for its inauguration, and in reward for his laudably directed labour and ability, independent of the boon derivable therefrom by the public, we earnestly hope for a successful consummation.

FREE PUBLIC LIBRARIES.

In our last number we quoted from a cotemporary a paragraph to the effect, that the attention of the Lord Mayor had been directed to the desirability of establishing a free library in Dublin on similar principle to those in Manchester, Liverpool, and elsewhere; and *apropos* thereto, and to satisfy ourselves of the particulars connected with the foundation of these establishments and their working, we proceeded to the towns named, and, through the kindness of the respective librarians, collected all facts in connection therewith. The Manchester Free Library is situated in an important building at Byrom-street, possessing some noble and handsomely decorated apartments, communicating with a spacious staircase, and originally devoted to purposes of a very different character, foreign to literary pursuits, but which we need not now particularise. However, sometimes "out of evil cometh good," and the existence of the library is attributable to a few gentlemen who urged the then Mayor, Sir John Potter, to adopt the necessary steps for its formation, and which was effected in the year 1854, with comparatively little preliminary trouble. A sum exceeding £10,800 was raised by public subscription, and during the first 18 months of its existence upwards of 7,000 volumes of books were presented gratuitously to aid in the formation of a library. It now comprises a reference library of 30,000 volumes, four lending branch libraries, containing upwards of 22,000 vols., with a public newsroom in addition to each, and like that at Liverpool is mainly supported by a borough rate of 1d. in the £1 on the assessable property. The principal apartment on the ground floor is devoted to a newsroom, but only a certain class of "news" periodicals are admitted therein, and the committee are said to be particularly scrupulous in the rejection of all of a sectarian or political character; the upper is the library, with a librarian's apartment off same, and above that again are book stores, &c. We were much struck, on entering, at the decorum and silence that prevailed in this apartment, where probably some hundred readers of all classes were assembled, and which is a striking proof that where public benefits of an educational character are conferred, the masses of every order of society testify their appreciation by their demeanour. The issue of books during the year ending 5th September, after its establishment, were as follows :—

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* Steam on Common Roads, by Charles Frederick T. Young, C.E.; and its Progress in the United States, by Alexander L. Holley, C.E., and J. F. Fisher, Engineers, New York. London: Atchley and Co.

	Vols.
From the Reference Department	64,578
From the Lending Department	77,767
Total	142,345

Amongst the early donors to the library were H.R.H. the Prince Consort, the British and Foreign Bible Society, Sir John Potter, Thomas Bazley, Esq., President of Chamber of Commerce; the Earl of Yarborough, Trustees of the State Library of New York, and Henry Houldsworth, Esq.; and subsequently numerous important additions were received.

The example set by Manchester was speedily followed in Bolton, Oxford, Winchester, Norwich, Aberdeen, Cambridge, Bristol, Sheffield, Preston, Newcastle-upon-Tyne, &c. On the occasion of the opening of the Rochdale-road Branch Library, on the 4th June, 1860, the chairman stated, "that the librarian was constantly receiving inquiries as to the management, &c., of the institution, for guidance in other towns," and further, that in looking through the reports of the Bolton, Cambridge, Sheffield, Birkenhead, Westminster, Liverpool, and Salford libraries, found all to declare, in most emphatic terms—first, that *the expectations of the promoters had been exceeded*; second, that *no damage had been done to the books but what was astonishing for its inconsiderableness*, and that the actual losses sustained were of a marvellously unimportant character. During five years, in which time the library had circulated 790,000 books, the loss sustained had only been 20 volumes, averaging perhaps 2s. each. If these things were done in the *green* wood, what might be done in the *dry?* If such were the achievements of free libraries in the past, what might they not anticipate for the future? If so much had been accomplished under the disadvantages of novelty and inexperience—and of the comparatively limited demand for reading, which alone a partial education of the people could supply—what would they not do when the improvements and extension of education—youthful and adult—now so rapidly progressing, have had time to produce their natural, inevitable, and most satisfactory results? In 1838 the Government grant for education was £20,000; in 1860 it was £793,000!!! The other branches of this library are at Hulme, Campfield, and Ancoats. The character of books comprehended in this institution, as far as we had an opportunity of judging, seem to be of the highest standard, comprising the best works on manufacturing industry, statistics, antiquities, architecture, engineering, mining, geology, chemistry, mineralogy, meteorology, astronomy, natural history, botany, anatomy, and physiology, &c.

Passing thence to Liverpool, we need scarcely remind our professional readers that the building in which the library is situated formed the subject of a memorable competition, and was subsequently erected after the designs of Mr. Weightman, architect, town surveyor. Whatever may be its architectural merit—and it has some—it is placed under considerable disadvantage in close proximity to the most perfect classical composition of modern times—St. George's Hall. The approach is up a steep incline to a spacious terrace in front, confined by a handsome retaining wall, capped by a balustrade, and thence to the building by several flights of steps. The principal façade presents a hexastyle corinthian portico, pedimented and centrally placed, and at each end are antæd projecting wings, the intermediate spaces presenting five entablatured square-headed windows, with sunk panels over each, of somewhat similar character to those in St. George's Hall. Above the central portico rises a superstructure, within which is the roof over the hall—a noble apartment, with galleries above and arcades below, but whose architectural effect would be immensely improved by the judicious introduction of colour.

In certain portions of the building are placed the reading and library apartments, the Derby Museum, gallery of arts, &c., the arrangements being of a very comprehensive character. Connected with this institution are botanic gardens, public parks and squares, and we find by the eighth annual report that considerable improvements had been made in the former, and a pavillion for the performance of music erected in the park, also that the squares and gardens have been maintained in a clean and orderly condition.

It may be remarked that the opening of this building on the 18th October, 1860, was celebrated with much *eclat*, there being a general holiday and a procession of the mayor and civic authorities to the hall, in which Lord Brougham, the Lord Bishop of Chester, Sir Robert Peel, M.P., and numerous other notabilities attended. Mr. William Brown, the munificent donor of the building, formally presented it to the mayor; in the course of the proceedings his statue, by Mr. Mac Dowell, was inaugurated. All honour to the man endowed with such a princely spirit! A donation of £1,000, presented through Mr. Brown by his late partner, Mr. Shipley, to be devoted to purchase of works for the library, was not the least gratifying incident of the occasion. Subsequent to this period, we find that an additional apartment, 80 by 50 feet, with spacious galleries, has been erected, also at Mr. Brown's expense, for the exhibition of new patents and improvements of a scientific character. The library contains a magnificent collection of volumes, and by the last annual report, October, 1860, we find that the number issued during the previous year was 195,962, as against 202,534, in 1858-9—apparently exhibiting a falling off, but satisfactorily accounted for in the fact, that public taste was declining in the reading of works of mere fiction and amusement, those of a scientific and educational chrracter being extensively appreciated. The present contents of the central reference library are 31,453 volumes. Nearly *half a million* of books per annum are issued from the *lending* libraries, being at the rate of 3,000 per diem, 332 per hour, or nearly 6 per minute during the whole time the libraries are open. At present there are 6,881 male readers and 1,768 females, but unfortunately the gentler sex seem to patronize almost exclusively *works of fiction*. The instances which are continually coming to light of the special usefulness of these lending libraries are stated to be interesting in the highest degree, and the opportunities afforded to working men of perfecting themselves in the studies belonging to their own occupations by access to the best books, have proved in many cases most valuable. Very recently the superintendent reports that a labouring man, who has obtained all his education by means of these libraries, has gained one of the prizes offered by a London publisher for an essay on "the education of the working classes," and that the same man has recently been appointed manager of a chemical manufactory, a promotion due, according to his own statement, to the advantages hence derived. Let us hope that the benefits of such institutions may be speedily extended to this country, and we know of no one so eminently qualified by his influence, commercial position, and philanthropic excellence to inaugurate a movement in this regard as the worthy chief magistrate who at present, for the second time, occupies the civic chair of Dublin.

RELIGIOUS ART TASTE.

HAPPILY for our national credit, "the dark age" of art in religious edifices is gradually emerging into oblivion, and the antiquated, blockey, barn type structures which studded this island, are paling before the taste of the modern architect. Perhaps in no portion of the United Kingdom is this much-desired innovation comparatively more manifest than in this metropolis, and it has simultaneously became our duty and our pleasure, independent of sect or persuasion, in pursuing our mission, to chronicle the various improvements that have recently taken place, or are in course of development. Amongst the more important works are those at St. Patrick's Cathedral, the new churches of St. Saviour, Dominick-st., and St. James' two parochial churches, James'-st., the Molyneux in Lesson-st., and those in the neighbourhood of Rathgar (alluded to in last number), each of which we have particularized in our columns, and which certainly contribute materially to the architectural character of the city and southern suburbs; but even passing to others less comprehensive, we find that an impulse has been given to religious taste, which is highly commendable. Somewhat under the above title, the *Freeman*, in describing certain works in the church of the Conception, Marlborough-st. (elsewhere quoted), has the following remarks:—

"Religious taste may be defined to be—that faculty of the soul affected by the elegant arts as applied to the worship of God. Religion has subsidised and hallowed all that is refined in sculpture, painting, and the fine arts, and employed them as auxiliaries in exciting sentiments of piety and directing the soul to the worship of the Deity. Those faculties are operated upon under God, and those affections produced by the elegant arts through the instrumentality of the senses, the imagination, and the judgment. Good judgment, as well as religious taste and devotion, will tolerate nothing else within the temple of God than that which is useful, auxiliary, and subordinate to the promotion of those feelings of awe, veneration, and piety, with which every Christian soul should be impressed on entering within its sacred precincts. Many of the monumental structures of modern times erected within our churches are little more than the rude accumulations of ill-shaped stones, objects of deformity rather than ornamentation to the temple of Divine worship—worthless for all purposes of utility, and possessing no claims to have been the productions of true religious taste—often destitute of even one emblem of Christianity to symbolize the holy faith professed during life by the departed individual it was intended to commemorate, or the charity that animated him, or the cheering hopes in which he died of attaining a glorious immortality. When we contrast the sculptured emblems of broken columns, and inverted torches, and urns, and winding sheets, and wailing widows and orphans, and other lugubrious emblems of mortality, with the monumental creations of true religious taste, such as a mortuary window of stained glass, representing in glowing and beautiful colouring some of the mysteries of our holy faith, we instantly proclaim the triumph of true religious taste over the heathen relics of unholy ages."

CHARACTERISTICS OF GOTHIC TRACERY.

THE origin of tracery may be dated from the close of the 12th century, from which period it was gradually developed into its more perfect form, after passing through a variety of gradations, from the simple *cinq* or *tre* foil to the flamboyant, decorated, &c. At a very early period it became customary, in the case of doors and windows, to enclose two small arches within one larger one, leaving a tympanum or blank space between the larger arch and the heads of the smaller ones, suggesting a favourable opportunity for perforation to increase lighting area, and moreover relieving the eye of the blank space. This was the first advance towards its development, and the aperture was pierced in the form of a circle, quatrefoil, cinqfoil, or other simple figure, and sometimes the spandrels were similarly treated. Hence originated *plate* tracery, the surface of the stonework being flat, and opposed to the subsequent *bar* tracery, which, as the title implies, is where the patterns of the openings were formed by the intersection of bars of splayed or moulded section, one portion of the surface being more prominent than others. In some edifices *plate* and *bar* tracery may be found in the same window, showing a stage of development. The latter altered considerably in form and variety of design with succeeding periods, being first disposed in simple patterns, to which the name *geometrical* was given, then *perpendicular*, *decorated*, *flowing decorated*, &c. All tracery is geometrical, consequently the former term is inappropriate, but serves to distinguish a period. The perpendicular characterises that tracery wherein vertical lines predominate, with occasional horizontal lines, such as transom bars, and the patterns partake of stiffness of character. The decorated and flowing decorated present a greater freedom and variability in curvature of lines and richness of finish. In all the above instances the practice of cusping the various figures is very common, such ornamentation being seldom omitted. When the tracery is of a complicated character we find a sort of subordination observed amongst the less significant members; thus the principal compartments of a window are divided by large bars, consisting of a large assemblage of mouldings, of which only a portion are employed in the bars which form the subdivisions. The Gothic buildings of France are noted for a peculiar form of tracery termed *flamboyant*, from its flame-like appearance. It is similar to some examples of our flowing tracery, but differs in this, that the leaf-like openings always terminate in a sharp point at the top, and thus assume rather the appearance of flames. The date of any ancient Gothic building can be defined as accurately by its tracery, as can the style of any classic building by its columns and entablatures.

PURE AIR FOR ANIMALS.

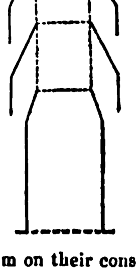
THERE are few of the conditions affecting the health of animals which have a greater influence than the state of the atmosphere they habitually breathe. In air charged with putrescible organic matter, health is impossible. Of course, the question of health is one of degree; and animals may be, in a general sense, free from active disease, and yet greatly below the condition in which they are capable of that amount of exertion and endurance which is incidental to the highest health.

Atmospheric causes are ever acting; inspirations of air are made many times in a minute; and if the air contain any impurity which acts unfavourably upon the blood of the tissues, how vain to hope for health. The old theory of atmospheric pollution was, that oxygen was consumed and carbonic acid generated, and that the disturbance in the proportion of these two gases was the cause of all the ill effects of bad air; and that these ill effects were always in proportion to the deficiency of oxygen, and the excess beyond the normal quantity of carbonic acid. It has been found, that although there is truth in this theory, it is but part of the truth; the other part is the presence of organic matter in the air, and the fact that this organic matter is liable to putrescence. If in ordinary circumstances the air could be kept free from this latter cause of pollution, it is highly questionable whether inconvenience would be experienced from the diminution of oxygen, or the slightly increased proportion of carbonic acid—the law of diffusion is ever operating to maintain uniformity of composition—and it is found by experience that if air is free from other impurities, a much larger proportion of carbonic acid can be breathed with impunity, than is ever found in the atmosphere of the most crowded rooms. The offensive smell we perceive on entering a close and crowded apartment ought at once to warn us of the presence of some other impurity than carbonic acid, as carbonic acid is entirely scentless. The odour is to be attributed to the organic matter exhaled from the skin and lungs of the occupants of the apartment.

In a stable we have necessarily exhalations not only from the skin and lungs, but also from the droppings and urine of the animals, or from the pavement which has been in contact with them. It is *this* which is the chief source of inconvenience and danger. The organic matter in the air is liable, in consequence of its finely divided state, to rush into putrefactive fermentation, and then to act as an active poison in degenerating the blood, exciting sub-acute fever, with headache, nausea, and loss of appetite. It is not possible to prevent the presence of organic exhalations in the atmosphere in which animals are confined, but science has supplied us with the means of rendering it innocuous—but for its liability to putrescence it would do little harm; this liability can now be removed.—*Agricultural Review.*

SMOKY CHIMNEYS.

AN admittedly intolerable nuisance is a chimney that will not draw *at all*, and equally so is one that has its respiratory organ disturbed by every blast, and with each puff for breath returns a volume of smoke into an apartment. Yet many such there are, even in our most modern and otherwise best constructed buildings. A too straight or too quickly curved flue, a low chimney stack—at least low as regards surrounding objects—and various other causes, serve to produce this nuisance. The ingenuity of inventors has been lavished on its alleviation, and we verily believe that the records of the Patent Office would serve to show a preponderant proportion of apparatuses alleged "to cure effectually smoky chimneys," beyond those connected with any other department of building appliances. How far a legion of those do *not* answer in practice, is a fact which that unerring teacher, experience, has fully demonstrated; but again, that there do exist means to accomplish the object, is equally patent. Communications have been addressed to us in an editorial capacity by individuals requesting suggestions to remedy defects in various matters connected with ordinary buildings, viz., damp walls, insufficient sewerage, and amongst the rest "smoky chimneys;" but as we do not profess to be a potent consulting physician, prescribing effectually under all and every circumstance, as also being unwilling to usurp the privileges of our professional brethren, we invariably advise enquirers to consult their own "family doctor," and not expect advice for *nothing* through the medium of the *Press.* With the public, however, the case is altered, and it is the *duty* of a journalist to direct attention to such inventions as lay *legitimate* claim to merit. During a recent (and one of our periodical) visit to London, we learned that an invention for the purpose in question was found so effectual that it had been extensively adopted in numerous public buildings, private mansions, &c.; and having successfully sought the patentee, proceeded to satisfy ourselves as to its efficiency by personal investigation. At the Tower, where buildings are grouped in close proximity, materially differing in height, in fact, in one instance in "a very ditch" or moat; at Battersea New Bridge, exposed to every wind of heaven; at the old Adelaide Hotel, on London-bridge (now the general registry for seamen); at Regent's and Battersea Park lodges, where tall trees are clustered; and elsewhere, too numerous to particularise, Hagan's patent ventilating chimney tops *do* successfully and with equal efficiency cure "smoky chimneys." The secret of the invention—and we are justified in divulging it, as it is protected by patent—consists in the provision against draught and consequent return smoke, as may be seen by the section herewith; not only the ordinary upward current of the fire-place and flue being secured, but several auxiliary currents obtained in the chimney top itself, forcing the smoke upwards. The patentee claims "that the necessity of building tall chimney shafts or using long tubes is hereby guarded against." As the invention has been introduced to the notice of the Irish public, we hope to see its extensive adoption, and we may suggest for the information of some of our readers—though it is a matter to which we are on principle perfectly indifferent—that the patentee has some additional claim on their consideration, being himself *an Irishman.*



THE INTENDED MARKETS.

NOT the least important element universally reputed to be present in the constitution of the Irish is "uncleanliness of habits," and certainly the greatest stickler for the maintenance of national honour must be devoid of *two* of his senses, if, after a ramble through the localities where our so-called markets for edibles exist, he will not frankly admit that there is much reason for the characteristic epithet being appended. And this remark especially applies to Dublin,—the second city in her Majesty's dominions, the seat of Viceroyalty, learning, fashion, and moreover a gem, a combination of gems, in architectural beauty—for Belfast, Cork, and Limerick, nay, some of our pettiest towns with their neat and clean market houses—though they are unfortunately in the minority—put us completely to the blush. Where but here is to be found such a picture as presents itself in Cole's-lane, Moore-street, Pill-lane, William-street, and D'Olier-street markets? Fowl, butchers' meat, fish, and vegetables all huddled together in dilapidated stalls, and the two latter especially, at the feet of the purchasers, under the "open canopy of heaven," forming intimate acquaintanceship with the street puddle, and offering a tempting allurement to stray passers by of the canine species. Decayed vegetables, fish entrails, sawdust, sweepings from the stalls, and offal of every description complete the picturesqueness of the effect; but, alas, how revolting to decency, how detrimental in a sanitary regard! Who should wonder that pestilence would affect most fatally localities so circumstanced; and yet, breathing this poisonous atmosphere day and night, revelling, as it were, unconcernedly in filth, are numbers of our fellow citizens. Yet thence are transmitted the viands which furnish alike the tables of the rich and the poor man, forcibly illustrating the proverb that "if ignorance is bliss, 'tis folly to be wise." How noteworthy is the contrast presented in Liverpool, Manchester, and adjoining towns, which we visited last week! There systematic arrangement, with every requirement for sanitary welfare, abundance of ventilation, water, and scrupulous cleanliness, present themselves; each class of vendors occupies the place allotted to them, suitably adapted for their respective business. Purchasers are under shelter, and can supply their wants in comfort. Our Corporation, it seems, had no power to expend any of their funds to remedy this state of things, or to erect suitable buildings. A few private individuals, alive to the necessity of some improvement, and with a philanthropy which cannot be too highly appreciated, assumed the initiative, and prepared a bill for Parliament. This bill has passed the second reading in the Commons, and most probably will become law—a consummation devoutly to be wished for.

PREPARING FOR THE EXHIBITION.

WE notice that the committee entrusted with the arrangements for the exhibition to be held next May, in connection with the Royal Dublin Society, are bestirring themselves, and that the works at the Hall are in a comparatively forward state. Two galleries, running longitudinally over the aisles adjoining the nave, are in course of construction by Messrs. Courtney and Stephens, and are supported by iron framework with elliptical trellis girders, resting on shoes previously cast to receive them on the main columns sustaining roof. Some of the semicircular ribs of nave roof are being decorated in colours, but as yet we are hardly enabled to judge of the probable effect. A similar style of decoration to that on Museum roof is being adopted. Timber staircases of spacious width are being constructed by Mr. Walter Doolin, contractor for the woodwork and fittings. Awarding the committee all due merit for their desire to make the most judicious arrangements possible in connection with the existing building, we must again express our opinion that it ought to have been much higher to admit of the subsequent construction of galleries, which are only ten feet from the ground, and at once strike the eye of a visitor as unsightly.

NEW ROMAN CATHOLIC CHURCH, CLARE ISLAND.

A SMALL Roman Catholic church is to be built on this island, near Westport, county Mayo, according to plans, &c., by Mr. J. J. Lyons, architect, 17, Lower Gardiner-street, Dublin. It will be 70 feet in length by 25 in breadth, by 18 feet high to wall plate, and comprise nave, chancel, sacristy, and porch. At south-west angle will be a spirelet of simple but effective character, and provision for a bell made therein. The style adopted is lancet Gothic, the west and east windows being tall and graceful triplets, those of the sides single lights, with heads rising into gablets, breaking the outline of the eaves, and forming a pleasing and uncommon feature. The roof will be of open timber work, stained and varnished, with framed trusses in arched form springing from plain chamfered corbels. The furniture will be of the simplest character. [We are asked to mention that subscriptions for this building will be thankfully received by the Rev. James B. Davis, Clare Island.]

TOWNSHIP OF RATHMINES.

WE are reminded by a valued correspondent that, in referring to the defeat of Lord Ormonde, at Rathmines, as the only historical incident connected with it, we had overlooked the much older occurrence of the massacre of the citizens of Dublin, or rather the "men of Bristol," at Cullenswood, the memory of which has been perpetuated to this day by the name of "the bloody fields," attached to the spot, not very far from Lord Palmerston's new road, adverted to in our last number, where old Rathmines Castle stood till it was pulled down, about twenty years ago. The new road being constructed by Mr. Frederick Stokes, the Chairman of the Commissioners, and which we also noticed last number, runs through another spot having old associations connected with it, though only extending into the middle of the last century. It was then described as Ranelagh Gardens, and was a public place of amusement, no doubt named after its prototype in London, and eventually gave its name to the village itself. It was then merely called "on Milltown-road," and occupied the whole of what is now the nunnery grounds, and several adjoining premises. Report says that the good nuns have been so completely besieged with bricks and mortar surrounding them, that they intend when an opportunity offers to go further afield. The road referred to, not of much importance in itself, will help to complete a direct line of communication through the township from west to east, through Leinster-road, Cullenswood and Charleston avenues, and Appian Way—the new cut making a junction between the latter and Ranelagh-road.

In the west of the township, in addition to those already noticed, a terrace of sixteen houses of a superior class is half finished, in a new square at the rere of Leinster-road, to be called Grosvenor-square, and seven or eight new houses are to be built on Leinster-road west.

Some interest is created in the district as to the result of the census to be taken in a few days, and which is expected to show an enormous increase. It was in 1851, 10,189, against 7,886 in 1841, and will probably on the present occasion reach 14,000!! The preponderance of the fair sex is most remarkable, perhaps without any parallel in the empire on so large a scale, and goes on in an increasing proportion. In 1851 there were 6,299 females against 3,890 males—(in one townland, Baggotrath, they are two to one and nine over)—the increase in the previous ten years having been 751 males and 1552 females. Whether the ladies continue to favour the township in so large a proportion, the census will soon show. We know that very many of those now erecting new houses in the district belong to the gentler sex.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING took place on the 4th inst. After some preliminary business Professor Donaldson called attention to two ancient vases sent to this country by Rous, engineer to the Alexandrian railway. The largest of the two contained some calcined bones, and the smaller was one of the most interesting specimens that came under the Professor's notice. He believed that the former was of the period about 200 years B.C. The Chairman announced the result of the deputation of the Institute to the First Commissioner of Works relative to the decay of the stone at Westminster Palace, and said that that official assented to the views of the Institute as regarded *a commission*, but also expressed himself in favour of inventors directing their attention to the subject. Mr. Papworth read a paper by Mr. Waring, entitled "Notes on Romanesque Art in the South of France," and alluded to the appointment of Mr. Joseph, sculptor, to the curatorship of Sir John Soane's museum.

ENGLISH *VERSUS* IRISH ART WORKMEN.

As a painful illustration of the want of art education amongst certain classes of our workmen, it was remarked by Mr. Robinson, honorary secretary to the deputation from the committee for promoting the free opening of the Botanic gardens, awaited on the stucco plasterers, at their trade hall, on the 10th inst., "that the enormous sum of £3,000 was now being expended on the decoration of the new wing of Trinity College, and the new Kildare-street Club, all of which was paid to English and foreign workmen, because Irish workmen were found unable to execute this kind of work from not having any special artistic education. The Irish operative was denied the opportunity of cultivating his artistic tastes by closing against him botanic gardens and museums. Mr. R. detailed what he had witnessed in England and on the continent, where he had seen the artist merrily plying his chisel to the burden of some favourite ditty, while the flower, whose very petal was springing into life beneath his hand, stood before him in a bottle, in all the perfection of nature; and from whom had this artist that flower? From the curator of some botanic garden, or it was plucked in some country ramble.

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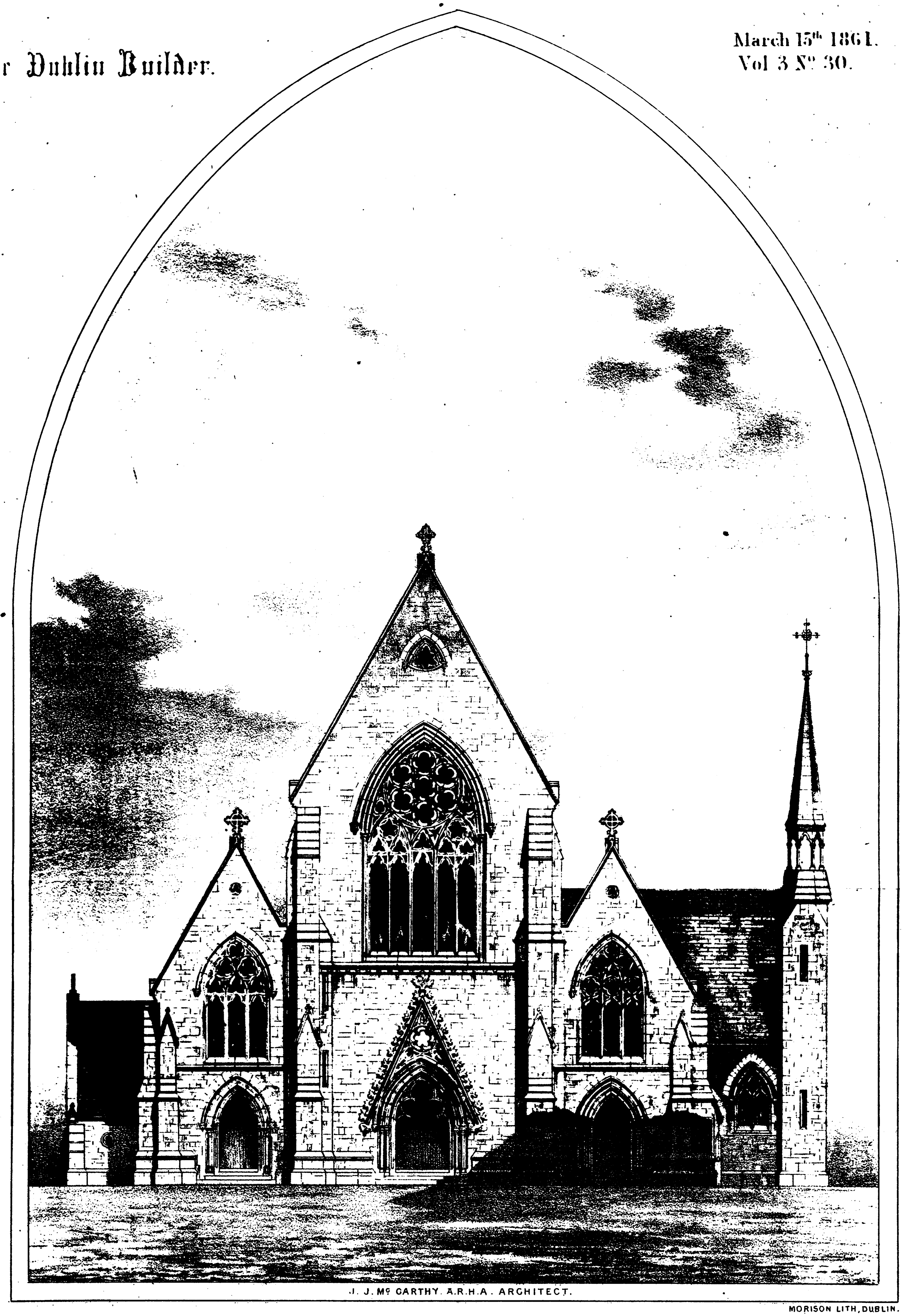

J. J. Mc CARTHY. A.R.H.A. ARCHITECT.

MORISON LITH, DUBLIN.

FRONT ELEVATION OF THE CHURCH OF THE IMMACULATE CONCEPTION, KILLENAULE
DIOCESE OF CASHEL, COUNTY OF TIPPERARY.

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THE RAILWAY TERMINUS AT AMIENS-STREET.

YOUR correspondent in the last number of the DUBLIN BUILDER alludes to a proposed extension of the Kingstown Railway into Brunswick-street; it strikes me that extension is hardly so necessary in the case of this line as some others; for instance, the terminus of the Dublin and Drogheda Railway is so inconveniently situated as to be practically useless for short traffic, and consequently the magnificent district of Howth and the intervening localities are totally neglected and unused as building sites, although, perhaps, no other line running into Dublin possesses the same facilities for extension. From the nature of the property surrounding, a moderate expenditure of capital would bring the terminus into close proximity to Carlisle-bridge, crossing Beresford-place and Abbey-street. With a terminus so completely within the city, the Dublin and Drogheda Railway would soon rival the Kingstown line, and Howth become a favourite place of residence for the citizens. G. B.

[Apropos to this, it was (as we are informed) projected to have the terminus of the railway in question at Beresford-place, which would seem to be very desirable for public convenience, and to which no practical difficulty presents itself; but we learned recently that instead of coming *nearer* town, the company propose to erect extensive terminal buildings *farther* on, on the site between the waste ground adjoining the present terminus and Preston-street.]

CONSTRUCTION OF RAILWAY CARRIAGES FOR THROUGH JOURNEYS.

IT has often struck us while travelling long distances on railways that the present construction of carriages serves materially to diminish the comfort of passengers, present impediments to facility of transit, and moreover entail unnecessary expense on the companies, who are thereby obliged to maintain an extra staff of officials, which under ordinary circumstances might not be. If we take, for instance, the journey from London to Holyhead, how many stoppages are there per mail and express trains for taking in water and coke, procuring refreshment for passengers, and taking tickets? To the former instance—the mail—where every moment gained is a considerable object, not only to the passengers, but the general public the remark particularly applies; and what need would there be for the loss of the *hour* fully incurred in stoppages at stations for the above purposes, if the construction of the component parts of the train provided for them. The engine might, without any practical difficulty, be constructed to supply a sufficiency of both water and fuel for the journey; a refreshment room might be attached to each suite of carriages, as also a W.C.; facility of egress for the guard from one carriage to the other is also practicable; and the necessity of *any stoppage whatever* on the journey would thereby be effectually obviated. The arrangements of steamboats are far above those of railway trains. Is it not possible to have a boy steward and girl stewardess accompanying each train, to minister to the requirements of the passengers between Holyhead and London, as is the case between Kingstown and Holyhead? and if so, might not all the night staff of officials—save a porter to direct the signals—ticket clerks, and refreshment saloon keepers, who may be seen yawning for their natural repose on the arrival of the night mail at Chester, Rugby, &c., be dispensed with? Doubtless some of our readers will say this is very well in theory, but how is it to be applied to practice? Simply enough, answer we. Alter the internal arrangements of seats: instead of transversely, as at present, place them longitudinally, as in an omnibus—1st, 2nd, or 3rd class, as the case may be—so that a thorough passage in each carriage be secured. Then, at each end of this passage, constructed in the vertical framework of each carriage, let there be a small door and a moveable falling flap, communicating with the next carriage, and under the control of the guard or steward, who by a bell might be summoned instantaneously from one part of the train to another. Thus each passenger can have his or her wants attended to without stoppage at stations, which is very often too anxiously looked for in case of sudden illness, &c. In a former number[*] we urged the desirability of "sleeping apartments" on long lines, and the suggestion has been receiving much consideration at head quarters. We trust that the above will be judged equally entitled thereto; indeed, even on the plain principle of "interest" it would seem to demand it from railway companies. The first practical benefit to be derived therefrom by the Dublin public would be that the special London letter delivery of eight o'clock, a.m., might, by *the saving of the hour on the road*, merge into the ordinary provincial letter delivery, and numerous hands in the Post Office be dispensed with.

A COLUMN FOR CRAFTSMEN.

NO. I.—CARPENTRY.

(Continued from page 445.)

THE names of Sir Christopher Wren and Peter Nicholson are most popularly associated with the attainment of pre-eminent skill in carpentry—the timber trussing of the dome of St. Paul's Cathedral, London, and the temporary self-suspending scaffolding beneath it, being of themselves alone sufficient, independent of the former eminent architect's other great works, to immortalise his fame; and the elaborate geometrical and practical diagrams and illustrations, with copious descriptions, comprehended in the works of the latter, are, despite the productions of more modern innovators, recognized to this day as the only reliable and standard authority, stamping indelibly the memory of the author as one "on whose like we ne'er shall look again." On the application of mechanical principles to carpentry, Professor Robinson, of Edinburgh, contributed to the *Encyclopædia Britannica* elaborate papers, and the celebrated engineer, Alex. Nimmo, did similarly for the *Edinburgh Encyclopædia*, but after Nicholson's, Tredgold's works are the most important on this subject.

The principal operations connected with the *constructive* department of carpentry, are the formation of roofs, floors, bressumers, lintels, and all manner of bearing timber and framework, scaffoldings, &c. Of the above, probably the most important and on which science has been brought to bear to the greatest extent is "roofing." The invention of the pediment roof is justly attributed to the Greeks; but as the most of their public buildings were "hypæthral," or open to the sky, we have no examples of any important constructive attainments by that people. The Romans employed timber to a considerable extent, constructing theatres and amphitheatres wholly therewith, and their roofs over public buildings sometimes displayed great skill, and moreover were decorated, as in the Basilica of Peter, erected by Constantine. The ancient Egyptians, Babylonians, and Persians, as well as other eastern nations, had their roofs quite flat; the Greeks, slightly inclined; but in the middle ages the Gothic roofs were very high pitched, and the tie-beams omitted to obtain lofty ceilings. In most old buildings in Britain the equilateral triangle seems to have been the standard pitch; subsequently the ridge was lowered, the rafters being three-fourths the breadth, and then called *true* pitch, but the *square* is also thus designated. *One-third* and *one-fourth* the width of the span is popularly adopted in modern practice for ordinary house building, and for such structures wherein the roof is not a special architectural element. It is seldom lower, unless indeed when paltry and mistaken economy intervenes. High pitched roofs present the advantage of throwing off the rain and snow with greater facility, and consequently decreasing the probabilities of damage by leakage; low roofs, however, are much cheaper, requiring shorter timbers. When executed with care and on proper principles, the roof is an important addition to the strength and stability of a building, binding the whole firmly together, and protecting it from the effects of the weather; whereas if the reverse, the consequences may be serious, main walls becoming thrown out of the perpendicular, unequal pressure caused, &c., sometimes resulting in total destruction of the whole. What are called ordinary jack rafter roofs are employed usually where the span does not exceed 20 feet, or thereabouts, but above that amount trusses of various constructions, which we shall presently describe, are employed. For a span not exceeding 14 feet it is usual to dispense with ceiling joists, causing the collar ties to answer the double purpose, but above that span the imprudence of omitting them is unquestionable. There are instances, however, where sheds and other buildings of 20 feet span are covered with simple collar-tie and Jack-rafter roofs, but sooner or later it becomes a matter of regret that such a "penny-wise pound-foolish" course should have been adopted. Where trusses are employed, the construction varies considerably, according to span and other circumstances, and the simplest forms are most popularly known by the terms king and queen post respectively. The former comprehends a tie-beam from wall to wall, an upright piece of timber resting thereon in the centre, its upper end framed into principal rafters of same thickness, for which a joggled head is formed on the post, and again its lower, also joggled, to receive the feet of diagonal struts, sustaining the principal rafters about midway or nearly so. The truss thus formed is independent for the time being of the ordinary roof rafters, which are subsequently made to rest on purlins or longitudinal timbers, bearing from truss to truss. At the intersection of the king post, the tie-beam, and the principal rafters, it is usual to strap the joints together with iron of approved quality, and sometimes to bolt them. The queen post truss has its vertical timbers somewhat similarly constructed, but they are two in number, and placed equidistantly *from* the centre, the heads being connected by a hammer beam, and having a straining sill at bottom.

(To be continued.)

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[*] See No. 20, Vol. iii.

SEASONING TIMBER.

ONE of the great secrets of the stability of ancient edifices before those of the moderns generally, was the immense care bestowed on the seasoning of their timbers previous to using—a precaution which now-a-days is all but totally disregarded. Chance *may* rule it that when a builder is declared contractor for a certain work, he *may* have on hands a large amount of timber thoroughly or even partially seasoned, but should it not be so, the result will speedily declare itself in the opening of the joiner's work, cracks in the ceilings, partitions, &c., The majority of our best timber is imported from the north of Europe, and is immersed in docks, floating therein, till sold for use; the consequence is, that becoming swelled so much beyond its former and ultimate capacity, it will, if hastily framed together while the very water is in its composition, in drying, contract so rapidly and to such a degree as to cause the effects above stated. Some people fancy that the immersion of timber seasons it, but we are borne out by facts and experience in questioning the truth of such a statement. In many cases dry rot is engendered in the timber of hastily-constructed buildings by the quantity of dock water thus pent up and used while in a dropsical condition. After timber is felled, it should be immediately piled up perpendicularly in a dry place with a free circulation of air round it, and so placed as to prevent undue exposure to rain or sun. Some people prefer keeping timber as moist as possible, and after a fortnight's immersion the boards are set upright and turned every day, a practice which some allege causes the flooring to be of a much better quality than that obtained from boards many years seasoning. The sudden decay of timber is generally owing to the sappy nature of the exterior surface, incapable of remedy by any application of paint, the latter proving actually injurious if applied, since it hinders the free admission of air and heat. Timber is sometimes subjected to a process called charring, or scorching over a flame, till the surface assumes a crusty appearance. Various methods have been from time to time proposed for seasoning timber, and preventing its rapid decay, amongst which we may enumerate Kyan's, Payne's, and Burnett's patents. Mr. Kyan's infusion is corrosive sublimate, and the process consists in submerging the timber in tanks for about a week, then taking it out and drying it. Sir Humphrey Davy had previously recommended a weak solution of the same thing as a wash where rot had made its appearance. Dr. Birkbeck made a favourable exposition of Mr. Kyan's process. Payne's process, besides professing to preserve timber from dry rot and the ravages of insects, is said to render it uninflammable, or at least to deprive it in a great measure of combustibility. The effects ascribed to Burnett's patent are that it hardens and improves the texture. It enters into permanent chemical combination with the ligneous fibre, and does not come to the surface by effervescence, and no amount of washing or boiling will remove the chemical compound. Further, it renders the wood uninflammable when used of a certain strength. The basis of the process is chloride of zinc, having peculiar affinity to woody fibre. There is no decomposition produced.

TRAMWAYS FOR DUBLIN.

AT a recent meeting of the corporation a report was read from Committee No. 1 in reference to a proposal by Mr. Train, the patentee of the tramway system, to lay down tramways in the streets of Dublin on the same terms as he had agreed to lay them down in Manchester, London and other towns in England. The committee had referred the matter to Mr. Neville, the city engineer, who recommended the corporation to allow Mr. Train to try the experiment in Dublin by laying down a line of tramways along the route to Clontarf, or by Brunswick-street to Sandymount. The report having been read for the first time, was ordered to lie on the table.

Alderman Lambert said that as the matter was one of considerable importance it would be well to dispose of it without further delay, and if the council did not object he would move the suspension of the standing orders with a view to the discussion of the question.

Alderman Reynolds objected to the suspension of the standing orders. The report was not the report of the committee, but of Mr. Neville, and the subject was one of too much importance to be hastily disposed of.

Mr. Joseph said that the corporation ought not to sanction the introduction of tramways into Dublin until their value had been completely tested in London, Manchester and Liverpool.

The committee for rebuilding St. Andrew's Church propose to transfer, for the benefit of the city, the semicircular piece of ground in St. Andrew-street, measuring 26 feet in the centre, provided the corporation will contribute the sum of £500, estimated for completion of the boundary railing and stonework.

BIOGRAPHY OF PALLADIO.

THIS eminent architect was born at Vicenza, in Italy, in 1518. He obtained instructions from the poet Trissino, who discovering in him a genius for sculpture and the arts connected with it, taught him the elements of mathematics, and explained to him the works of Vitruvius. He soon obtained distinction as an architect, and having an opportunity of accompanying his patron to Rome, he employed all his faculties in examining the remains of ancient edifices in that capital, and formed his taste upon them. On his return many works of importance were committed to him, which he managed with great skill, and obtained for himself a high reputation. He was now sent for to Venice, where he built the palace Foscari in the style of pure antiquity. Several other Italian cities were afterwards decorated with magnificent edifices, public and private, of his construction, and he was invited to the court of Emanuel Philibert, Duke of Savoy, who received him with distinguished honours. To Palladio is chiefly attributed the classic taste which reigns in so many of the buildings of Italy. His master-piece is reckoned the Olympic theatre at Vicenza, in imitation of that of Marcellus at Rome. He died in that city in 1580, having greatly improved the art, not only by his edifices, but by his writings, which are standard performances. Of these the following account is given: his *Treatise on Architecture*, in four books, was first published at Venice in 1570, folio, and had several times been reprinted. A magnificent edition, in three volumes, folio, was published at London in 1715, in Italian, French and English. Another, equally splendid, has since been published at Venice, in four volumes, with the addition of his inedited buildings. Lord Burlington published in London, in 1730, a volume entitled, *Indisegli delle Terme Antiche di Andrea Palladio*. He composed a small work, entitled *Le Antichita di Roma*, not printed till after his death. He illustrated Cæsar's *Commentaries*, by annexing to Badelli's translation of that work, a preface on the military system of the Romans, with copper-plates, designed for the most part by his two sons, Leonida and Orazio, who both died soon after. Palladio was modest in regard to his own merit, but he was a friend to all men of talents; his memory is highly honoured by the votaries of the fine arts; and the simplicity and purity of his taste have given him the appellation of the Raphael of architects.

In Palladio's designs, the ground storeys are generally composed of arcades of not very ornamental design, serving as basements to the principal storeys above, which are decorated with an engaged order, and most frequently with a pediment in the centre of the building above the cornice, though sometimes when a pediment is introduced, the cornice is discontinued beneath it. His buildings frequently have vestibules consisting of three arches or rectangular openings in front. The arches of his arcades are usually of semicircular form, but sometimes the space beneath the piers is subdivided into three portions by two lesser piers, the central compartment only being arched over. This form is sometimes carried out in his windows, which, however, are usually rectangular; sometimes also a semicircular shape is adopted, divided into three parts by vertical mullions.

In his churches he follows the Basilican form faced with a portico consisting of an order with entablature reaching to the height of the building, and covered by a pediment rising with the nave roof, those of the aisles having each a kind of half-pediment to agree with the slope; so that the central pediment has the appearance of having been placed in the centre of another so as to divide it equally into two parts. Amongst Palladio's other works, those of the church of the Redeemer and the Olympic Theatre at Vicenza, stand conspicuous.

The form of this latter building is semi-elliptical, round which the seats are extended in front of the proscenium. The entire width of the building is 109 feet, that of the proscenium 80 feet, and its depth 21½ feet. The front of the scena is composed of two tiers of Corinthian columns on pedestals, the lower tier of which are detached with pilasters behind, and the latter are half-columns attached to the walls.

The church of the Redeemer, at Venice, was built by this architect. The form would be that of a Latin cross, were it not that the nave is flanked on either side by three chapels open to the body of the church ranging the entire length of the nave, and receding from it to the same depth as the transepts. The division between them and the nave is effected by an arcade of semicircular arches springing from entablatures over Corinthian pilasters, which flank the piers of the nave. These piers are faced towards the nave by half-columns coupled, and extending to such a height as to carry an entablature over the arcade; above which on each side is a clerestory pierced with three semicircular windows, divided into three by vertical mullions. The choir is surrounded by isolated columns, and its extremity, as also those of the chancel, is apsidal. At the intersection a cylindrical drum is supported on four large arches, and is surmounted by a cupola or dome.

The church is considerably elevated above the ground, and is approached on the exterior by a flight of stone steps extending the breadth of the nave, and fronting the portico, which consists of two three-quarter columns and two pilasters, covered by a pediment. On each side of this, a wing projects in the line of façade, adorned with Corinthian pilasters than those of the portico, and continued round the sides of the building. The roofs of the aisles lean to, and in the façade present the appearance of a second pediment broken in the middle for the insertion of the portico.

After the death of Palladio, Italian architecture began to decline under the auspices of Borromini.

PHIDIAS.

THIS renowned sculptor—indeed the most so of antiquity—was an Athenian. The distinguishing characteristics of his works were grandeur and sublimity, and he particularly studied optical effect. To this purpose it was related that having, in competition with Alcamenes, made a statue of Minerva to be placed on a column, the work of the latter appeared so finished when viewed on the ground that it was universally admired, while that of Phidias seemed to be a mere rough sketch; but when both were seen from their destined situations the beauties of the first were lost, while the second produced the most striking effect. After the battle of Marathon he converted a block of marble, which the Persians had brought for a trophy of their expected victory, into a fine statue of Nemesis, the goddess of Vengeance. His reputation was so high at Athens that Pericles regarded him as his particular friend, and appointed him superintendent of all the public edifices with which that city was decorated. One of his greatest performances was a colossal statue of Minerva, in the Parthenon, in which work he displayed his skill in minute sculpture, no less than his grandeur of conception in the main figure. On the convexity of the goddess's shield was represented the battle of the Amazons, and on its concave surface the combat of the gods with the giants, whilst her slippers were adorned with the fight of the Centaurs and Lapithæ. On the breastplate was a Medusa's head. The base contained the birth of Pandora, with twenty figures of the gods. Phidias is said to have been the first who brought the bas-relief to perfection; his fame and fortune excited envy, and several accusations were brought against him, which he was enabled to repel. At lengh, however, he was charged with having introduced the portraits of himself and Pericles in the battle of the Amazons, and this being regarded as a kind of profanation, he was thrown into prison, where, according to Plutarch, he died. Others, however, affirm that he escaped to Elis, where he afterwards executed his Olympian Jupiter—the most remarkable piece of sculpture in all antiquity. It was a colossal statue, 60 feet high, of incomparable majesty and dignity in its attitude of expression. The name of the artist was engraven on the base. The Eleans, in gratitude for this work, settled upon his descendants a perpetual office, the sole duty of which was to preserve the lustre of the statue.

NEW ARTIFICIAL LIGHT.—Professor Bunsen finds that the brightest artificial light hitherto tried is magnesium wire burned in the flame of a common spirit lamp: its brilliancy is only 25 times less than that of the sun, and its photo-chemical power only 36 times less. Here, then, is a light which will enable photographers to carry on their operations at all hours of the night as well as by day. A wire fine enough to be wound on a cotton-reel will give as much light as seventy-four stearine candles of five to the pound. No galvanic battery is required; all that is needful being to contrive that the wire shall unwind steadily from the reel, and pass into the flame of the spirit lamp. The cost is, however, considerable, and will remain so till some way shall be discovered of producing magnesium cheaply, the price of one gramme of wire (15½ grains) being 9s.; but with photographers, whose consumption would only be by a few seconds at a time, this would hardly be an objection.

NEW MOTIVE POWER.—A new motive power capable of replacing steam in some or all of its applications, has long been a desideratum. A French experimenter, M. Hirn, has devised a mechanical arrangement, by means of which he proposes to make use of the enormous power exerted when a mixture of coal gas and air is set fire to. The violent explosion which it is well known takes place under these circumstances, is confined in a strong cylinder fitted with a piston, and the latter being driven up and then back again at each ignition, communicates motion to the other parts of the machine. The gaseous mixture is exploded by means of the electric spark. A small experimental machine has been made by the inventor, who speaks favourably (of course) of the feasibility of the plan on a large scale. Meanwhile, engineers are waiting until a two-horse power machine on this principle, which it is proposed to make, shall have been carefully tested and examined, with a view to its practical results.

GEOLOGICAL SOCIETY.

A GENERAL meeting of the Geological Society was held on Wednesday evening in the Museum Building, Trinity College. At eight o'clock the chair was taken by the President, the Rev. Professor Haughton.

The minutes of the previous meeting having been read, the following gentlemen were elected members of the society:—Charles F. Johnston, Esq., 9, Eustace-street; William Lewis, Esq., C.E., 13, Nelson-street; Dr. A. Hudson, 2, Merrion-square, C. M. Whitney, Esq., Ross Carbery, Cork; E. H. Blake, Esq., Farmers' Club, Sackville-street.

Mr. R. Mallet, C.E., gave a most interesting and able sketch of the physical features of Southern Italy, and of the results of the earthquake exploration of 1857. Dr. Davis complimented Mr. Mallet on the very interesting character of his communication. The President said he wished, in conjunction with other members of the society, to make some observations on the communication of Mr. Mallet. As the hour was somewhat advanced, he thought it better to postpone the discussion until the next meeting of the society.

The reading of a paper by Mr. Frith, C.E.. on the Volcanoes of the Sandwich Islands a paper by R. H. Scott, M.A., on the method of copper smelting practised at Oker, in the Unter Hartz, and on the geology of the neighbourhood; also a paper by the president on a magnesian limestone formation, at the base of the coal measures in various localities in Ireland, were postponed until the next meeting of the society.

INSTITUTE OF CIVIL ENGINEERS FOR IRELAND.

A GENERAL meeting of the above society was held on Wednesday evening in the new building, Trinity College, for the purpose of hearing papers read by some of the members: M. B. Mullins, Esq., in the chair.

The Secretary having read the minutes of the last meeting,

Mr. Shaw explained, by means of a model, the railway break which he has lately invented. This break is a complete novelty, and consists of a catch upon each pair of wheels in a train, operated upon simultaneously by means of a rod running along the bottom of the carriages, and which is under the control of the driver. This break differs essentially from those at present in use, from the fact that it clasps the wheel towards the bottom, and not at the centre, thereby giving greater and more immediate control over the motion of the train. The present breaks are objectionable in these respects:—First — much labour and time are expended before any effect can be produced; secondly—the resistance offered by the wheels gives a tremulous motion to the carriages; and thirdly, the mechanism required is very complex and troublesome; all which objections would be obviated by the new system. In addition to these advantages he (Mr. Shaw) believed it would contribute more than any preceding invention to diminish the number of railway accidents, which were so frequent of late. As regarded the expense, he believed from all the information he was able to procure, that it would not be more than £20 for each carriage.

Mr. Frith then read an interesting paper upon the best method of constructing a concrete wall, especially with reference to the river Dodder. His theory was, that the best concrete was that which most closely resembled the natural one, such as might be seen in the neighbourhood of Kingstown Harbour. And if an artificial cement could be made like the natural one, he believed it would be better than masonry. The great fault which he found with the cements of the present day was, that they were made too rich; in other words, there was too much lime put into them, to the exclusion of other matter.

The Chairman suggested that an analysis of the natural concrete should be obtained, to enable the society to carry out Mr. Frith's views, if practicable.

Mr. Hassard was next introduced to the meeting, and read a very long and elaborate paper upon the Vartry scheme of supplying the city with water; there was, however, nothing new in it, the whole subject having been finally discussed over and over in the Corporation, Mr. Hassard assuming the population of the city to be 350,000, and that the quantity of water for each individual for all purposes should be 25 gallons per day. That quantity appeared to be large, but experience showed that no less than that would be considered sufficient. Mr. Hassard then went at much length into the several details of his plan as regarded the rainfall in the district of the Vartry catchment-basin; the geological structure of the same, the drainage area, the sites for reservoirs, &c., and stated that he believed that the entire cost of the works would not exceed £450,000, which would require a rate of about 1s., 6½d. for each individual, or 16s. 8d. for each house supplied with water. He concluded by stating that he considered himself rather unjustly treated, inasmuch as his name was not mentioned in the report of the Royal Commission, as immediately connected with the Vartry scheme. Whatever the merits of that scheme might be, there was no doubt that he was the first to introduce it to the notice of the public.

A discussion followed on the subject, after which the meeting adjourned.

CHAPEL ACCOMMODATION—NORTH DUBLIN UNION.

A report was read from the special committee appointed by the board to inquire and report as to the best mode of improving the chapel accommodation for the Catholic inmates. The committee reported that, with the assistance of an architect, they had considered various suggestions which had been made as to the improvement of the chapel, that their plans had been submitted to them, and that they recommended that which they considered the cheapest and which would afford the best classification of the inmates and give additional house accommodation. The cost of carrying out this plan would be about £400.

THE GENIUS OF THE GREEK.

Again to hallow'd haunts return'd,
Bright with names we all adore,
Where those hero souls that burned,
Sanctified the soil of yore.
By the classic streams and meadows,
By each sunny shore and creek,
Draped in never-ending shadows,
Rich in genius of the Greek.

Pure, unsullied love of labor,
Warm impulses, noble aims;
Back when shepherd's crook and tabor
Hung on branches by the streams,
Where the olive and acanthus
Grew, to grace that art antique;
In the fabl'd far Atlantis—
Rich in genius of the Greek.

O ye bright inspiring fountains—
Springs, of primal art and taste,
Rainbow, arched upon the mountains,
Scintillating, pure and chaste.
Apostrophised in ruins scatter'd
By lorn pool and lichen'd peak,
Old mighty marble shrines shattered,
Rich in genius of the Greek.

From out of ruins grand and solemn,
Streak'd with glaze of reptile slime,
Above each frieze and fluted columns.
Clogg'd with damp decay of time;
Swelling forth from porch and portal,
Immemorial echoes break,
Redolent of life immortal—
Rich in genius of the Greek.

Land of old heroic spirit,
Rise thine halo wreathed head;
Names like thine for aye inherit,
Glory from their mighty dead.
Heirs of art still unexampled—
Athens, from your torpor speak;
Lo! he comes, the Goth that trampled,
Rich in spoil robb'd from the Greek.

Lamp of pristine architecture
Beacons to all distant time,
In your radient reflecture
Souls once more will soar sublime.
Virgin art, and beauty vernal,
Pointing homeward, ye bespeak
Triumphs, matchless and eternal,
Rich in genius of the Greek.

C. C. H—— Y.

Pure Literature.—The Messrs. Chambers, of Edinburgh, say, that while the cheap press is flooding the nation with books and periodicals, works of an injurious and immoral tendency are passing out of favour. They offer the following estimates as the result of careful enquiry into the cheap periodical trade. 1. Works of an improving tendency, circulation per month, 8,043,500. 2. Works of an exciting nature, but most positively immoral, circulation per month, 1,500,000. 3. Works immoral and opposed to the religion of the country, circulation per month probably under 80,000.

RAILWAY ACCIDENTS.

The attention of the House of Commons has been directed by Mr. Bentick to the frequency of railway accidents, and the non-adoption of precautionary measures by companies, urging legislation to compel companies to adopt such precautions as the general testimony of railway officials has shown to be necessary. Mr. Dalton asserted that the primary thought of railway directors was the safety of the public, and it was best left in the hands of the former. Mr. Gibson, on behalf of the Board of Trade, replied that "if that department at present possessed no functionary specially qualified as an engineer, the simple reason was, that no need now exists for the service of such an officer. With regard to the motion before the house, he objected to its vagueness, since it called on the legislature in general terms to provide precautions against the occurrence of accidents without specially mentioning the nature of these precautions, or vindicating the authority by whom they should be selected and carried into effect. To draw up any bill in accordance with the terms of the resolution would, in fact, be impossible. The causes which principally led to the occurrence of these catastrophes were—viz., negligence on the part of railway attendants — imperfection of the material, and excessive speed. On neither point did he consider that either parliament or the executive could interfere with any beneficial effect. Precautionary legislative interference he regarded as impracticable, but ample redress was provided by Lord Campbell's act, under which the principal railway companies had, within the last five years, paid not less than £313,000 as compensation to persons injured, or to the relations of those who were killed by accident on their lines."

Notes of New Works.

A beautiful side altar has been recently erected in the Church of the Conception, Marlborough-street. It is intended as a tribute to the memory of the late O'Conor Don, M.P, by his son. The altar is of simple construction, but the architectural character of the design, the harmony of coloring, and the brilliancy of its enrichments, render it a specimen of very correct taste. Mr. J. J. Lyons, Lower Gardiner-street, furnished the drawing; the marble portion of the work was carried out by Mr. R. Hibson, Talbot-street; Mr. Wm. Hughes, of same street, erected the superstructure; and the decoration and gilding were by Mr. G. B. Star, Ormond-quay.

The Ecclesiastical Commissioners have advertised for tenders for repairing the churches of Colaghty and Drumkeeran, County Fermanagh; also Badony Upper, Cappagh, and Dromore, County Tyrone.

At the Neptune Rowing Club, Ringsend, a new and splendid ball-court has been erected, after drawings by, and under superintendence of, Mr. Richard Hill, C.E. The flagging and cementing have been executed in good style by Mr. J. Carroll, builder. Apart from other considerations, we feel at all times a desire to chronicle improvements of this class, serving as they do to provide healthful and manly recreation for the young men of our city. We recently noticed that an additional building had been erected on the premises of the University Rowing Club, in same locality.

The local correspondent of the *Freeman* at Bray mentions that a contract has just been concluded with Mr. Byrne, road contractor, Dublin, to build a wall 7 feet high above water mark, at an expense of £2,800, from the town bridge to the railway bridge, a distance of some six hundred yards. It is to enclose from the river on its north bank the ground purchased by O'Reilly Dease, Esq., from the Commons Commissioners. It is suggested that a sea wall beyond the railway bridge, carried out through the sand bar, with a short corresponding wall on the south wall from the present dock entrance, would form a very good harbour at the mouth of the Bray river. Were gates added to the mouth of the present excellent dock, a more commodious and convenient harbour for its size would not exist.

The church of Taney, Co. Dublin, is about being enlarged by the Ecclesiastical Commissioners.

The new Railway Station at Foxrock is in a forward state. The new Westminster road leading to it will be completed in a few weeks. It is being planted on both sides, and will be one of the prettiest roads in the county. Eighty-one acres of these lands have now being let, and in every case for handsome detached villas, in lots of one to six acres each.

Messrs. Campbell and Dunn have been declared contractors for the new church at Kilcock. Mr. M'Carthy, architect. Amount £6,175.

A new dwelling house is to be erected at Hartlands, County Meath, according to plans by Mr. S. Symes, architect.

A new Convent for the Sisters of Mercy is to be built at Cahir, County Tipperary.

The Earl of Longford has given 12 acres of building ground, adjoining the Longford Cathedral, for male and female schools, &c. Expenditure £30,000. John Bourke, Esq., architect.

The Town Commissioners of Longford, at their last monthly meeting, has contracted with Mr. John Mullen, builder, for flagging under the inspection of James Bell, Esq., C.S. Amount £900.

The Galway Town Commissioners are about entering on the *troubled* waterworks question, and we hope they may be pilotted through it more skilfully, and with greater facility, than the metropolitans. They seek plans, specifications, &c., for a new and improved supply.

A contract has been entered into for the construction of a railway between Holywood and Bangor, and in consequence the Belfast and County Down Company purpose abandoning the intended line from Coaly to Bangor.

The works on the Omagh and Dungannon Railway are in such a forward state as to justify an expectation of the opening on 1st prox, when there will be through communication between Dublin and Belfast *via* Dungannon.

Petitions against the following bills have been deposited at the Private Bill Office:—Cork, Blarney, and Macroom Railway; Cork and Macroom Direct Railway, Downpatrick and Newry Junction Railway, Dublin Corporation Waterworks, Enniskillen and Bundoran Railway, Great Northern and Western Railway (capital, &c., bill), Limerick and Foynes Railway.

The Grand Jury of the County of Sligo have passed a resolution in favour of the direct railway between that seaport and Enniskillen.

It is stated that the Great Southern and Western Railway Company will not oppose the Clara and Banagher line.

There is likely to be a contest between the promoters of the respective lines from Downpatrick to Newry, and Castlewellan to Banbridge.

The Dublin, Wicklow, and Waterford Railway bill has passed the committee of selection, who have presented a special report on the subject to the house.

COURT OF BANKRUPTCY AND INSOLVENCY.

In re Hugh Kelly, a Bankrupt.—We are pleased to learn that an arrangement has been effected in this case with the creditors.

In re Keeran Ronan.—The insolvent was a carpenter and builder. Mr. Greaves opposed his discharge on behalf of the detaining creditor, Mr. Bulger, the proprietor of an Italian warehouse, whose debt was £14, of which £11 consisted, as the creditor stated, of cash lent. He complained that on several occasions on which the insolvent borrowed money from him, he promised to repay the amounts out of what he would receive for contracts which he was executing for customers. He did not do so, but on being processed by another party, borrowed a further sum from Mr. Bulger of £1 17s. The creditor accepted a bill which the insolvent did not pay, and eventually he had been arrested under a decree.

The insolvent deposed that he had lost on three contracts, about which he was questioned. When obtaining the additional cash, in order to meet the process, he only borrowed 5s.

Judge Berwick said he would adjourn the case in order to hear from the gentlemen for whom the insolvent did work what they had paid him.

THEATRE ROYAL.

THE delineators of American and Irish character respectively—whether authors or dramatists—are wont to draw most unscrupulously on their imaginative faculties, and the subjects presented as faithful portraitures are not unfrequently such as are only suited to be classed in the lowest grade of pantomimic buffoonery. The stage Yankee and the stage Irishman are consequently popularly believed to represent truthfully the respective national peculiarities, while, in fact, if we come to analyze them they are preposterous exaggerations. Although sensible of this fact, yet it is a strange inconsistency that an Irish audience will estimate the cleverness of the artist in proportion to his absurdity, and while being caricatured to their very faces, warmly applaud his flat wit and forced drollery. In all probability it is the same with our Transatlantic brethren. The farce of "Our American Cousin," one of a *repertoire* now in course of performance at the Theatre Royal, in which Miss Julia Daly sustains the prominent part, is, at least as regards Yankee character, a clever and truth-telling satire on the popular supposition. "The Cousin," aware of the notion pre-conceived by her grand relations in Europe, humours it for a period by an artificial personation and assumption of those outlandish peculiarities attributed to her countrywomen; but the denouement, when she casts off "the Yankee Gal" stage-garb as it were, and reveals the real manners, language, and address of an *American lady*, is very effective, and displays the admirable talent of the artist. Miss Daly's acting is vivacious and easy, and yet so much grace and dignity are apparent at times in the less *go-a-head* representations, that we are disposed to judge most favourably of her capacity to occupy an eminent position in the higher walks of the drama, should she enter upon them. Her vocalism is also very pretentious. The public are beginning to appreciate her talents, and to return substantial acknowledgment — a circumstance the more complimentary as it is *merit* which *commands* and not *fashion* that *induces* it.

Miscellaneous.

LEAD IN WATER SUPPLY.—At the meeting of the Manchester Literary and Philosophical Society, recently, Dr. Grace Calvert stated that he had been engaged for the last few months in investigating the action of the Manchester Water Works water on various kinds of leaden pipes, and that he was arriving at such results as would show the necessity for serious consideration on the part of the inhabitants of the city with respect to the evils arising from the introduction of the water into their dwellings through leaden pipes. Being requested by the chairman to give his opinion, Dr. Angus Smith said that he had never found any Manchester water which had passed through lead pipes to be entirely free from lead. At the same time, the quantity is practically equal to nothing; yet there is a great difficulty in knowing what is hurtful: water with as little as one-hundredth of a grain of oxide of lead per gallon was said to have produced lead paralysis; whereas it was considered generally not to be hurtful until it contained one-fortieth of a grain. We have little idea of the extreme susceptibility of some persons; and it is better to avoid lead as much as possible. Long lead pipes should be avoided, and lead cisterns are extremely dangerous, especially with soft waters, including Manchester water. Soft water dissolves lead more readily than many hard waters; and, if the hardness be due only to the earthy carbonates, the lead becomes coated instead of being dissolved. But, if the hardness be due to chlorides or nitrates, the water dissolves lead much more rapidly than pure water. It is a mistake to suppose that pure water dissolves lead more than all impure waters. Some very pure natural waters dissolve lead simply because they contain chlorides, although in small quantities. Some lead pipes, too, are easily affected. He had spent a long time in obtaining a suitable coating for lead to protect water from its action, and had not quite succeeded; but he had given his results to a friend, who had gone further; and, having obtained great success, patented the process. However, he was told that no one would buy lead pipes of the kind, as they cost half-a-crown per cwt. more than the ordinary ones. People complain of evils from which they refuse to escape. It is, however, better to avoid lead than to avoid pure water because of its action on lead.

THE ATLANTIC MAIL STEAM NAVIGATION COMPANY.—The misgivings so reasonably entertained by the unpropitious antecedents of this company seem to be at length set at rest, at least judging from the following paragraph quoted from the *Freeman*, which may be regarded as more than ordinary authority on the subject:—"The certainty now afforded as to the early opening of the Galway contract service is calculated to give great satisfaction. The fleet of the company are now of a first-class character, and all the doubts that prevailed as to the company being ready to commence the service are removed by the fact that two of the new ships are lying ready for inspection at Southampton, and that the Adriatic, one of the best and fastest, as well as largest ocean steamers afloat, has been purchased by the company within a few days. The energy displayed by the Malcomson Directory is most creditable to the head of the eminent firm of Malcomson, Brothers."

THE GIGANTIC IRON LIGHTHOUSE.—The *Birmingham Journal* gives an interesting description of a new iron lighthouse, which is being constructed in Birmingham for the Spanish Government. The following are its principal features and dimensions:—"The general form of the lighthouse is that of a huge black column, surrounded with a network of iron, arranged octagonally, and tapering pyramid-like from a base of 50 feet in diameter to 12 feet at the summit. From the centre foundation pile rises a pole or cast-iron column to a height of 31 feet, and from this point radiate massive iron girders or brackets which support the platform of a dome-shaped dwelling house for the lighters. The round balcony enclosing the platform on which the lighting apparatus is to be fixed is of wrought iron, and measures 18 feet in diameter. Altogether, the weight of the lighthouse and its iron framework is about 170 tons. The cost of the optical portion of the work alone will be upwards of £1,000, and the total cost of the light apparatus, with the lantern, upwards of £2,000."

More than 1,000 years ago the Chinese built suspension bridges of more than 1,000 feet span.

HALFPENNY STEAMBOATS.—There is, probably, no country in the world that can lay claim to such an example of private enterprise for public accommodation as is exemplified in the halfpenny steamboat. It is a cheap ride from London to Westminster Bridge for a penny, but the ride is still cheaper between Dyers' Hall Wharf and the Adelphi for half that sum. The merit of this enterprise is great because it is normal. It has not arisen in consequence of opposition—it is not the spasmodic result of ruinous competition; but the deliberate growth of cool calculation, in which the debtor and creditor sides of the account were well weighed, and the balance safely estimated to be in favour of the parties who developed the scheme. The halfpenny steamboat is a great boon to the working classes, properly so called. It saves their time, their limbs, and their shoe leather. It not only carries their persons, but likewise their heavy burthens. The Jew clothesman is a great patron of this mode of conveyance. It must be a thing after his own heart, cheap and accommodating. Whatever the size of his bag, and the number of old hats he may have collected in the course of the day, the capacity of the halfpenny steamboat is sufficient to hold them. At the fag-end of a hot day the wandering and footsore Hebrew finds a haven of rest in one of these little boats. Where, we would ask, is there anything to compare with them? Take into account the value of labour in this country, and we challenge a comparison with every water conveyance in the world to produce a parallel with the halfpenny steamboat on the Thames. Talk of the flat-bottomed boats on the American rivers, the cheap fares on the Rhine, or the lazy trekschuiten of the Dutch canals; can brother Jonathan, the philosophic German, and the sturdy Hollander combined, produce such a ha'porth of ease, comfort, and convenience, as the halfpenny steamboat affords? We won't say anything just now upon the unhappy condition of the "silent highway," but we will point to the panorama of interesting objects with which the Londoner is so familiar, but which to a stranger is worth a guinea to look upon, and which he has the privilege of seeing to great advantage as he lolls at his ease during his cheap ride. What magnificent bridges! They are the wonder of the world. What a glorious cathedral, and how majestic appears the mighty St. Paul's! The Temple Church and Gardens, too, and the cloister-like buildings around; not to mention the Suspension Bridge, dangling in the air; Somerset House, and in the distance the House of Lords, with the venerable Abbey. All these things to be seen, and the advantage of a long ride for a single halfpenny! —*City Press.*

EXHIBITION OF 1862, LONDON.—The committee is to include the following gentlemen—The Marquis of Hartington, M.P.; Lord Stanley, M.P.; Lord Naas, M.P.; Lord Stanley of Alderley; the Right Hon. the Lord Mayor of London, the President and Vice-President of the Board of Trade, Thomas Basley, Esq., M.P.; Thomas Field Gibson, Esq., and John Gott, Esq., commissioners of the exhibition of 1851; Dr. Lyon Playfair, H. Cole, Esq.; Mr. William Dargan, the President of the Royal Agricultural Society, the Chairman of the Society of Arts, the Chairman of the Royal Dublin Society, the President of the Institution of Civil Engineers, the President of the Institution of Mechanical Engineers, and the Presidents of the Chambers of Commerce of the United Kingdom.

TENDERS

For a new building about being erected at Wexford for the "Young Men's Christian Association." Mr. E. T. Willis, architect.

Mr. R. Price	£1,100	0	0
Mr. T. Willis	855	16	0
Mr. Wilkinson	775	0	0
Mr. P. O'Connor	760	0	0
Mr. J. Redmond (accepted)	650	0	0

For the several works in the erection of a church at Kilcock. Mr. J. J. M'Carthy, R.H.A., architect.

Beardwood and Son	£10,200
John Farrell	9,422
Freeman	6,500
Campbell and Dunn (accepted)	6,175

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The Dublin Builder.

VOL. III.—No. 31.

LEGAL LIABILITIES OF ENGINEERS, ARCHITECTS, BUILDERS, AND WORKMEN.

SCARCELY a law term passes that some new question involving a greater or a lesser amount of interest, and in which some one of the above classes occupies a prominent position, is presented. Misunderstandings arise between the professional man and his client, or between the latter and his trade employées, or not unfrequently between *all* parties concerned, and to clear them up recourse is had to that happy (?) alternative—litigation! What is the cause of this? Answering our own question, we submit that the cause is *simple*, but the effect generally *disastrous*, arising from "undefined relations between employers and employed." Very many of the practising professionals of the day pursue their avocations without either knowing or giving a thought to the responsibility they incur from incompetency to perform what they undertake on the one hand, or for negligence on the other. Under this head those of most common occurrence are, such as relate to inadequate constructive provisions, resulting in the settlements of walls, falling of roofs, floors, girders, bressumers, &c., encroachments on neighbours' territory, or want of precaution in protection from injuries during rebuilding, incomplete specifications, passing unsuitable workmanship and materials, unexpected extra works, and a host of other matters of which every day instances are afforded. We will suppose that an architect is engaged to make a set of working drawings for a building on a marshy or otherwise objectionable foundation, and either from incompetency on his part, or neglect in studying the necessity for adopting proper precautions, a portion of the superstructure becomes insecure, or the whole comes toppling over some day, who, may we ask, is to pay the damage? Is it the client? We should think *not*: he confided his work to an assumed to be properly qualified professional man, relying on his skill to secure for him an equivalent for his money, and a structure suited to his requirements. Is it the builder, if such there had been? We should say *not*, provided he implicitly followed the drawings and specifications. Who, then, but *the architect*? Hence "the legal liability!" But this is only a solitary illustration out of a legion; enough, however, for our purpose. In a few days the opinion of *our twelve judges*, in the memorable and protracted case of Kempston *v.* Butler, will be before our readers, and we shall then know more definitely than we do at present the extent of a contracting builder's responsibility as regards damages arising to neighbours' premises during progress of rebuilding operations. It is evident, however, that much has yet to be learned by our professional practitioners and builders respectively on this subject, and as the best source for information we would refer them to a recently published work, entitled "The Law of Contracts,"* the object of which is more readily explained by quoting the author's own words, viz.:—"To place before the professions to which it is addressed, the legal liabilities that members of those professions incur in their various relations as employed and employers; and not exclusively intended for the legal practitioner in the actual practice of the law, but having more especial reference to persons engaged in engineering and architectural pursuits and operations; indicating the rocks and shoals by which those, so engaged, are surrounded in their daily transactions, and seeking to guide them."

The opening chapter treats generally of contracts, their nature, considerations to be provided for and against, conditions precedent, &c. Referring to architects' certificates, the following case is cited:

"A building contract contained a proviso that the payments thereby agreed to be made to the builder should only be due, provided the certificate of the surveyor or the employer for the time being should first be obtained; and an action being brought for the balance alleged to be due on the contract, it was held that under the general issue the absence of the certificate of the surveyor was a good answer to the action; and that the plaintiff was not at liberty to show that it was withheld fradulently or collusively with the defendant."

It has frequently happened within our own personal experience that after a contract had been entered into, and was, to use a familiar phrase, "signed, sealed, and delivered," a subsequent *verbal* understanding as to dispensing with certain items, was pleaded by the builder, and consequent exemption claimed; but our author tells us that "leave or license *cannot* be pleaded to a breach of contract, but the defendant must *show* an exoneration or discharge from its considerations." In some instances, as in some of those to which we refer, the exemption may be conceded, but the "legal right" is defined as above, should it be disputed. Partly bearing on omissions in specifications, allusion is made to a case wherein after a builder had entered into a contract "to provide the whole of the materials, or otherwise—in the particulars of specification—necessary for completion of the work," he refused to *lay* the flooring boards without extra payment, because the flooring was not specially mentioned, and the other party taking possession proceeded to lay the boards as prepared by the builder, and successfully defended the builder's claim for trover. One of the questions most frequently involving litigation is that of "extra works," and the author, who has treated the subject in a very comprehensive manner, says:—

"If, notwithstanding an express stipulation in a contract between a private individual and a builder, that no alterations or additions shall be admitted or paid for unless directed by the architect by a writing under his hand, the alterations and additions are made without such written authority, the employer will be at liberty to dispute the account for them, and to refuse a settlement. What amounts to a written authority may sometimes admit of dispute, especially if it do not clearly express what alterations or additions are thereby intended to be authorised; and great care should therefore be taken to leave no loophole for doubt upon a point which, if it exist, may lead to misunderstanding between the parties and litigation. It may be said that it is not possible to give a written authority for *every* extra work which is directed to be done; but such an argument would not hold good in the face of an express stipulation in a contract; and therefore whether it be considered possible or not, builders will act advisedly in declining to make the required alterations or additions, unless they be ordered in writing, and their nature and extent be clearly expressed in the document. They need not, however, be necessarily expressed in words; for if they be clearly set out in a plan or drawing, signed by the architect, with the words specifying or indicating the work to be extra, such would be considered as much an order in writing as if the whole of the details had been specified in words at length."

It is no uncommon occurrence that at the winding up of accounts for a building, a proprietor who had made his pecuniary arrangements to suit his expected demands, finds to his dismay a lengthened document politely enclosed by his builder in the shape of "a little bill" for extra works *ordered by the architect*; but the right of the latter to do so unlimitedly under all and any circumstances is thus clearly disposed of: "the liability of the employer will depend *upon the extent of authority* he gave to his architect in respect of the works, and if he did not authorise him to order the execution of any but those to which the agreement either directly or indirectly refers, he would be exonerated, *and in that case it would be for the builder to consider how far the architect had made himself personally responsible*." Here is a fact that should be indelibly recorded and well digested by both old and young practitioners, some of whom think very lightly of ordering *ad infinitum* and without the least regard for the client's pocket. We do not observe, however, any consideration of the very questionable point, "does knowledge of the fact that extra expense is being incurred and no objection offered constitute a responsibility to any extent?" "Party walls" ever have been, and ever will be, a *quæstio vexata* both for property owners, architects, and builders, and even "gentlemen of the long robe" themselves; the subject, however, in all its bearings, is ably treated in the work before us. The following case amongst many others is cited:—

"An action was brought by a reversioner of a house against the owner of the adjoining for pulling it down without shoring up the plaintiff's house, in consequence whereof it was impaired, and in part fell down. Plaintiff *being nonsuited* upon a rule obtained to set nonsuit aside, it was held, first, that the plaintiff could not recover, on the ground of the defendant *not having given notice that he was about to pull down his house*, that not being alleged as the cause of the injury; secondly, that as the plaintiff had not alleged *or proved* any right to have his house *supported* by the defendant's house, he was bound to *protect himself by shoring*, and could not complain that the defendant had neglected to do it. It appeared that the two houses were very old and decayed, the party wall being weak and defective; that for some time struts of timber had been carried across a lane on the east side of defendant's house to the opposite side of said lane; plaintiff's house adjoined defendant's eastward; when the latter was taken down the struts were removed, and no upright shores placed within plaintiff's house to sustain floors and roof; that if either of these measures had been adopted *it might have stood.*"

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* The Law of Contracts or Legal Liabilities of Engineers, Architects, Contractors, and Builders. By W. Cunningham Glen, Barrister. London: Atchley and Co., Great Russell-street.

In England much more than here it is a usual practice for architects to furnish quantities, but the author justly remarks, "it is one reprobated by the profession, and those of a higher class never do so." In illustration of the liability incurred by those who do the following case is cited:—"An architect advertised for tenders according to plans, specification, and quantities; on the latter the defendant—a builder—framed his tender, but they proved to be inaccurate." Mr. Justice Byles, in summing up, directed the jury that the defendant had stipulated that the plaintiff should pay him for the calculation of the quantities, and having been paid for them was liable to compensate him, if the bill were not reasonably correct, and the jury thereupon found for the plaintiff.

The above citations serve to illustrate the practical and comprehensive character of the work, but to all such as are engaged in engineering or building operations, and who desire to steer clearly through the Syllas and Charybdis which beset them in their professional career, we would suggest that they become possessed of so skilful a pilot as is here obtainable.

MORE ABOUT "THE VARTRY."

Mr. Hassard, C.E., the originator of the Vartry project for improved supply of water to this city, has addressed the following letter in reply to some of Professor Galbraith's statements in opposition thereto:—

"First, as to rainfall. Enniskerry and Ballysmuttan are 10½ miles apart. They are almost due east and west of Kippure Mountain, being distant from its summit 6½ and 4 miles, respectively. The mountains of Slievebane, 2,128 feet; Seafin, 2,364 feet; and Kippure, 2,473 feet above the sea, are directly to the westward (from which quarter it is alleged that the greatest amount of rain is derived) of Enniskerry, and intervene between it and the Ballysmuttan drainage area.

"Mr. Bateman's gauge at Ballysmuttan, 750 feet above the sea, gives the rainfall as 62 per cent. greater than in Dublin, the guage in Dublin being, I presume, at an altitude of about 100 feet. This will give nearly ten per cent. increase for each 100 feet of greater elevation.

"Mr. Barrington's guage at Enniskerry, at an altitude, I take it, of 400 feet, or thereabouts, gives, for the seven years from 1853 to 1859 inclusive, an average of 33·82 inches of rain, whilst the ordnance guages at the Phœnix Park, at an altitude of about 150 feet, give an average of only 23·36 inches of rain for the same period. The rainfall at Enniskerry is, therefore, 45 per cent. greater than at the Phœnix Park, and the increase is at the rate of 18 per cent. for each 100 feet of greater elevation. So far, therefore, as information derived from rain guages will enable us to form an opinion, it appears that the rainfall is greater on the eastern than on the western side of the hills, as indeed sometimes occurs. Practically, I believe, there is little difference.

"The Vartry drainage area is due south of Enniskerry, being only three miles distant at the nearest point, and has mountains of a similar character to Kippure, &c., to the westward—viz., Warhill, 2,250 feet; Douce, 2,384 feet; Gravale, 2,352 feet; Duffhill, 2,364 feet; and Mullaghcleevaun, 2,783 feet; Tonlegee, 2,307 feet; and Glendesan, 2,684 feet above the sea, and distant from 1 to 6½ miles, so that precisely the same impediments to the deposition of rain exists in both cases.

"I scarcely think that any one will venture to assert that the rainfall in the Vartry valley, at the mean elevation of about 1,000 feet, is not, at least, equal to that at Enniskerry, at an elevation of 400 feet, both places being on the same parallel of longitude, the mean distance apart being only 6 miles, and being under précisely similar conditions as regards elevated ground on their western flanks, and from which they are both equally distant.

"If the rainfall at the Vartry were no greater than at Enniskerry, it would still give, according to Mr. Barrington's guage, for the seven unprecedented dry years before mentioned, an average of nearly 34 inches of rain, which, after deducting the 16 inches for loss, asserted to be necessary by Professor Galbraith, will leave almost 11 inches as available, equivalent to a supply of about 18,500,000 gallons daily.

"But, in addition to this, we have storage, the object of reservoirs being to impound the surplus waters of wet seasons for use in periods of drought; here the reservoirs projected will have a capacity sufficient to meet a deficiency of two inches of rain for three, or of one inch of rain for six years consecutively.

"Secondly—As to the Vartry basin, which Professor Galbraith states to be a *flat upland valley, well adapted for laying out a shower of rain to dry.*

"In this case we have no theory to apply; it is a simple question of figures.

"The head of the Vartry valley, at Calary church, is at an elevation of 825 feet, bounded on the west by the Douce mountain, 2,384 feet high, and two and a-half miles distant; on the north-west by Priest-hill, 1,132 feet high, and one and a-half miles distant; and on the north-east by Calary-hill, 1,152 feet high, and also 1½ miles distant; the average slopes of the ground from the watershed to the river are here, therefore, at the rates of about 1 in 9, 1 in 26, and 1 in 24 respectively.

"At a mile lower down the valley, on the north of Ballinasloe bridge, we have the river 770 feet, the hill on the west 2,075 feet high, and two and a-half miles distant; and the hill on the east 912 feet high and half a mile distant, the average slopes of the ground from the watershed to the river are here, therefore, at the rate of about 1 in 10, and 1 in 18, respectively.

"Just south of Tithewer, three and a-half miles from the head of the valley, we have the river 700 feet, and the hill on the west 1,565 feet high, and 2½ miles distant, the hill on the east 1,100 feet high, and two miles distant, the average slopes of the ground from the watershed to the river are here, therefore, at the rate of about 1 in 15 and 1 in 26, respectively.

"At Roundwood we have the river 660 feet, the hill on the west 865 feet high, and half a mile distant, the hill on the east 782 feet high, and also half a mile distant; the average slopes of the ground from the watersheds to the river are here, therefore, at the rate of about 1 in 13 and 1 in 22 respectively.

"The central part of the valley is throughout flatter than at the sides, or outer portion of the collecting ground, which is of steeper slopes than the averages I have given above; it is also rocky upland, which circumstances I think perfectly justify the expression in my paper, viz.—'Here the upper portion of the collecting ground is steep, from which the water would flow off rapidly.'"

THE NEW VESSELS FOR THE GALWAY LINE.

WITHIN a very limited period the Atlantic Mail Company will be re-inaugurated under a new *regime*. As the undertaking is a national one, a few particulars of its new fleet will be read with interest:—

The Hibernia (recently launched) was built in 1860 by Messrs. Palmer and Co., of Newcastle-on-Tyne. Her length over all is 375 feet; length over keel, 360 feet; breadth of beam, 40 feet; breadth over paddles, 70 feet; and her depth of hold. 32 feet. She is built with seven water-tight bulk heads, or eight water-tight compartments, so that in case of a leak breaking out in one part of the ship it would be confined to the particular compartment in which it occurred, and the safety of the vessel would be in no way affected by it. Her engines are 800 nominal horse-power, but are capable of working to a power immensely beyond that figure. They were built by Messrs. J. B. Palmer and Co, of Newcastle-on-Tyne, and consists of three oscillating cylinders of 88 inches diameter, with a seven feet stroke. Besides there are auxiliary engines of seventy-five horse-power for working air and other pumps, and also two small donkey engines to fill the boilers, wash the decks, &c., which, when in harbour, are worked with separate boilers. The steam for main engines is generated in eight boilers, heated by forty furnaces. The boilers are fitted up with Beardman and Galloway's patent super-heating apparatus. The boilers represent 20,000 square feet of heating surface, and the bunkers are fitted to carry 1,400 tons of coal. The saloon is 108 feet in length, and 20 feet wide. It is furnished with two long lines of tables, with moveable seats on either side, and is capable of accommodating 200 persons at table. Her register is 3,000 tons, and her burthen 4,400 tons. On her official trial, at the measured mile in Stoke's Bay, she accomplished an average speed of 14½ knots an hour, or 16¾ miles, in the teeth of a heavy nor'-west wind. The Columbia (also recently launched) was built by Messrs. Samuelson and Co., of Hull, and her dimensions are those of the Hibernia. Her engines also are of 800 nominal horse power, with two oscillating cylinders of ninety-eight inches diameter, and eight feet stroke. She has also got auxiliary boilers fitted up with Partridge's patent super-heating apparatus. The Anglia, which is to be a sister ship of the Columbia, is being built also at Hull, and will be launched about the middle of May. The Adriatic is also a magnificent ship, and has weathered many a gale gallantly.

PROCEEDINGS OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

On the 18th ult. this body held its usual periodical meeting, and the venerable Professor Donaldson was deputed by Sir Gardner Wilkinson, F.R.S., to read a paper by him on "*The Saracenic style of architecture distinct from the Byzantine*," an abstract of which we reprint as follows:—

"That the Saracenic is borrowed from the Byzantine is perfectly true, and this is quite in accordance with the history of other styles, but though any one of them may be originally derived from a predecessor, it is not on that account precluded from assuming a new and independent character when it has remodelled and adopted those elements it found suitable to its requirements, and has made them its own, and in all cases it may be safely predicted that each new style is derived from more than one parent. The architecture and artistic ornament of ancient Greece are sufficiently decided in their character, and yet if we were to claim from them all they derived from others, we would deprive them of many most essential features, and should prove that we had not observed how this very habit of adoption and adaptation was one of the merits of the Greeks. They perceived the beautiful wherever it presented itself, and they scrupled not to borrow even from the so-called "Barbarian," who in early times was as much more advanced in taste than the Greeks as the Saracens were than the Crusaders who affected to despise them; and it is this very habit of adoption and adaptation which we should do well to practice at the present day in preference to the too frequent effort to introduce some novelty, from a love of variety, of notoriety, or the mistaken notion of invention in art.

"At the period of their earliest conquests, when the Arabs advanced into Syria, and captured Damascus, in the summer of 634 A.D., neither their wants nor their taste had aspired to the erection of buildings dignified by beauty of design; and the practice of architecture was still unknown to them. They were only acquainted with a very primitive form of building in their own country, and for some time after they had established themselves in Syria and in Egypt they employed Christian architects, and were not themselves sufficiently acquainted with the arts of construction to erect any large building. As the early Christians adopted the basilica, or in some cases the Pagan temple, the Moslems sometimes adopted the Christian church, or borrowed ideas from their Pagan predecessors; and in many instances the churches of a conquered province, having been relieved of the distinguishing emblems of Christianity, were readily appropriated to the unadorned services of Islam. Indeed they were sometimes satisfied in obtaining from the Christians half a church as a place of worship, and the great church of St. John the Baptist, at Damascus, continued to be the joint property of the two religions from the capture of that city in 634 A.D., to the reign of the Ommiade Caliph Weleéd, A.D. 706, and though said to have been then pulled down and replaced by the present mosque, and to have received the name of Giama-Beni-Omméek, or El Ammowee, from its supposed Ommiade founder, it evidently was merely altered by him; and the decay of the whitewash and stucco on the exterior of the walls supporting the great dome, with which the scruples of the 'faithful' then covered and concealed the coloured mosaics and their golden ground, reveals here and there the original ornamentation of a Christian time. Moreover, from appearance of this rectangular building, it is evident that the roof above its pediment was heightened at the time when the dome was super-imposed upon it, and that the side and end walls, including the pediments, are of Christian date; so that we at once perceive how much has been introduced by the Moslem architects upon the once continuous line of the roof between the two pediments. Mr. Porter also states that on its inner walls and piers this part was coated with the finest marbles, in beautiful patterns; while on portions of the wall above, and on the interior of the dome, may be seen fragments of fine mosaic, representing palm trees and palaces. There is also a Greek inscription of Christian time, of which he gives a copy, and which with the mosaic and its general plan, sufficiently establishes the date of the building. The dome, according to Mr. Porter, is nearly 50 feet in diameter, and about 120 feet in height.

"The few mosques, erected about that time by the Arabs in Syria, were marked by many characteristics of the Christian style, and certain Byzantine features continued to be attached to them in that country; but these were chiefly confined to the cupola and ornamental accessories, and even then every new building acquired that variety of feature which, through their extended conquests, was speedily introduced into the architecture of the Arabs. In Egypt, Barbary, and other countries, the same number of Byzantine elements did not find a place, even in the earliest mosques, and this is only consistent with what might be expected, since their style was at first that of each country where they happened to be erected, and we are not, therefore, surprised to find that in those of the oldest time the dome is wanting in Egypt and in Barbary; and the principal characteristics of Byzantine architecture are rarely, if ever, to be traced there. Indeed, it was not till a much later period that the dome held an important position in the mosques and tombs of Cairo, and the oldest raised there were those which bore the least affinity to the Byzantine style, as I shall presently have occasion to show. Nor do Saracenic mosques present the most distinguishing features of that architecture. We look in vain for that arrangement so peculiar to it—of the upright wall with its row of arches standing over others springing immediately from columns, so well known in Sta. Sophia, at Constantinople; in San Vitale, at Ravenna (built also in the time of Justinian, A.D. 534), and in other churches; nor are the bridge-like galleries, or columnar screens, so remarkable at St. Mark's, in Venice, met with in any Arab mosque.

"These and other Byzantine features are as much at variance with the character of a Saracenic building, as would be the triforium of one of our cathedrals, and while Byzantine churches differ in their character from an Egyptian mosque, what can be more unlike the former than the earliest mosques of Cairo? as for instance those of Amr, of Ahmed-ebn-Tooloon, of El Hakem, built, the first about 642 A.D., the second in 876 A.D., and the third in 1003 A.D.; in none of which did the founders introduce the dome, or any of the most marked peculiarities of Constantinople. If we compare their hypæthral rectangular court, and the covered corridors that surround it, with their flat roof, to a Byzantine church, I will venture to say that no plan or elevation could be found more at variance with it, and the very feature which claims the most marked relationship to the Byzantine style—the dome—was not introduced into the open court till centuries afterwards, or about the end of the thirteenth century.

"Such hypæthral courts with their surrounding colonnades bear a much nearer resemblance to those before ancient Egyptian temples; and the area and portico of Luxor or of any other of those marked monuments, might be thought at first sight to have a claim to be the prototype of those Moslem courts. Even the colonnades of a Roman forum, and of some Roman temples like that at Zaghwan, near Tunis, or like those round the courts at Baalbek, with a similar peristylar arrangement, bear a greater resemblance to those of the works than any Byzantine building. In the Arab edifices above mentioned we see no domical structure, nor any of the peculiarities of Byzantine architecture, and the cupola or kobbeh, in the area of the mosque of Ahmed-ebn-Tooloon was not put up till the reign of the Melek Munsoor-Hesam-e'deen-Lageen, A H. 696, in the month of Saffer (answering to A.D. 1297–98) as recorded in the Arabic inscription it bears.

"The conquest of Egypt began in 638 A.D. Babylon, afterwards called Fostat, and now Old Cairo, was taken by Amr in 639, and Alexandria at the end of 640; and soon afterwards the whole of Egypt fell into the hands of the Arabs. It was at this period, A.D. 642, that the two mosques were first founded, which still bear the name of Giama-t-Amr; one near old Cairo, the other at Asooan; and the tent of Amr, like those commonly used by the Arabs, of goat's hair, being called Fostat, gave its name to the new city which took the place of Egyptian Babylon.

"The mosque of Amr, therefore, being the first erected by the Arabs in Egypt, or, indeed, in any of the conquered provinces, is of the highest interest in the history of Saracenic architecture. Nothing, however, appears to exist of the original structure; and the only part which dates during the first century of the Hegira is probably a portion of the exterior wall on the south-eastern side, which bears the impress of a mode of building common at that period. Indeed, the whole edifice was altered and apparently rebuilt between the years 642 and 712 A.D.; and as at first it measured only about 75 feet in length by 45 feet in breadth, its plan must have undergone considerable changes ere it reached its present dimensions.

"In the reign of Abd-el-Melek (the son of Merawan I.), great alterations were made by his brother, Abd-el-Azees, about A.D. 699, and by Weleed in 712–713, as well as by the Abbaside Caliphs; and under Mamoon the son of Haroon E'Rasheed, its dimensions had increased to about 435 feet in length by 225 in breadth. It was also repaired by Ahmed-ebn-Tooloon, and by his son; by El Hakem-le-Omr-Illah; by Yoosef-Salah-e'deen (Saladin), and by others. Extensive additions appear also to have been made at the beginning of 1400 A.D., and other repairs date as late as the time of Murad Bey, at the close of the last century.

"In the earliest periods of their history the Arabs were satisfied with imitations, or modifications of the buildings of each district where they settled, and this explains the diversity which exists in the character of those raised by them, and by the native architects they employed in different countries, while it accounts for the subsequent combination of various elements in their architecture when they became sufficiently advanced to form a new and independent style. For we must recollect that the Moslems, from the time they conquered Syria, Egypt, Western Africa, Persia, India, and other countries, about 80 years after the death of Mohammed, had added whole populations to their ranks, they had long ceased to be merely rude invaders from Arabia, and their converts, long practised in the arts and architecture of their respective provinces, brought with them the knowledge possessed by the Byzantine Greeks, the Copts, the Persians, the Indians, and others who had joined their ranks. No wonder, then, that with such varied contributions to the common stock the new architecture was marked by the remodelled types of so many different styles. The Byzantine Greeks gave it many of its earliest ornamental devices and other features; the Copts, more in favour in Egypt than the Greeks their religious and political rivals, were constantly employed in that country by the Moslems as builders; Persia, as history and the infallible evidence of style proclaim, had the greatest influence on the character of its oldest buildings; and we know that architects from that country had long before been employed by Justinian at Constantinople.

"India, too, furnished numerous marked features, among which may be noticed the minaret, the merab, or niche of prayer, the bracket, and other peculiarities of its monuments; and many instances might be adduced of the spread of the prevailing characteristics of different styles throughout the most distant countries conquered by the Arabs. Some were less readily adopted in certain districts, owing to previous predilections, or to the nature of the climate. In one place covered buildings were a necessity—in another they were not required; and thus, while previous habit suggested the addition of the dome in Syria and some northern countries, the Egyptian Moslems did not admit it till a later time, and then only as an adventitious feature gradually welcomed by them, through the influence of the Kurd, Turkman, and Circassian Soltans, who succeeded to the throne of Egypt after the dissolution of the Fatemite Caliphate in 1171 A.D. For the oldest mosques in Cairo of 879 and 1003, as we have already seen, have no dome or other distinguishing feature of Byzantine architecture; and the small one in the court, covering the font of ablutions, is of later time. They consist, as I have before stated, of the hypæthral court surrounded by colonnades, with a minaret on one side or at two or more of the corners; and the hypostyler portion of the upper, or prayer, end, and was covered by the same kind of flat roof as the corridors of the court.

"Of the architecture of the Abbaside Caliphs we know little, though the distinguished leaders of that dynasty were great encouragers of architecture as of all the sciences and arts; and the only building now remaining of that period in Egypt is the Mekeeas, or Nilometer, in the Isle of Roda, which, founded by the Caliph Mamoon, was rebuilt by El Motawukkel-al-Allah-Gafer, the tenth prince of that dynasty, A.D. 862; and the peculiar character of its Cufic inscriptions prove it to be of that age. M. Coste thinks they are of 198 A.H. (814 A.D.), and of 233 A.H. (848 A.D.), but they are, at all events, not later than the time of El Motawukkel, or 862 A.D.

"At Kairawan, in the modern regency of Tunis, the old capital of the Fowatem or Fatemites, the founders of Musr-el-Kahirah or Cairo, the pointed arch is thought to date at a very early period, and one which I was shown at Kairawan, in a building covering a well, is reputed to be coeval with the Sahaba, or companions of the Prophet. I need scarcely say that this is more than improbable. We cannot believe it to be of the age of Moawiah, in whose reign the city and the great mosque were founded by Ogba (Okba), A.D. 670, according to Leo Africanus; and though the simple corbelling of the dome, in the upper part of the building, gives it an early appearance, it does not seem to date as early as Ibrahim-Ebn-Agleb (Akleb), who established the new dynasty of the Aglebites in Africa, A.D. 800, and who added so much to the city that he was considered its second founder. He was the same who built the suburb called Rasheed; and the port of Mahdeeh was founded by El Mahdee, the first of the Fatemite Kings of Africa, about A.D. 910; and if I mention these two places, it is because future travellers in that part of the country may have opportunities of making inquiries there, which I was unable to do, being obliged to return to Tunis in time for the departure of H.M.'s ship Beacon, and in which my lamented friend, Captain Graves, had kindly given me a passage from Malta. Unfortunately the difficulty of examining any building at Kairawan and the neighbourhood has till lately been very great, owing to the prejudices of the Moslems, who look upon it as a holy city, and are everywhere in Barbary averse to European intrusion; and when I went there in 1845 only two other Christian travellers had been permitted to lodge within its precincts. I was, however, enabled to make many more observations than I had expected, owing to my speaking Arabic, to my travelling in the Eastern dress, and to the opportunity I had of meeting and overcoming the objections of the people, which last happened in this manner: On leaving the Governor's house I was warned to be very prudent, and not to excite attention by attempting to draw or write while anyone was in sight, particularly while going near the mosques. I took care, therefore, whenever I ventured to make any memoranda, to do so under the cover of my capacious bornoos; and I had succeeded in avoiding all suspicion, till, on coming opposite the eastern gateway of the Great Mosque, I stopped to examine its pointed arch. Thinking that no one was within sight, I proceeded to make a hasty sketch of it, when some of the faithful, whom I had not perceived within the gateway, came forth in great anger to inquire into my most suspicious proceedings. It was too late to stop and affect innocence—my offence was too evident; therefore, without waiting for the outburst of their indignation, I advanced to meet them, and, after the usual salutations, told them I had come from Cairo, where the learned declared that the Egyptians had invented the pointed arch, but that as the Fowatem princes went from Kairawan to Musr-el-Kahirah (Cairo), and used the pointed arch at that time in their buildings, there was a possibility of its having been employed long before at Kairawan, and I was therefore anxious to know if they could produce any proofs of a prior claim. This so disarmed their prejudices that, with a view of maintaining the claims of their city, they took me to every pointed arch in the place, except, of course, in the interior of the mosques; and though disappointed in my hopes of meeting with some of great or well-defined authority, I was enabled to see the one already mentioned, and to copy the Cufic inscription at the city gate, as well as to make other observations and even hasty sketches of the buildings themselves.

"The Great Mosque is rectangular, surrounded by a high wall, with numerous projecting buttresses and towers, at intervals; 174 faces north and south, by 101 east and west, having had originally eight entrances, four on the east and four on the west side, some of which are now closed, and over each gateway is a cupola. The interior I believe to consist of the usual hypæthral court, surrounded by colonnades, with a deep hypostylar hall at the south, or Mekkeh end. There is nothing on the outside which has the appearance of great age; and, from what I could learn, it has been often repaired and probably remodelled at various times, though they pretend that it was always restored in exact imitation of the earlier work. The principal minaret, which is called Soma, stands on the north side, towards the north-east corner. It is a square tower, consisting of three tiers or storeys, capped by a small dome or cupola, and it is said to be the oldest part. It has round-headed arches, but one over the door on its western side, has a slight inclination to the pointed form. Over the eastern and western doors of the mosque the arches are pointed; but these are probably of no very early time, though the corbelling of the cupolas is very simple. They are not very unlike in this respect to the cuboletta at Palermo, and St. Giovanni degil Eremiti, built about 1132; and in one place under the side arches, before the eastern gate, is an Arabic inscription. The round horse-shoe arch generally prevails throughout the exterior of the mosque, and though some are of an oval form, nearly resembling the pointed, few are decidedly of that character except those before mentioned. In the centre of the court is a lofty dome, visible above the walls, similar to, though higher than those in the mosques of Cairo, where ablutions are performed before prayers. I afterwards visited another mosque with three arches in front, which are round, inclining slightly to the pointed form, and with a certain appearance of age, but which is contradicted by the date of the Cufic inscription above them, showing that they were erected A.H. 846, A.D. 1443.

"The facts already stated are, I trust, sufficient to disprove the opinion that the Saracens had no style of architecture, and that it was merely Byzantine. They also explain why, in the remotest parts of Islam, one edifice was found to resemble in many of its characteristics another founded in Barbary or in Egypt; at the same time that they show why others were different, and why certain countries had their own peculiarities. Indeed it is easy to perceive how it happens that, though the Saracenic borrowed from the Byzantine, its character was so distinct. Nor is it a singular instance of the career quite independent of the predecessor to which it was indebted for its earliest features.

"It has been thought that because the Greeks were sometimes employed by the Sultans of Egypt to erect or embellish their mosques, that these must necessarily be Byzantine; but, so far from this being the case, they fail to be a counterpart of that style, either in their plan or their elevation. Moreover, Copts were at one time as much, or probably more, employed in Egypt as builders; and certain characteristics prove how greatly the Arabs were indebted to the Persians for their assistance and example. I may also observe that many domes of their mosques have more of a Sassanian than of a Byzantine character; as may be seen from the palace of Serbistan, and the great mosque of the Tak-Kesra (given by Mr. Fergusson, in his Handbook of Architecture), which last was built by Mushirvan, or Chosroe (Khosrou), the contemporary of Justinian, calls to mind the large vaulted recesses of the Arabs of later times, such as we find in the mosque of Soltan Hassan, at Cairo; and it is not improbable that Persian taste, welcomed by Justinian while raising the numerous edifices with which he beautified Constantinople, may have also had its influence on Byzantine architecture.

"If the Saracens on their first issuing from Arabia adopted the churches of the Christians as places of worship, or availed themselves of the assistance of Greek, Copt, Persian, and other architects, in erecting their mosques, they did not object at much later periods to profit by similar assistance, nor distain to borrow from the architecture, and even the materials of the churches of the conquered provinces, and a mosque at Cairo, which by the inscription it bears, proclaims that it was built by Naser Mohammed, in 698 A.H. (1299 A.D.), has a doorway brought from one of the churches at Akka (Acre), in Syria. In other parts it displays throughout the characteristics of the Saracenic style; but the doorway is singular among those of Egyptian buildings, being, of Christian (so-called Gothic) style, with clustered columns supporting a cusped trefoiled head, such as might be met with in one of our churches. It is probably of the early part of the 13th or the close of the preceding century.

"This work is also remarkable for the character of its cupola, ornamented with the fretwork which afterwards became so elaborate and florid in the Alhambra and Alcasr in Spain, and which is rarely seen at the mosques in Cairo.

"If the golden and coloured mosaics were used at Alexandria, and obtained the name of *opus Alexandrinum*, they were simply derived from the same source as those of Constantinople, and were quite unconnected with the Arabs and their architecture, of which, indeed, they never became marked features, except in the houses of Aleppo and Damascus. They adorned a niche of prayer, and a few isolated members of a wall, as of a pulpit or some portion of an early Italian church, and neither these nor any other solitaryfeatures are of any importance in the consideration of an identity of style.

"The fact is, the term 'Byzantine' has been often used in a vague and inconsiderate manner, and it has been too hastily supposed that every building, in which the dome is a dominant feature, was indebted for it to Constantinople. But not only was the dome not confined to that style, but it was not even first used by the Byzantine Greeks. In Italy, and in some other countries, it descended directly from its first originators—the Romans, without being derived through an intermediate Byzantine channel, and if it passed through the Greeks of Constantinople to the eastern provinces of the empire, it was transmitted to them with certain modifications merely, by the followers of those by whom it had been originally invented, and the credit of its first application on a grand scale belongs evidently to the Romans.

"The Byzantine style has certainly its claims on the gratitude of the Saracenic architects for having transmitted to them certain architectural features, of which they availed themselves during the formation of their own; but it must be also admitted that they soon learnt how to develop and improve upon, and that they were as much or more indebted to the Persians for the early formation of their style. The changes, too, which the Arabs introduced into the dome, were such as to give it a new character. At the same time all will allow that Byzantine architecture was less removed from that of Rome than was the Saracenic from the Byzantine; yet no one thinks of questioning the existence of a Byzantine style, nor should we doubt the propriety of giving a new name to any of those styles which has partly grown out of a predecessor. If we refuse to admit this we should deny the well-known progress and development of art, and should view architecture as if it had no history, and it would be as reasonable to disbelieve the existence of various languages, because they had proceeded from one common origin."

An interesting discussion followed, in which Messrs. Fergusson, Kerr, J. W. Papworth, and the Chairman (Mr. Godwin) took part.

A special meeting was also held on the 25th inst., to consider the recent appointment of Mr. Bonomi as Curator of Sir John Soane's Museum, resulting in a resolution carried by 26 against 10, to the effect that "there was not sufficient evidence of qualification."

ROYAL NATIONAL LIFE-BOAT INSTITUTION.

The annual general meeting of the friends and supporters of this institution was held on Thursday at the London Tavern: Admiral the Earl of Hardwicke, in the chair. The meeting was influentially and most numerously attended.

The noble Chairman expressed the pleasure he experienced in taking the chair on the anniversary of so important and national an institution, as that of the Life-boat Society. As its philanthropic objects became more known and appreciated they would be supported by the public at large (hear, hear). The large fleet of life-boats which the institution now possessed required constant outlay to keep them in a state of efficiency; but he felt that no work of mercy and humanity—such as that so successfully carried out by the national Life-boat Institution—would ever lack support in a maritime country like ours (hear, hear). After having dwelt on some other points, his lordship called on

Mr. Lewis, the secretary, to read the annual report.

The report began by stating that year by year the field of the operations of the National Life-boat Institution had extended, its life-saving fleet had been added to, and the greater in proportion to the number of wrecks on our coasts had been the number of lives that have been saved from premature death through its instrumentality. By its Charter of Incorporation the institution was now legally entitled, by the bequests of deceased persons, to possess landed property to the amount of £2,000 per annum. Her Majesty the Queen, who since 1837 had been the patroness of the Society, had, in appreciation of the important and national character of the work of the institution, become an annual subscriber of £50. During the past year it had established 17 new life-boats on the coast, and others were in course of construction for several other places. The institution now possesses no less than one hundred and ten life-boats. Some of them had been directly instrumental in saving *two hundred and ten lives* from thirty-four vessels during the preceding year. Since the 1st of January last, the life-boats of the Society had also saved no fewer than one hundred and sixty-two persons. The committee had taken steps to provide the life-boat stations of the institution, wherever desirable, with standard barometers, properly fitted up, and the daily indications of which would be registered on a chart or diagram by the side of the instrument. The total number of wrecks on the coasts of the United Kingdom during the past year, was 1,379. The average of the last seven years being 1,184, whilst the total loss of lives in 1860 was 536, the average for the last seven years being 800. The number of lives saved during the year 1860 by the life-boats of the institution, the rocket apparatus, and other means, was 3,697. The total number of persons saved from shipwreck from the establishment of the institution to the end of the year 1860, either by its life-boats, or for which it had granted rewards, is 11,856. During the past year the institution had granted 16 silver medals, 14 votes of thanks inscribed on vellum, and the sum of £1,111 12s. 4d. in pecuniary rewards, for saving 455 shipwrecked persons. The operations of the institution may be thus briefly stated:—Since its formation it has expended on life-boat establishments £46,350 8s. 3d., and has voted 82 gold and 673 silver medals for distinguished services for saving life, besides pecuniary awards, amounting together to £14,015 19s. 11d. Its medals and other honorary awards are much coveted by the coast boatmen and men of the Coast Guard service, and the amount and prompt payment of its pecuniary rewards, afforded general satisfaction. Its medals were not unfrequently presented at public meetings. The total receipts during the year 1860 amounted to £14,027 11s. 2d.; of this sum no less than £2,721 had been given by philanthropic individuals to defray the cost of *fourteen* life-boats. Legacies had also been left to the institution during the past year by several benevolent persons. The expenditure during the same period had been £13,085 8s. 11d., of which sum £6,834 17s. 4d. was expended on additional life-boats, carriages, boat-houses, and necessary gear, and £3,056 3s. on the necessary expenses of repairs, painting, and refitting, £1,266 15s. 10d. in rewards for services to shipwrecked crews, and £1,665 6s. 2d. on coxswains' salaries, and for the quarterly practice of the boats' crews. The institution had incurred further liabilities amounting to £4,419 for various life-boat establishments, &c. Whilst the committee were, happily, able to report so favourable and encouraging a state of the financial department of the institution, they felt that looking at the vicissitudes of the future and the unforseen magnitude which the operations of the society had assumed, they must not for a moment relax their endeavours to enlist that co-operation and pecuniary assistance of all classes of their countrymen, which can alone secure the permanent efficiency of the important work which they had undertaken to superintend. They therefore appealed to the country at large to assist them to maintain in a state of thorough efficiency the numerous life-boat establishments of the institution.

The report having been moved and unanimously adopted,

Various other resolutions pledging the meeting to renewed exertions on behalf of the truly benevolent and national objects of the institution, and the usual complimentary vote of thanks having been given to the chairman, and the same having been acknowledged, the proceedings, which were of a very interesting character, terminated.

Arrangements for the Belfast Show.—The Royal Agricultural Society of Ireland will have a Cattle and Implement show in Belfast very shortly, and Mr. Birmingham is at present in Dublin arranging with the exhibitors at the Royal Dublin Society Show.

South Mayo Agricultural Society.—The objects of this newly formed society are to promote the interests of agriculture, to the advancement of rural economy within the district, by attending to the regulations of markets, fairs, &c.; by offering suggestions for the social and moral improvement of farm servants, and plans of cottages, farm buildings, &c., and by taking evidence in recording at the close of the season the prices of Agricultural produce, not otherwise ascertained, to hold a Cattle Show in the Month of September, annually, at some Town within the District, where prizes shall be awarded for Stock, &c. The first Show of Cattle, Sheep, and Agricultural produce, shall be held in Ballinrobe, where there will be a public dinner.

ULSTER HALL, BELFAST.

THE buildings now in course of erection under the title of the Ulster Hall—the subject of our illustration—form a parallelogram, 235 feet by 90 feet, running from Bedford-street to Linen Hall-street, the entire space occupied being nearly half an acre of ground. The general arrangements of the place has the great hall with corridors on either side, forming the central portion of the building. In front of this, and extending to Bedford-street, is the wing which contains the principal entrances, waiting rooms for audience, lobbies, &c., and over these on the second storey the minor hall; in the rere, extending to Linen Hall-street, is that containing the rooms provided for the accommodation of the performers, the board-room, rooms for porters, kitchen, and other offices. The principal entrance is from Bedford-street, through an arched piazza, 16 feet wide, under which carriages can set down. Opening on this is the vestibule, 30 feet by 28 feet, with a waiting-room 25 feet by 17 feet on either side, and retiring rooms also attached. The vestibule leads to a lobby 12 feet wide, extending along the end of the central hall, giving access to it and to the corridors, and containing the principal staircases to the galleries and minor hall. The minor hall, which is intended for the purposes of smaller concerts, lectures, and exhibitions of works of art, is 68 feet by 32 feet, and will give seat accommodation to 400 persons. It will be principally lighted from the roof.

The great hall—which is the principal feature in the building, will be much larger than any music hall in Ireland, and exceeded by very few in Great Britain—is a parallelogram of 138 feet long by 63 feet wide by 63 feet high, with the angles cut off by curves 10 feet radius; the ceiling will be flat, with circular coves and panelled. Around three sides of the interior will run a gallery 10 feet 6 inches wide, and which is intended for the first-class seats. Along either side of the hall a corridor 8 feet wide and two storeys in height is inten-thus giving the greatest possible facilities for the ingress and egress of audiences, and for the classification of seats. The entire seat accommodation, including galleries, is for an audience of 2,000 persons. The orchestra will accommodate 300 performers, beside space for organ, &c. The rooms in the rere wing, for the accommodation of the performers, will communicate with the orchestra by passages affording separate entrances for the solo and chorus performers. The entrance to this wing will be from Linen Hall-street. In addition to the principal entrance there will be two others in Bedford-street, communicating directly with the corridors, and also a carriage-way entrance in Franklin-street.

The building is being principally erected in brick; the principal front in Bedford-street will have the piazza of stone, the remaining portion of the front being finished in cement, with stone architraves and dressings to windows. The front in Linen Hall-street will be finished in red brick, with white brick dressings. The works are at present more than half advanced to completion. The contract has been taken by Messrs. D. and J. Fulton, and is being carried out under the immediate superintendence of the architect, Mr. W. J. Barre.

OPENING OF THE FIRST STREET RAILWAY IN LONDON.

THE indefatigable George Francis Train has succeeded in the consummation of his desires to introduce his street railway system into London, and that too in the face of an opposition which nothing but extraordinary energy and determination of purpose could have surmounted. So far the trial at Birkenhead has proved most successful, but "circumstances alter cases," and a line of road from a ferry to a park in a provincial town presents less impediments to facility of locomotion of *any* character, than a leading thoroughfare in an over-crowded metropolis. Besides there are other obstacles in the latter instance, not the least of which are the slowness of the public to appreciate anything of innovation upon the old "humdrum" system, however great the improvement may be; and again the determined opposition of that portion of the community whose pecuniary interests are affected detrimentally. For better for worse, however, as the sequel must within a limited period tell, the system has been inaugurated in the modern Babylon amid vociferous cheers on the one hand, and groans "not loud but deep" on the other. A goodly gathering of gentlemen (of the Press), besides some members of the aristocracy and the First Commissioner of Works were present at the proceedings, and afterwards did every justice to the hospitality of the world-renowned street railway promoter.

The line extends at present from the marble arch towards Notting-hill, but is little better than a mile in length. It is, however, projected to extend the system considerably both in this locality and elsewhere in London, should the experiment prove satisfactory. The "cars" are of similar construction, if not perfectly identical with those already described by us as in vogue at Birkenhead, and were built by Messrs. Prentiss and Co., of that town. Both externally and internally they are an immense improvement on the old 'busses, and the caparisoning of the horses—which are high bred—contributes much to the general appearance.

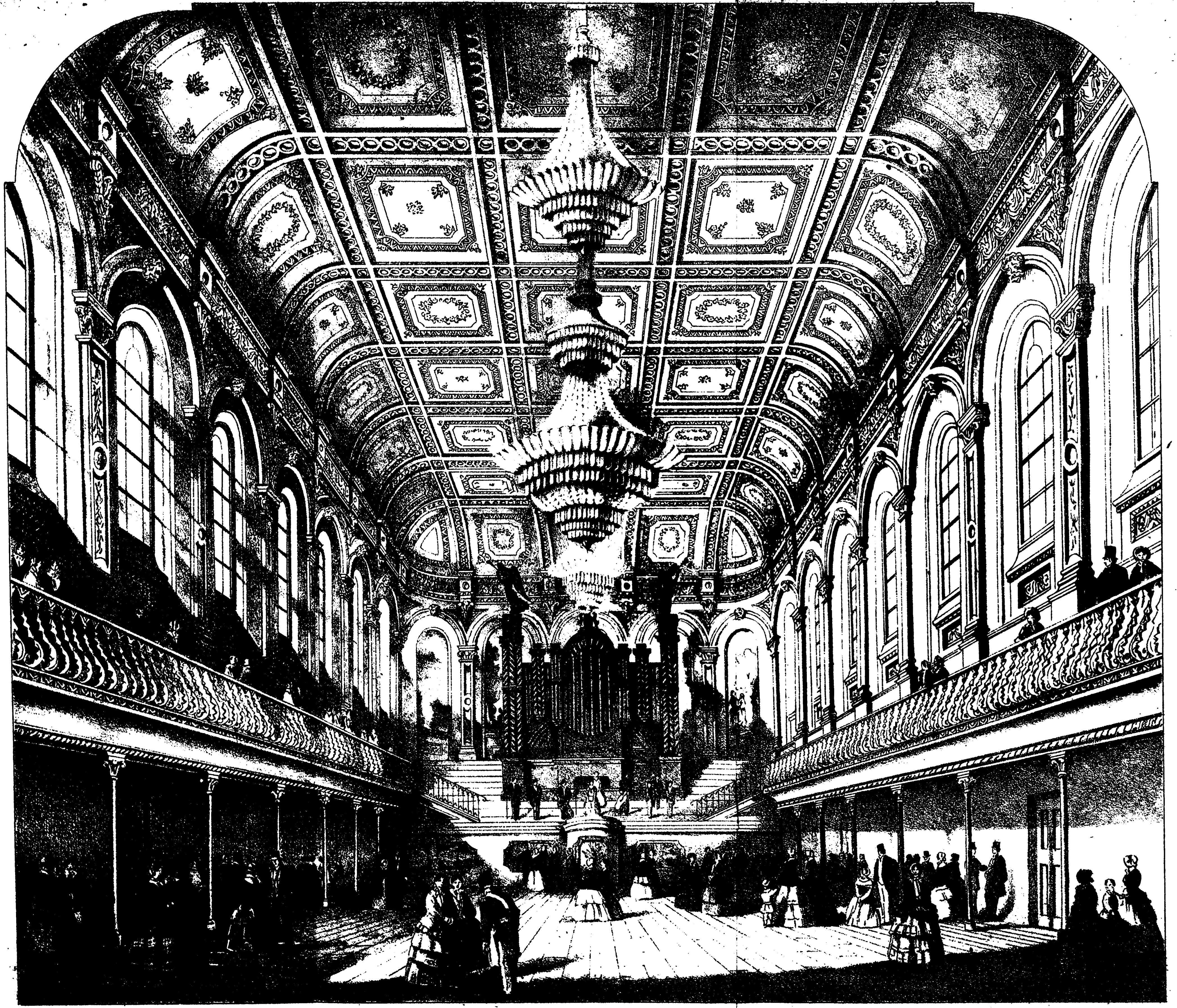
FINE ARTS AND ORNAMENTAL ART EXHIBITION—ROYAL DUBLIN SOCIETY.

FOR some time past all has been "bustle" in the Agricultural Hall, preparing for "the show" of cattle and implements which commences on the 2nd inst., as well as for the approaching art and art manufacture exhibition which will in its footsteps quickly follow. Indeed the energy displayed is truly commendable, and suggests much reason for hope, that the slowness of temperament for which at least we enjoy a national reputation amongst our friends at the other side of the Channel is gradually fading away, and that Irish enterprise and anxiety to be elevated socially and commercially are developing themselves *surely*, however marked by tardiness may have been our antecedent career. We would be the last to throw a damper on well-directed exertions, and though as regards matters of detail we sometimes have been compelled to take an exception, nevertheless we unite most heartily in wishing the intended exhibition every success. Preparations are now in a very forward state, indeed, excepting the decorations of the hall and the arrangements of the stands and fixtures, everything is ready, and these will be proceeded with immediately after the show is over and all cleared out. On the boundary and other walls a suitable ground of timber-work, covered with crimson cloth, will be prepared for the reception of the pictures, and a magnificent collection, including some we believe by the first Belgian, Flemish, Dutch, French, Italian and English artists, together with the "Sheepshanks" series from the Kensington Museum, and from the Royal Galleries, is expected. The nave and aisles will be—we doubt not tastefully—arranged with sculpture, banners, &c., and in the galleries the jewellery, needle-work, embroidery, &c., departments will be placed. The assistant-secretary to the committee—Mr. Parkinson—has been for some time in London and elsewhere soliciting art contributions, and we are informed with great success. We are much pleased in announcing that the orchestral arrangements will be under the direction of our talented fellow-citizen—Mr. R. M. Levey—who for many years has contributed largely to the gratification of the music-loving portion of the community in his capacity as leader at our national theatre and at the various principal societies in the city. A magnificent organ by Messrs. Bevington and Sons, of London, constructed for the Sydenham Palace, is being erected in the Grand Hall, and will form not the least interesting feature. The general dimensions of the hall are 240 feet by 30 feet wide for the nave, with aisles of the same length by 17 feet, and 23 in width, respectively, at either side, the latter forming the Picture Gallery. The roofs of each are semicircular and decorated. An area of about 2,000 superficial yards is afforded for the display of Pictures. Refreshment and retiring rooms for Ladies are being erected outside the boundary wall of the court-yard. All so far seems to promise a period of much enjoyment, and we trust that the several steamboat and railway companies of Ireland and the Kingdom generally will perform the part which the public is reasonably entitled to expect from them in offering every facility for streams of visitors to the city while the exhibition remains open.

BALBRIGGAN AND SKERRIES FOR A HARBOUR OF REFUGE COMPARED.

A CORRESPONDENT (W. I. Earls) directs our attention to the advantages presented by Balbriggan before Skerries for the construction of a harbour of refuge, for which there is a great want on the eastern coast; and referring to the latter says—"As one well acquainted with the locality, I do not think it would be advisable to expend a large amount of money on the construction of works, the success of which would be questionable. At present Balbriggan has a pier extending more than 600 feet in length, built by the late Baron Hamilton at a cost it is said of upwards of £15,000. Many vessels have been saved here in easterly and south-easterly gales, but it is open to the north and north-east, and I have known vessels to be wrecked trying to make the harbour during the prevalence of storms from these points. Ships are constantly cast away on the rocks under the Martello Tower for want of a pier or breakwater extending therefrom to within a convenient distance of the present pier head, and were this erected it would cut off the current which at present sweeps along the strand, and send the swell to expend itself on the rocks to the south of the tower. An eminent engineer estimates that the space enclosed would be 11 acres, and the cost of construction less than £4,000, to secure a harbour of refuge easy of access, free from drift sand, and at a considerably more moderate cost than in the case of Skerries."

[We are not prepared to argue this point fully at present, but from a superficial observation must state that as the first indispensable in a harbour of refuge is abundance of water to float craft at *every stage of the tide*, our correspondent's theory would seem to be problematical, inasmuch as Balbriggan harbour is *all but dry* when the *tide is out*. We insert the remarks, however, as they probably may lead to further correspondence on a subject in which we and the public generally must feel an interest.—ED.]



Drawn on Stone by J. H. Connop.

INTERIOR, ULSTER HALL, BELFAST.

W. J. BARRE, ARCHITECT.

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NEW CHARTER FOR THE ROYAL HIBERNIAN ACADEMY.

IT had been already announced in our columns that an election of some additional architect academicians of this institution recently took place, and the ratification of the choice of the body, awaited the arrival of the charter. This royal instrument has at length arrived, and the following are the names of the academicians in the order recited therein, who it will be observed are increased from twenty to thirty. President and Trustee—Catterson Smith; Treasurer—George F. Mulvany; Secretary and Trustee—Bernard Mulrenin; Keeper—Matthew Kendrick; Academicians—Thomas Bridgford, William Brocas, Frederick W. Burton, Martin Cregan, Hugh Frazer, Charles Grey, Henry Macmanus, Patrick Vincent Duffy, Edwin Hayes, Michael Angelo Hayes, Edward Hayes, Andrew Nicholl, George Sharp, Daniel Maclise, and Francis Danby, artists; Terence Farrell, Joseph Robinson Kirk, Thomas Alfred Jones, Thomas Farrell, and John Henry Foley, sculptors; Sir Thomas Deane, Charles Lanyon, Patrick Byrne, J. J. M'Carthy, William George Murray, and John J. Mulvany, architects. The members of the academy had originally decided to have the name of our distinguished countryman, William Mulready, R.A., enrolled in the new charter; but that gentleman declined the proposed honour on the ground of his advanced years, and preferred the request that he might be placed instead upon the list of honorary members of the academy. We sincerely hope that under the new constitution additional vigour will be infused into this body so pre-eminently qualified to take a position amongst the first art institutions in the kingdom.

THE UNITARIAN CHAPEL COMPETITION—EXTENSION OF TIME.

WE learn that the committee entrusted with the arrangements for erection for a new meeting-house in Stephen's-green for the Unitarian congregation (as already noticed), have almost at the last moment decided on extending the time for sending in plans to the 26th inst. On principle we believe that such a course is both *injudicious* and *unfair* to the competitors generally, but more especially in the case of *limited* competition, which this is, inasmuch as that architects usually suit their office arrangements, and sometimes incur extra expenditure to meet hurried business, and which would be rendered unnecessary if timely notice of the *precise* period their plans would be required were given in the first instance; besides it *suggests* an assumption of there being *sub rosa* favouritism towards those who were "caught napping," and at last moment seek for an extension of indulgence. We have no personal interest in the matter in question, and our remarks are intended to apply *generally*.

THE MIDLAND GREAT WESTERN RAILWAY TERMINUS.

IN a former number we alluded to the extensive alterations in progress at this building, which is of such comparatively recent erection, comprehending the entire reversing of departure and arrival arrangements. Why the necessity for this important outlay was not obviated in the *first* instance we are not now disposed to enquire, though, perhaps, for obvious reasons we might be justified in offering an opinion, but quote from the *Freeman*, the following paragraph descriptive of the works in question:—

"To-day or to-morrow the alterations which have been for some months in course of preparation come into effect at the Broadstone terminus. To avoid the inconvenience and possible dangers of changing rails as hitherto in leaving or arriving the trains were compelled to do, the platforms have been altered from one side of the building to the other. The south-west will, in future, be the departure side; the north-east the arrival, the travellers leaving Dublin passing the front of the terminus, and reaching this platform by a handsome colonnade, supported with metal pillars, and through a spacious ticket-office. On this the departure platform will now be found the waiting-rooms, and in an additional storey the offices of the traffic manager, engineer, and auditor, also spare rooms, suitable for branch company's uses, all to the number of nine, opening on a corridor 300 feet in length. On the opposite side the arrival platform has now been formed. It opens on a magnificent colonnade, 50 feet in width by 600 in length. This is appropriated to vehicles of every description, which can leave its inclosure with the utmost celerity. The alterations are decided improvements. They have, we understand, been carried out under the supervision of Mr. C. Wilkinson, of Westland-row. The interior of the station is being further beautified by the painting in bright colours of the roof, pillars, and delicate iron work of the spacious and graceful shed—the building, altogether, presenting a railway terminus in every way worthy of a great and enterprising company.

DOOMED PROJECTIONS.

THE extent of disfiguration recently carried on in some of the principal streets in this metropolis, and in utter defiance of all local authority, and regard for symmetrical appearance, has suggested the desirability of a bill in parliament, to compel all proprietors of buildings to remove unsightly projections at present in existence; as also to preclude the probability of future attempts by builders or others to exceed the line which defines the contour of the streets. In a previous number[*] we pointed specially to one in Great Brunswick-street, then in progress of erection, and quoted a clause of the Metropolitan Building Act (London), providing against same, but it and several others have been since completed, to the great detriment of our otherwise beautiful city, and we trust that the most stringent provisions of the intended act will be speedily applied in all such cases.

FREE OPENING OF THE GLASNEVIN BOTANIC GARDENS.

WHATEVER may be the ultimate result of the agitation now being pressed for the above purpose, those who advocate—as we earnestly do—physical and mental recreation for "the sons of toil," must at least appreciate the devotedness with which the committee are pursuing their mission. From the numerous documents extensively circulated through the city, and which forcibly evidence the laudability of the movement, we—in our desire to render every reasonable publicity to the proceedings—quote the following from the most recent:—

"The Committee for promoting the freer opening of the Glasnevin Botanic Garden, believe they cannot better introduce their present appeal, than with the following quotation from the report of the select committee of the House of Commons, in 1836, on the Royal Dublin Society—'Your committee are of opinion that the Garden ought to be open to the public *as many days as order therein will admit.* It is obvious that the greater the amount of enjoyment and utility secured to the public, the more popular will be the Society, and the greater the inducement to look upon it as a national institution.' In this spirit we submit the following facts for consideration.

"*The Dublin Public Gardens.*—In 1841 the Garden of the Zoological Society, Phœnix Park, was first opened to the public on Sunday at 2 p.m. The number of visitors, previously but 16,000 per annum, was at once raised to 97,405, and has since gone on steadily increasing, until it is now 156,701, of whom 134,926 are Sunday visitors, paying 1d. admission fee, and for whose good conduct the reports of the society bear ample testimony. The Royal Dublin Society have not adopted this policy, with the exception of opening for a few hours on two working days in the week, they adhere to the system of former years at their Glasnevin Botanic Garden, which is the *only public garden of its kind* in the vicinity of Dublin. Accordingly, we find but comparatively a small increase in the number of their visitors. In 1849, the first year for which they furnish returns, they had 24,784; in 1859, 41,736; and relative to the expenditure on the garden, we find the outlay fixed in 1815 at £1,500 per annum. It is now, after a lapse of forty-five years, but £1,700.

"*Kew and Glasnevin Systems of Admission Compared.*—During the summer months, the season for visiting a botanic garden, Kew Garden is open on Sunday from 2 p.m., and on the other days from 1 p.m. to sunset. Glasnevin Garden is open to the members of the Society only on the Sunday. To the public it is open free on but three working days from 12 to 5, and on one day from 2 to 6. Now, if we suppose the Glasnevin system applied to Kew, the following would result. In 1857, out of 361,798 there were Sunday visitors 185,599. All these should be excluded; and then as Kew Garden is open free 12 hours on the six days, for every five that Glasnevin is, seven-twelvths of the number of its working-day visitors, or 90,000, should be also excluded, leaving but 86,000 out of 362,000 as eligible for admission. No one in London would propose the adoption of a system involving the exclusion of nearly four-fifths of the visitors to Kew. May it not then be inquired why that system should be established and upheld in Dublin?

"*Present Position taken by the R. D. S. on the Question.*—The repeated refusals of the society to alter their system led to the formation of this committee, which after ascertaining that a very large proportion of their fellow-citizens coincided in opinion with them, decided on the 19th of February to make the following application to the society. 'That our hon. secretaries be instructed to bring under the official notice of the Council of the Royal Dublin Society the existence and objects of the Committee, with the intimation that we would only be too happy, should the Council by its spontaneous action anticipate the wishes of the great majority of the citizens of Dublin, and the recommendations of the Science and Art Department, and thus render our further proceedings unnecessary.' This resolution having been conveyed to the Council of the Royal Dublin Society, was thus replied to:—'Royal Dublin Society, Kildare-street. March 1st, 1861. Gentlemen,—I did not fail to submit to the Council of this Society at their meeting on yesterday, your letter of the 22nd inst., together with the resolution and pamphlet which accompanied it, advocating the opening of the Botanic Garden, the property of this Society, to the public on Sundays, &c., and I am directed to inform you that the Council have not power to carry the objects contemplated by your committee into effect. I am, &c., &c., W. Edward Steele, M.D., Assistant Secretary.'

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[*] Page 377, "Street Disfigurations."

"*How and for what the 'Property' referred to in the preceding was acquired.*—In 1791, and subsequent years, the Irish House of Commons granted divers sums for the specific purpose of establishing a Botanic Garden near Dublin for the instruction of farmers, gardeners, dyers, and other artizans, in their respective callings; and the Society, then called the "Dublin Society," being incorporated and largely endowed by Parliament, for the 'Promotion of husbandry and other useful arts,' was selected as the most fitting body to be intrusted with the application of the money, and with the carrying into effect the intention of the Legislature. Accordingly in 1795, when the several grants amounted in the aggregate to £1,200, that sum was expended by the Society in purchasing from certain tenants of the Dean and Chapter of Christ Church, at Glasnevin, their interest in 16 Irish acres of land and the buildings thereon. The land thus acquired was forthwith laid out as a Botanic Garden, and the public requested to aid the Society by donations of seeds and plants, &c., in promoting the instruction and improvement of the artizans and agricultural classes; and in 1796 the Society was able to invite those classes to attend lectures, and otherwise make use of that which was provided *for them* by a beneficent Parliament.

"*Recapitulation.*—It will, we hope, be conceded, that under the present system this garden is not used for the purpose for which it was founded — *the instruction and improvement of the working classes.* Nor can it be said the Society is therein engaged in carrying out the objects for which it was incorporated, the title for all its grants and subsidies—'The promotion of a knowledge of husbandry and other useful arts among the natives of Ireland.' The term 'natives,' was not intended by either their founders or by legislators to apply to the mid-day loungers and people of fortune, to whom only access is now granted. This garden is the only public Botanic Garden at or near Dublin, and it concerns all who are interested in the progress and elevation of our people to enquire why they should suffer under a disadvantage and disability not imposed upon the people of London, or of any other capital city in Europe; and as all public institutions, in proportion to their public utility, have a title to State support, we may ask why should this Society be allowed to interpose a barrier to the fitting endowment of our only Botanic Garden as a school for the study of nature, by having it complete in every department, and furnished with everything conducive to the rational enjoyment and instruction of the people, and as an institution progressing with kindred ones elsewhere, not stationary or stunted in its growth, by being restrained and dwarfed down to the limits fixed in 1815. In the solution of this question we confidently hope for the aid of all, whether Irishmen or Englishmen, who believe with us that it is by doing full and ample justice to our people their progress in the scale of nations is ensured, and they become the more and more interested in the constitutions and government under which they live, the more they share in all its privileges and advantages."

In reprinting the above we place implicit reliance on the published statements, that while the committee urge a principle moderately, they by no means desire to be considered, either collectively or individually, as occupying a position of antagonism towards the Royal Dublin Society, for which, as a national benefactor to science and art advancement, we—as all must—entertain every regard.

THE MUSEUM OF NATURAL HISTORY.

Every stranger is struck with the noble pile of buildings connected with the Royal Dublin Society. The grand central mass is finely supported by the Agricultural Hall on the south-west side, and the National Gallery and Museum of Natural History on the south and north. The Museum, when opened to the public, will add to the intellectual enjoyments and promote a healthy progressive taste for practical science and art among the classes for whose use it is intended, but we regret to say the Museum is yet in a very incomplete state. The building is finished, but the objects of its institution are yet unfulfilled. The Society has drawn largely on its resources to satisfy the conditions required by the Treasury. Nearly 12,000*l.* have been expended, of which the Society and the Government contributed nearly equal proportions. There it stands, a monument of architectural skill, and the public derive no benefit from its beauty beyond surveying its fine proportions. The cause of this backwardness is the inability of the Society to arrange the immense collection of specimens in suitable cases. If the Society had not drawn on its resources for the Agricultural Hall, it would have money enough to supply cases. But the building fund for the Hall having amounted to 3,600*l.*, and from a wish to avoid any further appeal to parliament, the committee having increased the sum they were under terms to raise for the Museum from 2,500*l.* to nearly 6,000*l.*, they have exhausted their resources and are necessitated to ask assistance from the Treasury. The sum required is not very large, only about 4,000*l.*, and it is to be hoped in the miscellaneous estimates a vote for the amount will find a corner. The estimate, proposed by the Clerk of Works to the National Gallery, has been submitted to the Lords of the Treasury, and we believe, favourably entertained. Doctor Carte and his assistants have been for some time assiduously engaged in classifying and arranging the collection of specimens which in almost every department of natural history is unusually rich. The Museum contains the following large and valuable collection:—The mineralogical and zoological collections of Leske, the German mineralogist, purchased for the Society by the nation; the great collection of Greenland minerals, formed by Sir Charles Giesecke; the mineralogical collection of the late Baron Joy; a portion of the collection made during the geological survey of Ireland under Sir Richard Griffith, Bart.; the geological and zoological collections of Sir F. Leopold M'Clintock, R.N., and other Arctic voyagers: the extensive and valuable collections of British mollusca, bequeathed to the Society by the late Mr. Thomas W. Warren; together with a collection of the birds of Ireland, deposited with the Society by the Royal Zoological Society of Ireland, and by Mr. Robert J. Montgomery; the extensive zoological collections of the late Sir W. Jeffcott, of Penang; the duplicates from the museum of the Hon. the East India Company, including valuable geological specimens from the Himalaya mountains, presented by Sir Proby T. Cautley; a collection of the birds of Jamaica, presented by Mr. Thomas March, clerk of the crown; and a collection of the land and fresh-water mollusca of the same island, presented by Professor Adams; a valuable collection of the birds of Nova Scotia, presented by Captain Bland, R.E.; a highly interesting and valuable zoological collection from the Crimea, made by Mr William Carte, surgeon to the Royal Hospital; Thompson's collection of crustacea, presented to the Society by the Royal College of Surgeons, Ireland, together with several minor donations far to numerous to mention in detail.

But this treasury of collections is useless for want of cases, and unless the government give a helping hand they are destined to remain for a long time in obscurity. We are not insensible to the liberality of the British government and parliament in enabling Dublin to enjoy the same advantages as Edinburgh in possessing a repository such as the Museum affords. We would be content with the fruits of that generosity, and impose on the Royal Dublin Society the completion of the work in putting up the necessary fixtures provided always they were in a position to do so. If the Society was in funds, or if the members had exhibited any parsimony in supplementing the public grant from their own pockets, we should certainly say the fixtures devolved on the Society, and were not strictly chargeable on the government. But when it is borne in mind that the Society has already expended, out of admission fees and subscriptions, the very large sum of ten thousand pounds for the Museum and Agricultural Hall, it is entitled to some consideration from the government. To Lord Derby's ministry we owe the public grant for the Museum, and we are sure the present ministry will be equally liberal in assisting to complete the work of their predecessors. We are not too sanguine in hoping that the next estimates will contain such an item, to render available, for public and educational purposes, one of the finest collections in the empire outside the British Museum.—*Freeman.*

TURKISH BATHS AND EASTERN POPULATIONS.

DR. HAUGHTON recently addressed a letter to the *Building News* in which he says "he saw no parallel in the East to the filth, vice, and misery of Liverpool," which statement, together with various others referring to the Turkish Bath system, has been replied to by a correspondent of that paper in somewhat the following terms:—

"Then he must be as blind as a mole. From my medical knowledge of Eastern populations I assert, without fear of contradiction by any who have made use of their senses while travelling in Asia, that the vices prevalent among them are so horrible as to be unimaginable by Englishmen, and impossible to allude to more plainly. The horrors of the Turkish harem are revolting; abortion and infanticide are common and unpunished occurrences. The daughter of the Sultan died mad from being made the repeated victim of these crimes, while hundreds of men are rendered impotent by causes which the doctor ought so be able to guess. The French troops in Beyrout are suffering terribly from a certain malady.

Drunkenness is a vice more frequent among Moslems and Christians than is imagined. The former get drunk in their harems. The late Pascha of Damascus was notoriously addicted to this vice, while the Christians and their priests indulge in raki till they are rendered maudlin and fuddled. The filthiness of the Christians is greater than that of the Moslems, from the latter keeping their heads shaved, but all are cursed with vermin. There are two Turkish baths at Beyrout, and as the floors are laid with drains, it is simply impossible for there ever to be half an inch of water on the floor. And, indeed, water is far too costly in that city to be used otherwise than most economically.

"Dr. Haughton is mystified by reference to 'harrowing the head.' Then I am very sure he never had a Turkish bath, or he would recognise a polite term for an operation which consists in the attendant scratching with his nails the head of the attendant after it is well soaped. As for 'rinsing,' if the Doctor should ever have heard of a dictionary of the English language, edited by an Englishman—a certain Samuel Johnson, LL.D., and could obtain reference to a copy of the work, he will find therein that to rinse means 'to wash, to cleanse by washing, to wash the soap out of clothes,' and, therefore, out of hair.

"One word to the Turkish bath. European residents in the East rarely indulge in it, and a reference to Porter's 'Handbook for Syria and Palestine,' intro. p. 54, will show what opinion that well-informed Orientalist entertained of it. During seven years' residence he never but once entered a Turkish bath, and reports the opinion of a medical friend that the 'torture process' 'may have the effect of irritating the cuticle, and weakening the frame,' which I fully believe.

"During a tolerably long residence in the East I have refrained from these baths, to which I impute my freedom from boils, diarrhœa, and fever, although when in Russia, North Germany, and even Paris, I freely indulge in Russian baths, which are as refreshing and invigorating as the Turkish ones are enervating and abominable."

INTERNATIONAL EXHIBITION OF 1862.

The site and general plan of the building for the Great Exhibition of 1862 have been decided upon by the Commissioners. The part of South Kensington adjacent to the Museum and bordering upon the Horticultural Society's new gardens has been selected as the locality. The building will cover an area somewhat exceeding 26 acres, being greater by more than three acres than the space occupied by the Exhibition of 1851. There will be nearly 200,000 feet more flooring, without counting the 300,000 feet which will be appropriated to the wings, than were required by its predecessor. The forthcoming structure will be 200 feet high at its greatest altitude—the domes—while the greatest height of the Hyde Park Palace was only 160 feet. The new building will be 1,200 feet long and 700 wide, while the former was 1,200 feet long and 400 wide. The contractors have undertaken the erection for £200,000 the estimated cost being £300,000; the remaining £100,000 to be paid to them in case the profits exceed £500,000, a sum which they did exceed in 1851. Instead of the structure being composed of glass and iron—the chief materials of the Hyde Park Palace—the Commissioners have resolved that the elevations for the new building shall be for the most part constructed of brick, in order to afford a better protection for the valuable fabrics and the rare works of art which are expected to be on exhibition. The time of its existence is to extend from May 1st to October 15th; and it is understood that the opening and closing ceremonies will be under the personal supervision of her Majesty.

SAXON ARCHITECTURE.

THIS style is exhibited solely in churches, and other ecclesiastical structures, and prevailed from the time of the conversion of the Saxons to the Norman conquest.

When the Saxons first obtained possession of the country, they were pagans; a barbarous race, much inferior to their predecessors, the Britons, in the cultivation of the civilized arts. It would appear that they did erect some buildings of importance, as we find Gregory the Great giving permission to St. Augustine to make use of their temples for the purpose of Christian worship; but of what description such buildings were, we have no conception; nor, indeed, are we certain that they did not employ such buildings as they found already erected in the country, rather than erect new ones for themselves. Be this, however, as it may, we are here only concerned with their Christian edifices. Of these, the first, occupied by the missionary Augustine, was one at Canterbury, dedicated to St. Martin, which Bertha, the Christian queen of the pagan king, Ethelbert, had been in the habit of using. This, however, was not a Saxon edifice, but probably a church of the ancient Britons which had escaped destruction by their treacherous allies. From this it is evident that many churches were erected even in St. Augustine's time, and of the erection of some of these we have authentic records. The first erected was the cathedral church of Canterbury, built on the site of an old Roman church, and which St. Augustine dedicated under the title of Christ's Church.

Within thirty years from Augustine's death, Paulinus had succeeded in converting to Christianity, Edwin, the king of Northumbria, and became bishop of that province. His see was fixed at York, where Edwin immediately set about building him a church, which we learn was built of timber, and dedicated in the name of St. Peter. From such humble beginnings arose the splendid cathedral which now adorns that city. This timber-structure was erected previous to the baptism of the king: shortly after that event, however, he took care, by the direction of Paulinus, to build in the same place a larger and nobler church, of stone, within which the smaller building, which he had first erected, was enclosed. During the erection of this building, Edwin was assassinated by his pagan subjects, and the church was completed by his successor, Oswald. After this, Paulinus crossed the Humber to preach the gospel at Lincoln, where he succeeded in converting the reeve or governor of the city, who was a man of considerable wealth, and who undertook the erection of a large and magnificent church of stone in that place. It was destroyed by the Danes, and afterwards rebuilt by Gilbert de Goure, earl of Lincoln. Paulinus is also said, by historians, to have built the church at Southwell, Nottinghamshire, which still exists, and in a good state of preservation; but evidently much of its architecture is of a later date than that of Paulinus. At the close of the seventh century, St. Chad, bishop of York, built a church at Barton-upon-Humber, where there is still standing an edifice of undoubtedly Saxon character. The successor of St. Chad was a man of somewhat different stamp, of the name of Wilfrid. Active, persevering, and accomplished, he added considerably to the temporal dignity of the church, and was one of the greatest builders amongst the Saxon bishops. He was only thirty-five years of age when he entered upon his duties as bishop of York, and one of the first objects to which he gave his attention, was the cathedral. He found the church built by Edwin and Oswald in a state of miserable neglect, the old roof dropping with rain-drops, and the windows open to the weather, and giving entrance to the birds, which made their nests inside the building. He repaired it substantially, "roofing it with lead," (being probably of thatch originally) "and prevented the entrance of birds and rain by putting glass into the windows, yet such glass as allowed the light to shine within. He also washed the walls of the old building, "and made them, as the prophet says, whiter than snow." St. Wilfrid seems to have been the first to introduce the use of glazed windows into England, the light having been previously admitted into their buildings by openings covered with trellis-work, or with dressed skins of beasts, or sometimes with transparent horn or hair-curtains. Wilfrid had his glass from France; and Benedict Biscop, at a later period, is said to have brought from the same country artisans, to teach the English the method of its manufacture. Some reputed remains of this church at York, have been discovered beneath the present cathedral. At Ripon, Wilfrid built another church "of polished stone, with columns variously ornamented, and porches;" but his most famous work is the church at Hexham, which is described in glowing colours by Stephen Eddius, a cotemporary with Bede. He assures us that it had not a rival on this side of the Alps. Deep foundations, he says, were dug in the ground for the construction of subterraneous chapels, and passages of communication. On these foundations walls were raised to a prodigious height, and were divided into three stages or stories, supported on square pillars and polished columns of different marbles. The capitals of the pillars and the arcades, and arch-walls of the sanctuary, were adorned with sculpture, paintings, and figures in relief, judiciously coloured; blue, green, and yellow, being the more predominant hues. The church was surrounded by galleries inside, and divided by inclosures and staircases, so that you might make the circuit of the building without being seen from below. In the galleries above and below, were chapels dedicated to Our Lady and St. Michael, to apostles, martyrs, and confessors, all provided with the necessary ornaments.

Benedict Biscop was another builder, who erected the monasteries of Monk-Wearmouth and Jarrow; he seems to have brought masons and other artificers from Fance. He was a cotemporary with Wilfred, and lived at the close of the seventh century. Adhelm, at a somewhat later period, was the founder of the abbey of Malmsbury, and two churches in the same town, one within the abbey and the other without, for the villagers or townspeople; he also built churches at Dorchester. The church of St. Peter at York, was rebuilt about the middle of the eighth century, in consequence of having suffered from fire in 741; it is described by Alcium in his poem *de Pontificibus et Sanctis Eccles.* Ebor.; who makes particular mention of its pillars, arches, vaulted roofs, windows, porticos, galleries, &c., which are the characteristics of a finished building.

Acca, bishop of Hexham, was the builder of a noble church at that place, and is said to have adorned the side-walls with little tabernacles or shrines, arching over altars in honour of apostles and martyrs; at which the people often knelt in prayer, and on which were placed caskets, containing sacred relics. A new church erected

Miscellaneous.

New Work on Timber Roofs.—We learn that a comprehensive illustrated book on the above important department of building construction is in course of preparation for press by Messrs. Atchley and Co., publishers, Great Russell-street, London. It will contain most valuable working details, full size, and judging from the general style in which some excellent professional works have been produced at same establishment, we have every reason to expect that the new comer will be an important acquisition. It might not be amiss to suggest, that such of our readers as have executed timber roofs of other than ordinary construction, would communicate particulars to that firm. We believe a companion work on "iron roofs" will soon follow, and to this our suggestion would equally apply.

Trade Catalogues.—Occasionally we referred to some illustrated catalogues produced by English and Scotch manufacturers, and in fact forming both interesting and instructive volumes in various branches, but we are pleased to see that there still remains amongst ourselves a sufficiently enterprising spirit to render available the capabilities of *our* townsmen in the typographical arts, and we desire specially to notice a catalogue of goods manufactured by Messrs. Kennan & Son, of Fishamble Street, in this city. It comprises illustrations of wire fences, and the various tools and strainers requisite for their erection, sawing machines, circular and otherwise, chests of workmen's tools, agricultural and washing machines, garden furniture, steam engines, entrance gates, &c., in all, some 70 diagrams, and is altogether a very creditable little work.

Novelty and Efficiency of Modern Agricultural Machinery.—We have been favored with a copy of Messrs. Richmond and Norton's new Implement Catalogue, issued at their depot, South John-street, Liverpool, descriptive and illustrative of a *new series* of Agricultural Implements and Machines. These are now so well known that it is scarcely necessary that we should recommend *all* thrifty farmers to supply themselves with the newly improved machines for the preparation of food for cattle.—*Liverpool Post.*

Strike of Painters, Plumbers, and Glaziers, of Wolverhampton.—The painters, plumbers, and glaziers of Wolverhampton are on strike. Up to about four weeks ago their wages were 22s. a week for working ten hours and a-half a day—namely, from six to half-past five, with half an hour for breakfast and an hour for dinner. At that time they applied for a rise in their wages of 2s. per week. The masters gave them 1s., and it is said promised the other shilling on a future occasion. Three weeks ago the men applied to their employers to complete their promise, and also to reduce the work by half an hour a day. A few of the unimportant employers acceded to the request; but the others declining to give any satisfactory reply, the men struck work last Monday morning. Since then the masters have met and resolved to concede the half hour, but refuse to increase the wages. On this decision being notified to the men, they resolved not to return to work till the masters had complied with the whole of their demands. The masters assert that they made no promise at the time of the last advance, and they are now prepared to give either the 1s. advance or to concede the half hour, but they are not disposed to do both; and they say that generally their customers are supporting them in this determination.

Ingenious Safety Railway.—An ingenious invention by Mr. Wright, of Lombard-street, London, is at present attracting much attention. It is designed to render almost impossible accidents upon railways, and the plan is so simple and so forcible as to merit it all the interest with which it is regarded. It comprises a safety-kirb and life-guard, the former being, in fact, an aditional rail, which is elevated on each side of the ordinary way. At each corner of the carriages life-guards or supports are placed, which, in the event of a wheel breaking or any similar accident, descend upon the elevated rails, entirely preventing the carriages from capsising or leaving the way.

Farm Buildings and Labourers' Dwellings.—Amongst the applicants for loans under Landed Property Improvement Act in the former department are—

Charles Conyears, Castletown, Limerick, ...	£500
George Vesey Stewart, Lisbeg, &c., Dungannon, ...	500
Richard Grove Annesley, Annesgrove, Fermoy, ...	155
John Blakeney, Graignebann, Tyaquin, Galway, ...	400
James Fetherstone H., Ballintober, Moycashel, ...	400
Stephen E. Collis, East and West Shanaway, Kerry,...	750
Beecher P. Fleming, Derrylea, Kildare, ...	990
Total, ...	£3,695

And in the latter—

St. John Blacker, Tullahinch, Kerry, ...	£400
Fulke Greville, M.P., Delvin, Westmeath, ...	750
	£1,150

Ancient and Modern Ink Manufacturers.—A sort of reflection appears to be cast on the boasted progress of mankind in the operative arts, when the fact is brought prominently before us, that manuscripts written before the tenth century have for the most part retained the original blackness of their ink, whilst documents written *since* that period for the most part show indubitable signs of perishing or perishableness, so far as relates to their ink. Many, doubtless, who peruse this need not go beyond their own family records for proof of that here stated. Many a letter penned not more than ten years ago shows unmistakeable signs of perishableness as to its ink. Why is this? How comes it that ancient and mediæval people could manufacture permanent inks, whilst we, with all our boasted chemical resources, so often fail? The answer is plain enough. Fast writing is a desideratum as well as permanence of writing. Now, fast writing involves easy flowing, and easy flowing demands a thin ink. Charcoal may be powdered very fine, and it may be suspended for a time in gum water, or thick material similarly mucilaginous, but it *cannot be dissolved*; and herein lies at once the difficulties of using it, and the permanence of it where used. The liquid modern inks are in point of fact dye-stuffs, and the processes of dyeing were very little understood previously to the tenth century.

The Turkish Bath.—This is now beyond doubt one of the institutions of this country. We have long been famed for our medical schools and practitioners, and it is one of the most remarkable facts that the Turkish Bath should, in presence of these, have sprung up with greater vigour in Ireland than in either England or Scotland. It is said that medical men are generally opposed to innovation. If it be so, how is it that this innovation has made such way, exactly when the faculty may be supposed to be the most capable of offering effective resistance? We believe that the profession is more liberal now, as it is unquestionably more enlightened, than when the above was predicted of it; and that now really enlightened men, such as this country boasts of, are ready to seize upon every means which human ingenuity places at their disposal, for the alleviation of pain and preservation of life. But there is reason to believe that the Turkish Bath is not such an innovation as some suppose. Dr. Barter has received from the east, through the instrumentality of Mr. Urquhart, what is in reality a revival and more perfect development of the old Irish *Tigh fallais*. The Milesians may have brought the institution with them from the east, or it may have sprung out of the necessities and ingenuity on the green isle of the west. But now east and west have met in the south of Ireland, and amid the Groves of Blarney the Irish Bath has been brought to the present stage of perfection in the hands of Dr. Barter. Dr. Barter is not a man for keeping his light under a bushel. Hence it is that from Blarney the bath has spread, until now every province can boast of more than one in operation or in course of erection. The metropolis itself has one on each side of the river, and the bath at Lincoln Place is at once an ornament and a sanitary acquisition to the city.

The Progress of Science.—It is delightful to see many reasons for believing that science, technically so called, is becoming more and more interesting to the general public. At one time the genius for discovery was a perilous gift; and those who possessed it were looked upon with an evil eye, as persons in the service of witchcraft and necromancy. A life passed in gazing on the stars and among the mysteries of numbers and diagrams, or one spent in the laboratory, was too removed for the ways of common life to seem to have any lawful object in view, or to possess adequate attractions for men, unless in the awful compensations of communion with the lower world. Although the long period of conflict between the rights of mind and the despotism of superstition ceased many centuries ago to be universal, there still remained those hindrances to a popular science, which arise out of the essential nature of discovery in unfamiliar studies, except when these are removed by the method of exposition which was destined to be the birth of a later epoch. A change, however, has taken place, and the numerous lectures upon every valuable branch of science, now being everywhere delivered to crowded audiences, cannot fail to reverse the past, and make the names of our scientific benefactors as much household words as formerly they were proscribed or were heard only within the circle of professional life.

Architectural Partnership.—We learn that Mr. Thos. Turner, architect, and Mr. Thomas Drew, architect, have entered into partnership, and their offices will be in Belfast.

Professor Davy, Royal Dublin Society, commences on the evening of the 17th inst. a course of six lectures on "The history, chemical constitution, properties, and agricultural applications of the most important natural and artificial manures."

There are 31,000 miles of railway in the United States. Their average cost and equipage is 36,000 dols. per mile. The cost of operating a mile of railway paying a dividend is 2,000 dols. per mile a year. The roads which pay ten per cent. dividend—gross—6,000 dols. per mile

A new church is to be erected at Piltown, county Kilkenny.

The committee of the Protestant Orphan Refuge are about having sundry building works done at their house (late St. Stephen's school), Haddington-road, according to plans and specifications by Mr. Rawson Carroll, architect.

A new lunatic asylum for the Co. Monaghan is to be erected. There is to be another for the Co. Mayo, for which Mr. George Wilkinson is the architect.

A sum of £1,600 is still required to enable the committee for rebuilding St. Andrew's Church to proceed. The Ecclesiastical Commissioners submitted a design which would cost £9,000.

The consulting engineer to the Sligo Extension line reports that between Longford and Boyle fencing and earthworks are in active progress, masonry advanced, bride over rive Boyle all but complete, and other works forward; also that between Boyle and Sligo earthworks are in an advanced state, all principal bridges complete, sixteen miles of line—seven only being continuous – constructed, and two and a-half of permanent way laid down. Same engineer reports that *in re* Liffey branch line contract has been let, and arrangements for obtaining possession of land sufficiently forward to admit of early commencement of works.

The towns of Thurles and Skibbereen are to be placed under the Towns' Improvement Act.

Exhibition of Pictures.—There is at present on exhibition at the ante-room, Rotundo, an extensive collection of pictures by British and continental artists.

Improvements in Clonmel.—The enlargement of our butter market house, through the liberality of Mr. Bagwell, M.P., is progressing towards completion. When finished, Clonmel will be able to boast of a first-class market, under proper and careful supervision, and with first-class accommodation—a market inferior to no other in the country, and one that will bring back that large share of trade that our town once possessed before the "demon of discord" raised its horrid front amongst us. In the same locality we perceive the shambles are undergoing an entire reconstruction, and on a very commodious plan. The change will be esteemed as a boon both by buyers and sellers. Lately some well appointed victualling establishments have been opened in our principal streets, and the number of our unoccupied houses has lessened in the same proportion. Indeed idle premises are, we are glad to say, "few and far between;" and, passing through the Main-street, a decided change for the better must be perceived. There still remain two or three unsightly objects: we allude to the very dilapidated remains of the ruinous houses which were removed under the operation of the towns' improvement act. The sites are good; and, from what we can learn, advantageous terms would be held out by the lessor to parties willing to treat for these premises.—*Clonmel Chronicle.*

Messrs. Shekleton, of Dundalk, have sent a steam fire-engine for exhibition at the Royal Dublin Society's Spring Show; Messrs. Musgrave, Brothers, of Belfast, iron workers, have engaged a large stand, and no doubt will present an attractive display. Indeed, generally speaking, we learn that Irish manufacturers have come forward most spiritedly, but of this and other particulars we shall be better enabled to speak in our next number.

The Borough of Dublin Bill.—Application will be made to Parliament during the present session for leave to insert a clause in this bill, to authorise the Corporation of Dublin to enter into contracts for paving and lighting the streets.

TENDERS

For four cottages to be erected at Buxton, Sundays Well, Cork, for Mr. William Lee. Mr. Richard R. Brash, architect.

	In Brick.	In Stone.
Richard Burke	£1,200	£1,240
M'Sweeny and Clayton	1,137	
Edward Martin	1,125	1,030
Richard Martin	1,035	
Simon Kenefick (accepted)	920	950

THEATRE ROYAL.

The Colleen Bawn.—Mr. and Mrs. Dion Boucicault make their first appearance at the Theatre Royal this (Easter Monday) evening in this drama, which is a tale of Irish life said to be replete with interest. The fame of the gentleman in the capacity of author and actor has been long since heralded, and the lady is also represented to be a charming and accomplished actress. We shall have occasion to speak more fully in our next.

Note.—We are unavoidably obliged to hold over our "Column for Craftsmen," till next publication.

To Correspondents.

A. H. & Co., New York (Received; thanks); J. P., Rue Fontaine, Paris (We publish only *twice* a month; what are your terms for correspondence on scientific and artistic subjects?).

NOTICE.

Post-office Orders and Remittances should be made payable to Mr. Peter Roe, *Printer and Publisher,* 42, Mabbot-street, Dublin.

☞ *NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the* Dublin Builder," 42, Mabbot-street. *All other Communications should be addressed to the "Proprietor and Editor,"* 17, Lower Gardiner-street.

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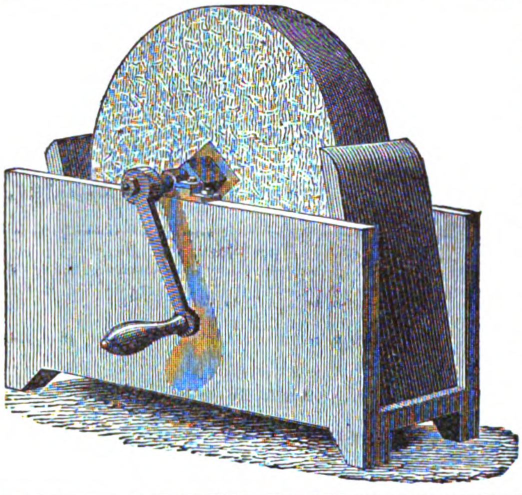

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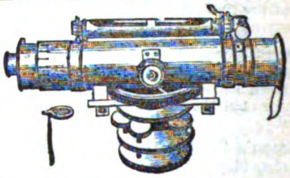

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The Dublin Builder.

Vol. III.—No. 33.

THE WORKS AT ST. PATRICK'S CATHEDRAL.

NEARLY a year ago was commenced the task of rescuing this venerable fabric from the demolition with which the withering hand of time, infallibly and speedily, threatened it—a task volunteered through the princely munificence of an individual whom we may be proud to regard in all the relations of life as a countryman, and prouder still as a fellow-citizen. During that period various contrary opinions have been elicited upon the character of the works in question, and the fidelity with which the promised restoration was being carried out; but observing our invariable rule to hear with equal attention and courtesy both sides, these were inserted in the pages of this journal, without any reference to editorial identification therewith. Feeling, however, that the work had sufficiently developed itself to form a judgment, and indeed confessedly yielding to some pressure from without—as it has been repeatedly urged upon us, in pursuit of our peculiar mission, to devote a special article thereto—we come to consider the question; but prior to detailing particulars of present operations, a short glance at the history, features, and previous circumstances connected with the cathedral suggests itself as most essential.

Like all other large old churches, this shows specimens of different styles, for, besides the Early English of the original edifice, we find parts that have been renewed or added in the Decorated, and in the late perpendicular, as well as the incongruous innovations—miscalled restorations—made at various periods. The church itself belonged to the latter part of the twelfth century, but the tower, a substantial and somewhat ornate edifice, was added by Archbishop Minot towards the close of the fourteenth. To the same period must be referred the western half of the nave on the north side (which, from some unexplained circumstances, presents an arcade, with unequal bays), the mullioned windows of the aisles, and probably also the beautiful decorated windows at west end of the nave, north aisle. The great west window belongs obviously to a much later period, that of the perpendicular style, perhaps, of the middle or latter portion of the fifteenth century. The flying buttresses of the choir are evidently additions to the original plan, introduced not as mere ornaments, but to resist the outward thrust of the stone vaulting, perhaps at the time when the tower was built, or between that and the substitution of the great single western window for the primitive lancet lights, like those of the transept at York. After the church had been thus completed, there ensued a long period of neglect, which varied only by some feeble and occasional efforts at reparation during three centuries, in the worst and most tasteless style. The south wall of the nave and the west wall of the south transept required support early in the eighteenth century. This was given by the application to each of a flying buttress, *strong* but *clumsy*, and void of any artistic feature. These buttresses, which are still standing, were surmounted by stone globes, like those so frequently placed on the piers of gate entrances in the country. It is probable that these, and other well-meant, but tasteless alterations, were made in Swift's time, but he deserves credit for his care to preserve the monumental figure of Archbishop Tregury (fifteenth century), which, after extricating it from the ruins of St. Stephen's chapel, he caused to be inserted in the west wall of the nave, northwards of the great entrance, where it can be still observed, one of the very few sepulchral objects that harmonises with the church itself. In a corresponding position to the south of the western door is the broken monument of Archbishop Saundford (thirteenth century), found when the chapel of the B. V. Mary was pulled down, about twelve years ago, and placed in the nave by direction of the present dean. The north transept, which for several centuries had been used as the parish church of St. Nicholas Without (*extra muros Dublin*), was permitted to become ruinous, and about forty years ago was totally, but unnecessarily, removed. It was rebuilt, but in such a manner as offers nothing to be commended but the material and the workmanship. Its architect appears to have disdained any attempt to conform to the style of the remaining portions of the ancient edifice. Dean Dawson, nearly thirty years ago, renewed the west front, but with many incongruous and ugly features. A more ambitious effort has subsequently been made at the east end, under the auspices of an English architect, who completely demolished the original Lady Chapel, but rebuilt it on its old plan and foundations, only displaying in its eastern gable some of *his own fancied* improvements,' and of quite a different period of architecture to the remainder. He also took down the north-east and south-east flying buttresses, as far as the springing of their arches, which he removed, and about three years elapsed before they were rebuilt. Their pinnacles he did not rebuild in their original pattern and figure, but substituted others, so as to make them disagree with all the remaining originals, and he also erected two lofty pinnacles to flank the eastern gable of the church, which never previously had any such appendages. The four pinnacles he thus introduced not only produce an ill effect by their obvious disagreement with the others, but even more so by their being over-capped, the basis of the cap being much in excess of the octagonal prism on which it stands, and beyond whose faces it projects on every side. He also removed the old mullioned windows from the choir aisles and from the north aisle of the nave, replacing them by simple lancet lights of the most ungraceful curves and proportions, with a very scanty and insufficient splay towards the interior. The pitiful attempt to imitate masonry by lines and streaks on the plastering must be remarked by every attentive observer. Within the choir a real restoration was made by clearing away two heavy wooden galleries and several partitions, by which the aisles had been cut off and converted into mere passages. But if the plans, of which this was a portion, had been completed, the church would have been completely changed in its external aspect, by the substitution of pinnacles for turrets not only on the main building, but on the tower itself, just as if the spire had been an original feature, instead of an interpolation of the eighteenth century. Fortunately, the requisite funds for so much "*Carpenter's*" Gothic (to use a popular term, perhaps peculiarly applicable in this instance) could not be obtained, and enough of the old church was preserved to supply authentic patterns for a true restoration.

When Mr. Guinness, early in the year 1860, had determined to engage in the work of restoration, he obtained the assistance of two well-known professional architects* who carefully examined the condition of the church, with especial reference to the stability of its several parts. They ascertained that the south wall of the nave, the greater part of the south transept, and some other portions of the church and its appendages were not only in a dangerous state, but were quite incapable of repair. There were, however, other parts which could be preserved by suitable works of reparation. Immediately after this accurate survey, Mr. Guinness communicated to the Dean and Chapter of St. Patrick's his own munificent offer of defraying the entire cost of the restoration without allowing any deviation from the original; and his next care was to obtain photographs, of every part to be renewed. The work was then commenced under his own assiduous and personal supervision, at the period above stated, and considerable progress, as may be inferred from the following, has been made:—The south wall of the nave has been entirely taken down, and is now fully rebuilt without any deviation from its original plan, excepting the introduction of intersecting arched opens in the lower triforium, which, though not originally existing in this portion of the building, and therefore that probably it must be conceded that there does appear here a departure from actual "restoration," nevertheless it has been most judiciously treated and in faithful imitation of a precedent afforded in the south transept. The massive piers which support the series of great arches on which the whole superstructure of 5 ft. thickness is reared, consist of granite, encased in Caen stone, which is also the material of the vaulting shafts, the mouldings, and all the other ornamental parts of the interior, except only the single slender column at each jamb of the triforial openings into the nave, which is formed of limestone. Against the north wall of the nave two flying buttresses have been erected to give support; these buttresses and their pinnacles agree with those of the choir. The clerestory of the choir on the south side, and that of the east side of the south transept have been extensively repaired. All the windows in those parts have been renewed in exact conformity with the original stonework of which they are facsimiles, but in more durable material. The exterior face of the wall has been removed and replaced with ashler of excellent workmanship, and the corbel-table and parapet completely renewed. The three flying buttresses on the south side of the choir, which were so decayed as to be dangerous, have been almost entirely rebuilt. The arches of the two have been permitted to remain, that of the third has been replaced, but the shafts and caps of the three are all new, and exactly of the old pattern without any alteration. The design has been censured, by a correspondent of the *Dublin Builder* (15th April, 1861, page 485) who objects to what he describes as "hard and unpleasant in outline, the fans scratched with ill-cusped mean pannelling, the mouldings hard and unfeeling, and a bold, ugly spike surmounting the whole," but which he admits to be a "very proper finish to such a severe study." It must be conceded to our correspondent that the sharp spikey termination is *not* pleasing to the eye. It may be doubted whether it existed in the original pattern, and certainly might have been advantageously replaced by an obtuse, truncated, or obeliscal termination. But in defence of the sharp form, there is the example of one pinnacle on the north side of the choir which, he ought to know, was *restored* not many years ago by the late Mr. Kingsmill, and which deserves notice not only for its excellent material and workmanship, but also for being the only specimen of true restoration that St. Patrick's possesses anterior to the great work in which Mr. Guinness has already made so great a progress.

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* As we are informed, Mr. Patrick Byrne and Sir John Benson.

Those who would fairly estimate the present restorations should, while there is yet time, compare the new works with the old in corresponding situations. Thus the north and south sides of the nave, and the east and west sides of the south transept may be brought into comparison. There is still remaining one of the original flying buttresses, as yet untouched, on the north side of the choir. Agreeing with all the others in the figure and ornamentation of its pinnacle, it yet differed from them in the inclination of the gablet ridge, which instead of making a right angle with the axis of the shaft, the effect of which would be displeasing, dips from it with an angle of 120 degs. When viewed in profile from Cannon-street, this buttress presents itself most agreeably to the eye. It is worth a careful study, and has also another feature of its own, in the absence of any diminution of its bulk until it reaches the gablet. The true difficulty of the restoration will, however, be the south cross end—partly rebuilt in the worst style about fifty years ago—which, according as it may be treated, will either be a dignified and most effective part of the general view, or a discordant object, that will disappoint all previous expectations arising from the taste and correctness of what has been up to this time completed; and not an important one for the builders practically to deal with, in restoring the groined ceiling of the nave, is the discrepancy between the bays of the north and south walls, those of the former being irregular both in widths and heights, while those of the latter are quite uniform. It would seem however to be a matter of prudence on the reasonable assumption, that the rebuilding of the north wall of nave identical with that of the south will be a mere question of time—to disregard totally the irregularities of the latter, and, as far as we have learned, we believe this is the probable course to be adopted.

The execution of the works is entrusted by Mr. Guinness to the Messrs. Murphy, of Amiens-street, builders, and we are fully prepared to testify that they have performed the task with unexceptionable excellence, but which will be better understood by looking at their work than by reading a description. They have not, like some of their predecessors, fallen into the error of using the soft Caen stone for quoins, angles, water tables, or any other exposed or exterior works, but have adopted excellent lime-stone obtained from the quarries at Tullamore, Skerries, and the neighbourhood of Drogheda—each being used in a different portion of the work. The shoring of the nave roof partly sustained by a mass of masonry such as above described, and in a height of 60 ft., some 2 *ft.* 7 *in. out of plumb*, was successfully accomplished by them, without a single injury suffered by any of their numerous workmen, and at least must demonstrate to the most sceptical the amount of practical skill that has been available amongst the employeés of Mr. Guinness.

Reviewing, therefore, in the abstract, *all* circumstances connected with the restoration of this cathedral, we must admit that, while maintaining on *general* principle that those who engage in works even of a comparatively insignificant character would do *best* to secure competent professional advice, to guide them *ab initio, usque ad finale*—and the more important the work the more desirable the precaution—if even only in the event of failure to secure a responsible object for censure—nevertheless, that, as this has been strictly—or nearly so—a matter of restoration, with every existing detail as a guide, studied faithfully, and with an earnestness of purpose unsurpassed either inside or outside the professional pale, the work, as an architectural whole, is successful in its treatment, and the noble-hearted benefactor is entitled to unqualified national approval.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE presentation of the Royal Gold Medal, £50 prize, in connection with the Soane Medallion, and the book prizes, took place on the evening of the 22nd ult., Mr. Cockrell presiding. The recipient of the gold medal on this occasion was Mr. P. J. B. Le Sueur, who replied in the following terms:—

Mr. President, Gentlemen, and dear Colleagues,—I am extremely flattered by the signal honour that you confer on me, and I am the prouder inasmuch as I receive here a mark of distinction that is unique. This is not a question, in fact, of one of those decorations awarded, and often even lavished, by men in high places, and without doubt generally of uncontestable worth, but not always possessing the aptitude necessary for judging works of art. Your institution, on the contrary, possessing all the knowledge necessary for the thorough appreciation of monumental productions, its approbation has an incomparable value, which I appreciate with heartfelt conscience, and which fills me with the liveliest gratitude. It has been said that the arts are cosmopolitan. Thanks to the facility of communication, the truth will become daily more evident, and artists of all countries may form, perhaps, ere long, but one immense academy. Living in an age of eclecticism—feeling one's way, as it were, we have a great task to fulfil—that of giving to art a character peculiar to our times. This task is difficult; yet let us not be discouraged. Numerous publications enable us to become better acquainted with the monuments of all ages, and all countries; they are precious documents which our predecessors very imperfectly possessed. Let us hope that the comparative study of these fertile elements may produce at last not a new architecture, the hope of which is utopian, but a new shade of style, which will become the seal of the architecture of the latter half of the nineteenth century. London and Paris, being not only the largest capitals in Europe, but the nearest to each other, it belongs to us to give the impulse, and I am proud of being a link in the chain which will unite indissolubly the two countries. The recollection of this day will be precious to me, as consecrating between us those intimate relations which must extend and become general in the future. For myself, gentlemen and dear colleagues, I shall co-operate with all my heart, urged by feelings of the deepest gratitude.

The other prizes were awarded in the following order:—

To Mr. Walter Paris, Fergusson's "Handbook of Architecture," for the best design for a literary and scientific institution.

To Mr. Richard C. Carpenter, Petit's "France," for the second best design for ditto.

To Mr. Edward Tarver, Gwilt's "Encyclopædia," for the best set of monthly sketches.

To Mr. Walter Paris, "Parker's Glossary," for the second best ditto.

The £50 prize claimed by Mr. Thomas Vaughan, jun., of Stoke Newington, the successful competitor for the Soane Medallion in 1859, was awarded. This gentleman being in Naples, his father attended for him and received the prize, the president requesting him to convey to his son the congratulations of the Institute.

Mr. F. Pepys Cockerell read a paper on "The Architectural Accessories of Monumental Sculpture;" and Professor Donaldson, after alluding to it in complimentary terms, added some lengthened remarks on the subject, and Messrs. Papworth, C. H. Smith, and Horace Jones also joined in the discussion.

CONVERSAZIONE AT THE ARCHITECTURAL ASSOCIATION.

ON the 19th ult., the second conversazione for the season was held by this society at the Conduit-street Galleries, and there was a goodly assemblage present. Mr. T. Roger Smith, president, referred to Mr. Tite, M.P., having, at the commencement of the session, placed at the disposal of the association a sum of money as a prize, and the report of the judges was accordingly read thereon, which stated that "a total number of 102 drawings had been submitted by 17 parties in competition for the £3 and £2 prizes respectively, to the former of which (a design for a club-house) Mr. Harris was found to become entitled, and the latter Mr. Tarver, for sketches in the class of design." Mr. Tite presented the prizes, which respectively consisted of "Fergusson's Handbook of Architecture," and a volume by "Viollet le Due," and the recipients were highly complimented by that gentleman on their ability. After a vote of thanks to Mr. Tite and other proceedings, the meeting separated.

IRON CONSTRUCTION.*

The golden age is past; we are now in the iron age. The framework of our country is iron; her sinews are iron. Through iron arteries her vital fluid is forced by the pulsations of a thousand iron hearts; her nerves are iron, stretching their wiry fibres in a network from the great brain, and flashing injunctions to the most remote extremities that are almost analogous to the dictates of the human will. This is the feature of our age. Glass may strive for partnership or follow in the wake, and share the glory of its elder brother, but iron must inevitably succeed to the title and honours of this century. It is only by directing the attention to it that the prevailing presence of iron in our daily lives becomes properly evident. Such things as railways and iron ships are too conspicuous to be noticed, and one seldom remembers that the lamp-posts are iron, and the iron roots from which they grow are spreading unnoticed for miles under our feet. What should we do without fire-grates and down-spouts? What would joiner's work be without nails? Send a bagfull to the backwoodsman, and you may then learn to appreciate them properly. Even the humble scraper at the door is an invention that cannot be surpassed, and in the quality of fitness is unexcelled. The way to appreciate both nature and art is to keep your eyes open, and think about it. An architect usually has but little to do with iron until he finds it on the ground at his work, as it is almost impossible for him to attend at the melting to see if the metal is of the right sort, but in most cases it is usual to insert strong scarecrow clauses into the specifications about the particular mixture of cast iron, the absence of cold shuts, and other ills that castings are heirs to; or perhaps the brand of the wrought-iron bars and plates is named, and as a check upon both, test bars and tension per square inch mentioned. This is all very necessary for security, but, as I have suggested, is, in practice, only the *cave canem* of the Romans, who seldom kept a dog that would bite. Almost the only power the architect has is to ascertain if the form of his casting is what he intended, unless by a few experienced taps he can judge of the metal by its ring, for external appearances are very little to go by, if the airholes are neatly stopped up with lead or putty. It is the same with wrought-iron to a great degree: imperfect welding or rolling may be all concealed by a well-worked surface; and although the facilities for testing wrought-iron are greater than for cast-iron, there is still a perilous amount of uncertainty, for I have seen a piece of iron stand fifty tons well at one moment, and within half an hour afterwards break with a load of ten. Under these circumstances, I feel justified in directing my attention to iron construction as a subject requiring much more elaborate study than construction with material whose acting force usually depends upon gravity alone. It may, however, be truly said that gravity is the ultimate source of all the strains that arise in building, but for convenience it is necessary to resolve the resultant into compression and tension. It was formerly usual to employ iron chiefly, to resist the latter, but economy of space and length of bearing have brought in its services for both. The mere names of cast-iron and wrought-iron imply two separate sciences, which, in themselves, would take a lifetime to learn, and I can do little more in this paper than offer a few brief notes upon the main principles and difficulties in the more ordinary forms of iron construction which come within architectural practice. The first point to be considered in obtaining a casting is to find out accurately what it has to do. This is, in some cases, easy, but more generally difficult, and frequently instances that appear simple are, on consideration, found to be complex. One common example may suffice to explain the sort of difficulty to which I allude. Suppose a shop front of more than the Building Act width, in which the inevitable column has to be fixed, and suppose that the proprietor, since he has to put one there, determines to make it work. To effect this end, the beam is reduced in strength so that it would not carry the superincumbent weight unassisted, a portion of the weight falls upon the column, but how much? It is only a poor approximation to ascertain what the beam *will* bear, and then say that the column carries the remainder. But suppose this to be done, it is not enough. Suppose the column to be in the position shown in the drawing, the greater length of the beam on the one side will have more deflexion than the other, and the strain on the cap of the column is greater on that side, thereby throwing a diagonal strain upon the column, for which it should be prepared. If cores were always in the centre, and cinders absent from the metal, or at least equally distributed through it, this preparation could be made, as it is found a column deflects in a definite station to a known power of the length and diameter. All this, however, is not done. The usual plan is to look out for something nearly like the case in point, that has stood well, and—follow the leader. In the example before us such a course is as good an one as can be adopted, from the fact that the case is simple, and examples are numerous. It illustrates, however, the remark I commenced with—that an apparently simple case may, on reflection, turn out to produce complex strains, and hence the difficulty of what work the casting has to do. In the production of an article in cast-iron, three things should be borne in mind—firstly, the object and strength required; secondly, how is it to be moulded; thirdly, how is it to be fitted together. The paper then went into various details, and concluded as follows:—The practical man wants simple tools, and when the results are liable to so much uncertainty, an approximate result is sufficient to be a safe guide for an educated architect. I do not for a moment depreciate the utmost refinement of science. Science is always consistent with all successful practice; but I maintain that although the architect may with care and skill work out the form of a casting most correctly according to theory, neither he nor the man who makes it will know much about it until it is smashed in two. Under these circumstances, then, I say that simple rules are sufficient; and as an instance I may quote one for the strength of pipes that has never been printed before, but which I am certain answers perfectly well for ordinary sizes. It is based upon the fact that a 10-inch pipe, 1 inch thick, will stand 100 yards pressure of water. The coincidence of 1-inch metal, 10-inch diameter, and 100 yards pressure, are sufficient. For every inch in diameter increase or deduct by one-tenth of an inch, and for every yard of pressure add or deduct one-hundredth of an inch. For columns, calculation requires care, as the circumstances vary very much, but a safe plan is to find the diameter of a solid column necessary to bear the compression, and then distribute the same area of metal in a tube to form a hollow one, and if the thickness of the metal is proportioned so as to be one-seventh of the external diameter, the strength of the column will be increased by more than half. The diagram shows also a simple plan of doing this. The line B.C., which is simply a tangent touching the inner circle, is the diameter of a solid column, containing the same metal as the hollow one. A convenient example to remember, as a guide, is the remarkable fact that a column of this sort 10 feet long, having an area of 10 inches of metal, will bear ten tons. These are the kind of rules which can be carried about for use at a moment's notice; for, after all, it is really not so much what we know as what we can make use of that is valuable. I fear that the ambitious title which has, without sufficient caution, been affixed to this paper, has raised expectations which are now disappointed. The subject is so wide in its grasp, and requires so much elaboration to be perfect, that it has seemed more prudent to limit the illustrations to the simplest every-day examples, as the same principles govern both large and small undertakings. The capabilities of the material are immense, and it is a special blessing upon our island that it produces so plentifully the three important elements of its production—ore, coal, and lime. These have made our country the nursery-ground for mechanics to supply the whole world, and this character has become now naturalised to our race. The nation is made up of individuals as a faggot is of sticks. If we all, even to the smallest, try to do our best, and each one contribute his little power to the general strength, then, with ordinary care, we may still maintain our position as the workshop of the world.

A FEW REMARKS ON ACOUSTICS.*

If conduction is to assist, then there must be one dimension decidedly predominating over the others, and that dimension should be the length away from the speaker; and should regulate the width and height, with the proviso that in these buildings the proportions should be rather long than short, and rather low than high.

With one example of an influence upon sound in galleries and long rooms, which is unquestionably due to the proportions of the room and will be modified by every modification of those proportions, we shall have done with the topic.

It must have often occurred to persons listening to music in a tolerably long hall or gallery, to notice that there are portions where the sound appears more distinct than in others. This was very noticeable in the Floral Hall at the time concerts were given there, and may, I understand, be detected in St. James's Hall.

This phenomenon coincides with an interesting investigation of Savart, published by him in the "*Annals de Chimie.*" He invented an apparatus for showing visibly the actual condition of the air in a room during the time that a continuous sound of great intensity was kept up; and I mention this investigation, not as having been pushed so far by him as to lead to any practical result, but rather as showing that methods exist by which we may, perhaps, be able to arrive at information as to the acoustic condition of air in rooms, to a degree hitherto unattempted.

The sound employed in this investigation was that of a bell fixed in front of an open cylinder of such dimensions as to be suitable to reinforce powerfully the note of the bell, and a sound was obtained by this apparatus of such intensity as to be hardly bearable. The effects of this sound on the air were made visible by a sort of artificial ear formed of a thin membrane stretched tightly over a small wooden frame, and sprinkled lightly with sand.

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* Abstract of a Paper read by Mr. William Stubbs at the Liverpool Architectural Society, on Wednesday evening, April 3.

* From a series in Architects and Mechanics' Journal.

This membrane when near the bell became excited, so that the sand on its surface was thrown into an agitation, but in moving it to and fro along the room, places were found where the agitation varied—in some parts it became very intense, in others very moderate; and on exploring every part of the room it was established that the points of greatest intensity formed a spiral line, making several revolutions during the length of the apartment. On opening an end window this spiral could be traced as continued into the air beyond for a considerable distance. The distance from one turn of the spiral to another was not equal to the length of the undulation proper to the note sounded; it became greater the larger the apartment, and in a long gallery approached the length of the sound-wave.

When the windows in a chamber were opened, the position of this line of loudest sound—which, by-the-bye, was distinctly perceptible to the ear, as well as visibly demonstrated by the moving sand—was altered; but moving about the sounding apparatus from one part of the apartment to another did not cause any such alteration, which seems to show that this property of a room, if once decidedly manifested, cannot be altered by moving the position of the speaker, but will only be affected by changes in the room itself.

We have now got together some few materials for the design of an acoustic building. Let us for a little consider how they have been applied, or can be applied, to various descriptions of structure, commencing with an inquiry how far the simple consideration of size ought to modify the treatment.

The safe limit of direct radiation can, of course, only be very approximatively ascertained; but comparing the results obtained by Saunder's experiments with the observations of that accomplished philosopher as well as architect, Sir Christopher Wren, we may say appropriately that if we were to enclose a space not exceeding 70 feet in length by a somewhat smaller breadth, we should be quite safe in presuming the natural radiation of a human voice of ordinary power would reach all the audience with no assistance, when the speaker was placed in the best position for being well heard, provided always we were able to insure that no echo from any part of the walls should interrupt. Should our building be much larger than this size, it will become desirable to assist, if practicable, the voice of the speaker.

If we apprehend a considerable interference of any obstacle with the sound, this may be too great a dimension to be safe. If, on the other hand, circumstances are all favorable, it may perhaps be exceeded.

The conditions under which a single speaker can best address an auditory depending upon direct radiation have been already referred to. The building should have a circular outline, and be, in extent, something more than a semicircle. The seats should rise one above another, and the speaker should be pretty well forward among his auditors, and the remotest auditor should not be beyond the limits of direct radiation.

The most perfect type of these buildings seems to have been an ancient Greek theatre, especially if we bear in mind that the chorus, which occupied the most forward part of the stage, was the most prominent feature in the earlier Greek plays. In modern buildings this form has unhappily gone out of fashion, except for scientific lecture-theatres; but there is one fine example in the great Handel orchestra at the Crystal Palace, the appearance of which when full will convey some idea of what the auditorium of an ancient Greek or Roman theatre must have been when crowded with people.

Roman theatres differed from the Greek ones in the auditorium not exceeding a semicircle in extent, and in being constructed, even down to a late period and when of large size, of wood, the resonance of which material was, as Vitruvius tells us, relied upon to reinforce the sound: consequently, the *echeia* or brazen reinforcing jars introduced into Greek theatres were not adopted in Rome.

LAZARETTOS.

LEPROSY during the middle ages was a common disease in Italy and other parts of Europe, and the lepers, or persons afflicted with it, were called lazzari. Hence the term lazaretto applied to the hospitals where such persons were confined. In England similar receptacles were sometimes called lazar-houses, or houses of lepers.

John Howard, the distinguished philanthropist, whose services in the cause of humanity can never be forgotten, was the first who drew public attention to the state of the lazarettos on the continent. In the year 1785, he personally inspected most of these institutions, and in his work entitled "An Account of the principal Lazarettos in Europe," has given a complete exposition of the plans of the buildings, and their chief regulations. The result of this inspection was the adoption of many of the valuable suggestions made by Howard; and many a weary traveller, suffering under the annoyances of the quarantine system, has had reason to bless the name of the man who did so much to alleviate them. Although some improvements have been made since Howard's time, the main features of these buildings remain nearly the same. His description of those he visited, therefore, may, even at the present day, be considered a faithful one, and interesting to those who, "living at home at ease," have little idea of what it is to be in quarantine. The first lazaretto he inspected was that at Marseilles, which is situated on elevated rock near the city, at the end of the bay, fronting the south-west, and commanding the entrance of the harbour. It is a spacious building, and its situation renders it very commodious for the purposes of trade. Within the lazaretto is the governor's house, a chapel in which divine service is generally performed, and a tavern from which persons under quarantine may be supplied with necessaries. In order to prevent any communication not allowed by the regulations of the establishment, there is a double wall round the lazaretto; and at the gate there is a bell for calling any person within this enclosure; and by the number and other modifications of the strokes, every individual knows when he is called. At Genoa the lazaretto is situated on the sea-shore, near the city, detached from other buildings, and encompassed by a double wall. Another lazaretto, belonging to the Genoese, stands on a rising ground at Varignano, near the gulf of Spezia. At Leghorn there are three lazarettos. At Naples the lazaretto is very small, and is situated on a peninsula near the city. Vessels having *clean* bills of health, lie at the entrance at the port, near the health-office, but those with foul bills are required to perform their quarantine at the lazaretto. At Messina the lazaretto stands on an island near the city. The health-office at Zante is in the city, at the water-side. The old lazaretto is distant about half-a-mile from the city, and situated on a rising ground near the sea. There is another, called the new lazaretto, which is appropriated to a numerous body of peasants, who pass over to the Morea, to work in harvest time; on their return they perform here a seven days' quarantine; and other persons perform fourteen days quarantine in the old lazaretto. The lazaretto at Corfu is finely situated on a rock surrounded with water, about a league from the city. The lazaretto of Castel-Nuovo, in Dalmatia, is on the shore, about two miles from the city; at the back of it there is a delightful hill, which belongs to a convent of friars. Persons in quarantine, after a few days, are allowed to walk there, and divert themselves with shooting, &c.

In order to obtain the most complete and satisfactory information, by performing the strictest quarantine, Howard determined to go to Smyrna, and there to take his passage to Venice in a ship with a foul bill. He was thus enabled to give a particular account of his reception and accommodation in the new lazaretto of this city, which is chiefly assigned to Turks and soldiers, and the crews of those ships which have the plague on board; and this he thought the more necessary as the rules and tariffs of the other lazarettos in Europe have been evidently formed from those established at Venice. The city of Venice has two lazarettos, appropriated to the expurgation of merchandise susceptible of infection, coming from suspected parts, and for the accommodation of passengers in performing quarantine, as also for the reception of persons and effects infected in the unhappy times of pestilence. The old lazaretto is two miles, and the new about five miles distant from the city, both on little islands, separated from all communication, not only by broad canals surrounding them, but also by high walls; they are of large extent, being about 400 geometrical paces in circumference. Of these Mr. Howard has given a particular description; with an account of the regulations and mode of government to which they are subject, and a plan of the old lazaretto. At Trieste there are two lazarettos; one new, but both clean, and a contrast to those which he had seen at Venice. Of the new one he has given a plan. It is surrounded, at the distance of about twenty yards, by a double wall, within which are separate burying-places for Roman Catholics, Greeks, and Protestants. Howard closes his account on the principal lazarettos in Europe with the outlines of a proper lazaretto, and an engraved sketch of a plan for its construction. He has likewise subjoined, in minute detail, various pertinent remarks respecting quarantine and lazarettos in general.

Within the last few years, however, more enlightened views on the whole subject of the quarantine system have begun to prevail, and are gradually obtaining support. Eminent medical authorities, both in this country and on the continent, have expressed the strongest opinions, as to its total inefficacy in preventing the introduction of disease; while on the other hand the injury done by it to the interests of commerce—injury, which cannot be adequately estimated—is earnestly and justly insisted upon by the merchants of all nations. It may be hoped, then, that these considerations may have their proper effect with those in authority, and that laws so oppressive and so injurious may shortly be abolished. A greater attention to sanitary regulations will go far to prevent the generation of disease at home; and then, even without quarantine laws, we need have little apprehension of contagion from abroad.

STREET RAILWAYS BILL.—An amendment proposed in the House of Commons by Mr. Vincent Scully, M.P., to the effect that this bill be read a second time in six months, was carried by a majority, consequently the consideration of the question remains postponed.

PROPOSED METROPOLITAN AND PROVINCIAL BUILDING ASSOCIATION.

An effort is at present being made to establish in this city an association similar to those in London, Liverpool, and elsewhere, not only to encourage an extension of building operations of a domestic class, but to enable those who can afford to lay by a small annual sum from their earnings to become house or other property owners with greater facility and under more advantageous circumstances than would be otherwise afforded. The success of the principle has been fully illustrated in various instances already, where the purpose of the promoter has been *bona fide*, where the fundamental rules were carefully prepared by qualified persons, where sufficient amount of support was accorded by the public in contributing to the general fund, and where the management was economical and judicious. These seem to be in the abstract the points on which alone success would depend in this country as in England, and with every good wish for the project, if it possess the elements above enumerated, we quote a few particulars from the prospectus submitted:—

"These associations, or societies, commenced to be formed in England about the year 1820, since which time (so manifest and important were the advantages found and proved) they have increased and multiplied to an enormous extent in almost every town in England; in Liverpool alone, at the end of the year 1859, there were 142 of these associations, with 15,052 *shareholders*, and an actual paid-up capital of *one million forty-seven thousand six hundred and seventy pounds*—each association having an average capital of £7,378, supplied by 160 members or shareholders.

"At the present moment there are *thousands* of men in England, from the ranks of tradesmen, clerks, mechanics, labours, &c., living independent, and many in affluence, from the rents of property derived from the facilities offered by these associations, combined with their own patience, perseverance, prudence, and economy.

"The plan is simple. A person makes a purchase of a house or other property. If not bought too dear, he can borrow from the association the money to pay for it, leaving a small margin for contingencies. The rents of the property, instead of being paid to a landlord, are paid to the association, in liquidation of the loan, by instalments. The borrower becomes the ostensible owner from the day the purchase is completed. Any sums he may spend in alterations, repairs, or improvements, will be for his own benefit, instead of a landlord's; and in a few years he finds himself the *bona fide* owner of the property, deriving an income from the rents, and has something to leave for the benefit of his family—of itself a proud consolation to the mind of every right thinking man.

"An important point must not be overlooked. A person desiring to purchase a property can always ascertain, *before he makes the purchase*, what amount he can borrow from the association; as such he does not involve himself in any penalty for breach of contract, or attempt to make a purchase he cannot complete. A person building property can receive one-half the amount agreed to be lent, when the roofs are on, and the remainder when completed.

"The rules and regulations will be formed and based upon the practical experience of the most successful of the Liverpool Associations.

"There will be two classes of shareholders, viz., the borrowers, and the invested shareholders. The *first* are those who have had money advanced on the security of property; the money is advanced to the highest bidder as often as the funds (or subscription) accumulate to a sufficient amount; the premium for such advances forms the principal *profit* of the association, and is divided annually, *pro rata*, to the non-invested or *second* class of shareholders.

"Repayments of loans will be made according to certain scales, at the option of the borrower.

"The committee will be elected by the shareholders from amongst themselves, and a new committee elected annually, the outgoing members being eligible for re-election."

The office of the secretary *pro tem.* is at 22, Eden Quay.

IMPORTANT JUDGMENT IN BANKRUPTCY.

In re Hugh Kelly, Timber Merchant.—This was an adjourned meeting for final examination, and to decide upon an offer of a composition of 12s. 6d. in the pound after bankruptcy.

Judge Lynch pronounced the following judgment:—

As a first objection to carrying out the composition, a question has been raised that no composition under section 149 of the act is valid unless it be a money payment immediately payable, or, as is qualified, necessarily payable in a reasonable time. I can see many reasons for this construction which did not at first impress me—the introduction into the section of the provision of the offer of composition being by the bankrupt or his friends, and the difficulty of a confirmed composition, with a postponed annulling of the adjudication, as must happen unless this construction be the true one, have all impressed my mind strongly; and I see a plain motive enough to leave it in the power of the creditors to arrange for an immediate money discharge in the cause of bankruptcy, leaving no room for bankruptcy within bankruptcy, which must happen if the arranged bills are not according to the terms of the arrangement proposed. Composition would then mean and be finality; and perhaps would be then the proper substitute for the court, in place of the absolute transfer of the bankrupt's whole rights worked by bankruptcy. However, saying this, I am prepared to rule that the statute authorises the carrying out the composition proposed by Mr. Kelly, which is a composition of 12s 6d., to be paid at postponed and definite periods; the postponed payments to be further secured by bills and other securities offered and accepted of. The language of the statute does not authorise me to say that it must be a money payment *in presenti*. The phrase "composition" does not *ex vitermini*, mean a payment in satisfaction; it means something to be taken in lieu of the whole debt; and I may admit it means a money arrangement to the extent that the something must sound in money, to be taken in satisfaction, and to be payment. And within this proposition, I think, is contained sufficient to meet the cases cited to me—namely, that the bankruptcy will not be annulled, and the security of its operation will not be taken from the creditors until a composition, agreed upon by the statutable majority of the creditors, has been paid in fact. I find in the report, *in re Mane* a passage cited as Baron Bramwell's judgment, different from all the passages given in the report in H. and N.. and showing also the same idea of a money payment before the annulling of the adjudication. Therefore I cannot agree that Baron Bramwell has ruled the proposition contended for, and the further case *in re Mane*, seems to me to show that the courts can mould the composition having regard to the securing a satisfaction by payment before annulling the adjudication. Some element of futurity as to payment must necessarily be introduced. If a bankrupt gives up everything to his creditors, the only money he can have is money in this court, and to limit composition to a money payment *in presenti* would really be only to allow composition by virtually returning to him something. This section seems to me analogous to the arrangements sections applied to a different stage of the proceedings, and its language is appropriate to the different circumstances—it is then composition; being an ascertained debt payable in the early stage it is, properly, arrangement in affairs not yet ascertained. I, therefore, must hold that a reasonable scope and effect was intended for this provision, and I think that to hold it a present money payment would be to make it, in effect, a nugatory provision. If, then, futurity of payment is within the scope of such composition, I cannot see the limit I can put it, so to exclude the composition in this case. Certainly it is proper here to consider the words of the section—"The court may. upon such acceptance being testified in such writing, and upon payment of such sum as the court shall direct, annul he adjudcation in bankruptcy." These words in our view seemed to make strongly for the objection that it should be an immediate and not a postponed payment, for they seem to infer an immediate annulling on the acceptance of the offer. However, I think these words may mean—first. that the court has a discretion by use of the word may, which, in the context. stands opposed to shall, or the payment of the sum may properly enough mean not a sum for costs or expenses not a natural provision, but the sum in satisfaction of the composition, and so rendered the clause would be appropriate to giving the existing security to the creditors at the same time that it gives a means of effecting a composition beneficial to the bankrupt, and approved of by the creditors. I freely confess that I have not brought my mind to a condition of full satisfaction in arriving at this conclusion; but having regard to the working of these clauses hitherto to the inconvenience of the limited operation contended for, and the fact that the other construction almost renders the clauses inoperative, I now hold that this composition comes within the section. and may be carried out, the bankruptcy only being annulled when the composition offered is fair. Another question was argued before me.namely, that this court is only mentioned in carrying out the composition, provided the statutable majority adopts it. Were this proved to my satisfaction, it would reflect on the other proposition, perhaps to the extent of altering my judgment; but I yield not to this proposition at all. By the terms of the statute the second meeting is appointed for the purpose of deciding upon such offer. This leaves to the court a judicial act to be done independently of the agreement of the creditors; but to the carrying out of the offer there must also be the agreement of the statutable majority; but this is not in limitation of the judgment of the court in deciding, but is necessary only to the carrying out of the offer; and this is naturally followed in this view by the word the court "may," still following up the provision as one within the discretion of the judge. Ruling. then, that I have a judicial discretion to exercise. I have then to consider how I should exercise it here. In this case a great body of the creditors thinks this is a prudent arrangement for their interest. On this point they have better means of judgment than I can have; all the facts of the case are before them, and they deliberately tell me they think it for their interest to have it carried out. It would be a strong thing for me to tell them that they are in mistake in a matter in which they have so deep an interest, and as to which they have such peculiar knowledge to enable them to form a judgment. Therefore, I could not in this case, even if I felt inclined to come to a different conclusion, venture to gainsay the decision of so large a body of creditors. Another objection, however, is made which I think is more proper for me, and on which I am authorised to form an independent judgment—that is, as to the conduct of the bankrupt—his negligent mode of trading—his inability to conduct an extensive trade by reason of his neglect—and also positive acts of impropriety in his dealings. Now, I do not mean at all to say in this case that I am satisfied with the mode in which Mr. Kelly has conducted his trade—a trade of the extent of his, carried on in so slovenly and negligent a manner, cannot pass here without censure; but still I do not feel myself authorised to say that it is such conduct in the trader as disentitles him to make with his creditors a composition approved of by them. Special cases were made against Kelly as to Patterson, and as to representations made respecting his property. If I believed that Mr. Kelly had committed acts as a trader, in regard to which I would refuse to pass his final examination, or even give a very long stay to the grant of the certificate, I would hold this a fair reason now to decide against this composition. However, on full consideration, I cannot arrive at the conclusion as to Mr. Kelly's dealing that it amounted to more than loose statements and negligent statements, but not made with any deliberate intention to commit any fraud.

In re Killen and Cunningham, Bankrupts.—The final examination of the bankrupts has passed, and an immediate certificate granted. The joint and separate estate of Mr. Killen paying 20s. in the pound.

Sweeny v. the Most Rev. Dr. Moriarty and the Rev. Dr. Mawe.—Mr. Leahy, Q.C., moved for a new trial in this case, which was an action by the plaintiff to recover a sum of money for extra work alleged to have been executed in repairing the Catholic chapel at Tralee, for which the defendants are trustees. The case was tried at the last Kerry assizes before Mr. Justice Keogh, and there was a verdict for the defendants. The new trial was sought for on several grounds. Conditional order granted.

APPROACHING ELECTION AT ROYAL HIBERNIAN ACADEMY.

An announcement to the effect, that the Academy would shortly hold an election of associates appeared in our last impression, and was advertised in some of our morning contemporaries. In reply thereto some candidates—whose names we consider it unnecessary to publish at present—were recorded; but we were much surprised by a subsequent reminder, that "to be eligible for associateship they must have been exhibitors at the Royal Hibernian Academy within two years of the time of election. Now, to say the least of it, this bye-law is replete with inconsistency. In the architectural department—as over and over again alluded to in this journal—the display has been for "the last two years" so *meagre*, so *wretched*, in every respect that to make contributions thereto a *sine qua non* to eligibility for associateship is absurdly preposterous. If the candidates *be* reduced to that list, the Academy will find very little difficulty *numerically* in arriving at a decision, as it would be about *as limited* as could be desired. And then with reference to the fulfilment of the requirement at the *approaching* exhibition, in the first place *is it fair* to make same known at the *eleventh* hour, on the very eve of the opening, and when the candidates may have other duties more pressing to attend to, rendering it impossible for them to comply? and in the second place is it desirable or necessary to make it at all? The condition may be interpreted as a mere submission of "specimens;" and let us ask, what professional practitioner of any worth or standing, however desirous for the honourable distinction of associateship, will be disposed to comply with that, which certainly approaches, however unintentionally, to the placing of the master on the same level as the pupil, who might desire to study in the art schools of the Academy? Were the recently-elected academicians subjected to the same condition—"an educational test"? Certainly not; and why should the associates either? The former and latter are chosen from the *same* professional body—however much seniors in practice and position the former may be, or may be assumed to be—and not in the latter case from the graduates; were it so, the proceeding would be perfectly legitimate, which with best wishes for the prosperity of the Academy, we must submit that it is *not*. According to our present information there is but one candidate on the list who has been an exhibitor during the last three years; some others are candidates who might have been, without the least trouble, exhibitors of drawings prepared for two important recent competitions, and who were not so. Suppose they should not contribute to the approaching exhibition, what will be the result of the election?

THE WELLINGTON TESTIMONIAL.

In reply to a correspondent's letter in last number, we are informed that the pedestal in front of the testimonial was removed by order of his Excellency the Lord Lieutenant, there being no funds at present—or likely to be—available for the purpose of erecting an equestrian statue, which the pedestal was designed to receive, and which would cost at least £8,000. The removal, therefore, of so useless an appendage must be regarded as a desideratum rather than otherwise.

CONTRACTS.

To remedy the evil effects accruing from the present system of concluding contracts, and to infuse some "good faith" into such transactions, the New York *Architects' Journal* submits the following suggestions:—

"1st. That aggregate tenders should be required only from *responsible* persons, and to include separate offers from *sub*-contractors of the various trades to be engaged, and who should sign a collateral bond with the principal contractor, so that the employer's architect may be enabled to judge of their respective capabilities and reputations.

"2nd. That a *stated* time be fixed for receiving the tenders at the employer's or architect's offices, and every contractor or his representative should present his in *propria persona*, and that after fifteen minutes grace expires the architect should, *in presence of all the parties*, inspect the offers, and audibly declare the amount of each and the result; and should the lowest appear *too low*, let him add together the amounts of the tenders, and divide the sum by the number of tenders, to see which offer comes nearest to his own estimate. Adding that 'if the system here recommended were universally adopted there would be fewer *disappointed hopes* and *falling buildings*.'"

[We are not quite as much satisfied as our Transatlantic brother that the suggestions even approximate to a tangible or satisfactory settlement of the very many questions presenting themselves in the course of every-day practice; and, moreover, we are quite certain that very few would be likely to subscribe to them.]

ENNISCORTHY MODEL NATIONAL SCHOOL.

This building has been recently completed by the Board of Public Works in the immediate neighbourhood of the town of Enniscorthy, facing the river Slaney and the main roads from the town to Wexford and New Ross, and at a distance of about 100 feet from the latter. The site contains two Irish acres, presenting nearly 400 feet frontage to road, and is partly enclosed with dwarf wall, surmounted by a neat iron railing, and having cut stone coping and piers, and partly by walls of rubble masonry, with plain half round coping. The ground in front of the building is laid out in terraces and slopes, and a circuitous drive leads from the entrance gate, which is placed near the angle next town, to the upper terrace. At the rere are playgrounds for the boys, girls, and infants respectively. The ground-floor comprehends boys' school-room, 40 feet by 30 feet; girls' do., 31 feet by 26 feet; infants' do., 31 feet by 20 feet, with class, cap, and cloak rooms in proximity; dining hall, 18 feet by 18 feet; study, 18 feet by 16 feet; masters' apartments, &c., &c. On the first floor are dormitories, bed-rooms for pupil teachers, lavatories, &c., &c., and in the basement are the culinary offices, servants' rooms, &c. Judging from the photograph forwarded to us, the building presents an effective exterior of irregular outline and Italian character, the infant school and class-room forming a one-storey wing, with rusticated Portland cement pedestal, semicircular headed windows and cantilever roof; the centre, containing entrance hall and porch, and the other wing, in which dining-room and study are situated, being two storeys in height, and having gabled terminations. Owing to the nature of the ground, the basement storey is only visible at one side (the latter) and on portion of the front, and has square-headed windows, with battered and rusticated piers in cement; the windows of the principal floor on these portions being also mostly square-headed, but all of those on the first floor are semicircular-headed, either single or in couplets, with dressings and key-stones. The material for walling is local rubble stone, the exterior from level of sills of ground-floor windows, and the chimney shafts being faced with red pressed brick from Courtown, granite being employed for the strings, chimney caps, &c. A plentiful supply of water throughout is always obtainable. The building has been erected under the directions of Mr. A. O. Lyons, Mr. Patrick Kerr being the contractor. Expenditure about £6,000.

TURKISH BATH QUESTION.

I addressed the following letter to the editor of *The Field*, and would feel obliged by your inserting it:—

Sir—On reading your article on the Turkish Bath, in last Saturday's impression, I could not avoid taking exception to the statement, that a year ago the question was almost unknown to the public. If by the public is meant the majority of the population, no doubt it not only was the case then, but it still is the case. Perhaps it might be more correctly stated of the London public, who have been so much behind the inhabitants of other towns in taking up this national question. Need I remind you of the fact, that it has been agitated in Dublin ever since the middle of the year 1857—that it has been brought before two scientific societies in that city, as also in Cork and Torquay—that public lectures have been delivered in connexion with it in Bradford, Bray, and Dublin—and that it has been written upon by the *Sheffield Free Press*, the *Dublin Warder*, the *Hospital Gazette*, and the *Irish Agricultural Review*, previous to the date fixed upon by you as the commencement of the great movement which is now going forward all over the country. It is not merely justice for myself that I call for, but also for all the early writers on the subject, whose works have been not a little copied by their successors, and whose existence you appear to ignore.—I am, sir, your obedient servant, Edward Haughton, M.D., 104, *Mountpleasant-square*, *Liverpool*, *2nd April*, 1861.

CAST-IRON ROOFING.

Sir—You would greatly oblige a large class of your readers by giving, in the columns of the Dublin Builder, good and substantial reasons *for* and *against* the use of cast iron as a roofing for dwelling-houses in cities, towns, &c., laid horizontally on iron or timber joists, as the case may be, forming either a promenade for pleasure, or safety from fire, or partially for cisterns for water, &c.—Yours, &c., Cast-iron, *Cork*.

[The subject shall be treated of fully in a future number, and is partly so in this, at page 493.—Ed.]

Presentation.—We learn that the Hon. and Rev. the Dean of St. Patrick's has presented Mr. Timothy Murphy, the builder engaged by Mr. Guinness, at St. Patrick's Cathedral, with a handsome piece of silver plate, in recognition of the skill and care displayed by the latter in this important work.

OLD ST. PAUL'S, LONDON.

THE ancient cathedral of St. Paul's must always be regarded as one of the great works of the architecture of the middle ages: in magnitude of dimension it far surpassed every other religious edifice of this country; and it is represented by historians as equally pre-eminent in magnificence and splendour of ornament.

The general form of the plan was a simple cross, with a very long choir, and a transept rather short in proportion to the extreme length of the building. The body of the church was in the Norman style of architecture; huge clustered pillars on each side divided the nave from the aisles and supported large semicircular arches: immediately above these extended an open gallery, with arcades of the same form and width as those below, but of a much shorter proportion. From this level a different style of building prevailed, for the windows above the gallery were pointed. The vaulting which covered the nave was also of the pointed form, of the simplest groined construction, with soffets and diagonal ribs only, similar to Salisbury cathedral and the transept of Westminster Abbey. Slender circular shafts, placed against the centre of each pier, rose from the pavement without any interruption of mouldings, and received the springing of the arches: the transept was in the style of the nave. Hence, we may conjecture that the original work of Maurice and De Belmeis comprehended the body of the church as high as the gallery; the vaulting being undoubtedly part of these works, which are mentioned as completed in 1221; and it thus became one of the earliest examples of the use of pointed arches in this country.

Sir Christopher Wren was of opinion that this Norman building had been erected upon the remaining foundations of the more ancient Saxon church, for these he found to be composed of Kentish rubble-stone, cemented with mortar of extreme hardness, and both much superior to the materials used in the superstructure.

At the intersection of the nave with the transept, four massy pillars supported the tower; and, from this part, a broad flight of steps led to the choir, which was enclosed by a magnificent screen, elaborately adorned with niches and statues. The choir, which was a grand specimen of the architecture of Henry VIII.'s time, was completely in the pointed style, with a vault of a more complicated structure than that of the nave, each severy being composed of five ribs. The Lady Chapel, at the end of the choir, was a continuation of the building in the same form and style, and terminated at the eastern extremity by a rose window of extraordinary size and magnificence. A spacious, lofty crypt, extending beneath the eastern part of the cathedral, was appropriated to religious rites, under the designation of the church of St. Faith and the chapel of Jesus. Three ranges of massy piers, enveloped by slender cylindrical shafts, divided the area into four equal aisles, and supported a high-pitched vault of the simplest groined construction. The exterior of the building presented a curious medley of the styles of different ages. At the western front, Inigo Jones had erected a portico of the Corinthian order, thus displaying a signal example of that bigotry in taste, which, only admitting of one mode of beauty, is insensible to the superior claims of order and congruity. This portico was, however, singly considered, a grand and beautiful composition, and not inferior to anything of the kind produced in modern times. Fourteen columns, each rising to the lofty height of 46 feet, were so disposed that eight, with two pilasters placed in front and three in each flank, formed a square peristyle, and supported an entablature and balustrade, crowned with statues of the kings, the predecessors of Charles I. who claimed the honour of this fabric. Had the whole front been accommodated to Roman architecture, it might have deserved praise as a detached composition; but though cased with rustic work, and decorated with regular cornices, the pediment retained the original Gothic character in its equilateral proportions, and it was flanked by barbarous obelisks and ill-designed turrets. A representation of this curious elevation is given in the works of Inigo Jones, edited by Kent. The great restorer of Roman architecture in this country, was, doubtless, pleased with having an opportunity of triumphing over the Gothic style of building, in one of its strongholds; and it must be allowed that he only followed the example of the architects of the middle ages themselves, who have generally shown as little moderation and respect for the works of their predecessors; since we everywhere find the styles of different eras engrafted upon each other, in the most crude and undisguised contrast.

It appears that the whole body of the church had been cased and reformed in the same manner which had obliterated every detail of antiquity, leaving only the general forms and proportions. The buttresses were converted into regular piers, and a complete cornice crowned the whole. Some of the windows were without ornament, while others were decorated in a heavy Italian manner, with architrave dressings, brackets, and cherubic heads. The transepts presented fronts of the same incongruous style as the western elevation, and without any of its beauties. At the centre of the cross, the great tower rose aloft in pre-eminent grandeur: this was in the simple style of the early Pointed architecture. In each side three remarkably pointed windows, and the same number above, but of a shorter proportion, gave an original character to the tower, with an air of great lightness and beauty. This was the foundation of an immense spire, of which, however there are no accurate representations; for though Dugdale gives a view of the church in its entire state, yet this could not have been taken by him from personal inspection, neither does he mention any authority; and we may observe, that the style of the spire there exhibited is evidently not authentic. At each angle enormous arched buttresses, the irregular additions of various repairs, had been erected to secure the declining tower. The rest of the building, eastward of the transept, remained in its original form, a fabric of pointed arches and flying buttresses. In the east front the most remarkable object was the rose window, which constituted the principal ornament of the Lady Chapel.

Like other ancient religious edifices, this cathedral had numerous dependencies; some of which were, the chapter-house, an octagonal building, of a rich and elegant pointed style, and surrounded by a cloister, two storeys in height, of great beauty; the *clocher*, or bell-tower, standing at the east end of the church-yard, a very ancient building, to which had been added, about the time of Henry III., a spire of timber and lead: it contained four large bells, which with the spire and an image of St. Paul. having been staked at hazard by Henry VIII., were won and taken down by Sir Miles Partridge.

THE BOROUGH OF DUBLIN BILL.

THIS bill, which is very much needed for the removal of present obstructions in our streets and thoroughfares, so frequently complained of in this journal, and for the prevention of future erections of similar character, has been before the select committee of the House of Commons. The members of the committee are—Mr. George, chairman; Sir E. Grogan, Sir W. Verner, Mr. Vance, Mr. Longfield, Colonel Dunne, Mr. Bond, and Mr. Ball.

Mr. Smith, solicitor to the Corporation of Dublin, adduced in his evidence, as an instance of an obstruction which could not be dealt with under the provisions of the Dublin Improvement Act, Messrs. Findlater and Company's brewery, at Russell-street, the wall of which has been advanced to the edge of the railing, and is a great disfigurement and inconvenience; that the same proceeding is going forward in Dawson-street, next Morrisson's Hotel; likewise that in Camden-street and Richmond-street are similar examples. The witness referred to an erection which had been reared at the corner of Merrion-square, in Upper Mount-street, but it was taken down, as a clause was found in the lease forbidding any such; further, on examination by the chairman, stated that "there was no power to prevent erections being built over the areas which project beyond the range of houses, though they do not absolutely project on to the flagway. In such cases as these, and in the analogous case of shop fronts, we seek for powers to prevent them from being built, or, if built, to remove them. One person had put up a sign board, originally with the view of increasing his business, but everybody had them now, and consequently they were of no advantage to anyone. It was proposed to give the Corporation power to remove them on paying the individual."

Mr. Longfield inquired who was to pay them? He objected to this provision. He should be for allowing everything to stand except cellars and cellar doors, which might, in particular cases, be absolutely necessary.

Sir E. Grogan said that as time was valuable, he had no objection to allow the words "cellars, cellar doors, and steps leading thereto" to be omitted.

The clause, as amended, was agreed to, as were also the remaining clauses. The bill was then ordered to be reported to the house.

At Messrs. John Martin and Son's periodical sale on 18th ult., the following goods were sold:—

130 tons best middling Memel timber, from 62s. 6d. to 70s. per ton.
164 pieces small Memel, from 57s. 6d. to 62s 6d. per ton.
100 pieces selected fresh crown Memel, at 82s 6d.
180 tons red pine timber, from 67s. 6d. to 72s. 6d. per ton.
140 tons white pine do., from 50s. to 57s. 6d. per ton.
70 pieces board pine do, from 65s. to 80s. per ton.
70 pieces birch, from 65s. to 67s. 6d.
4 fathoms lathwood, from £5 to £7 2s. 6d.
27 great hundred red deals, from £20 10s. to £29 10s. per 120 pieces of 12 x 9 x 3.
4 do. fresh Memel planks, from £22 to £24 2s. 6d. per do.
2 do. first quality pine deals, at £31 12s. 6d. per do.
3 do. second quality do., at £20 5s. per do.
31 do. Quebec spruce deals, from £15 5s. to £16 7s. 6d. per 120 pieces of 12 x 9 x 3.
A few lots do., do. (firsts and seconds), choice dimensions and prime quality, from £17 to £18 per 120 pieces of 12 x 9 x 3.
83 great hundred St. John spruce deals, from £14 5s. to £16 5s., average £15 5s., per 120 pieces of 12 x 9 x 3.

THE WESTLAND-ROW TERMINUS.

In our publication for February 15th we inserted a notice to the effect that, "an immediate extension of this terminus had been determined on, and plans prepared by the company's architect; that the three adjoining houses, respectively occupied by Mr. O'Gorman, auctioneer, the London and North-Western Railway Company, and Mr. Maguire, confectioner, would be included, and that the front of the remodelled building would face Great Brunswick-street instead of Westland-row, as at present." In a few days afterwards a general meeting of the shareholders was held, and the following occurred:

Mr. Pilkington lately read a paragraph in one of the newspapers to the effect, that an important extension of the railway terminus at Westland-row was intended, and that the premises were to be opened into Brunswick-street.

Chairman—"I wish to know where you got that information."

Mr. Pilkington—"In the Dublin Builder."

Chairman—"I assure you that the writer of that paragraph has enlightened us on a matter of which we never heard before. The subject has never been mentioned."

Here was a flat denial—a public impeachment—of the veracity of the Dublin Builder! and we, believing at the time that our informant *had really* fallen into error, at once made the *amende honorable*, and expressed by letter to the directors our regret at the circumstance, and there it ended; but our readers will judge our surprise at seeing for the last week or so the following announcement in the morning papers:—

"Mr. O'Gorman, auctioneer and valuator, begs to inform his patrons and the public generally *that in consequence of the Dublin and Wicklow Railway Company requiring the premises occupied by him in Westland-row, for the purpose of altering and extending the terminus*, he has removed to No. 19, Bachelor's-walk," &c., &c.

The London and North-Western Railway Company have *also* quitted the house *they* occupied, and we have every reason to know that the other party will follow as a matter of course.

How does the chairman of the Dublin and Wicklow Railway Company reconcile *this* with *his* statement *officially* and *publicly* made in direct contradiction to ours?

To our morning contemporaries, who widely circulated through their columns "the denial," we would respectfully submit that in justice to us publicity should be given to the above.

THE NEW CHURCH OF ST. JAMES.

Referring to this building, which was fully described in a recent number of this journal, we find that the following resolution was proposed and unanimously adopted at the Easter Vestry:—

"That the thanks of the parishioners are justly due, and are hereby given, to the Ecclesiastical Commissioners for Ireland for the liberal aid extended by them towards the erection of the parish church of St. James; a building reflecting the highest credit on their architects, Messrs. Welland and Son, who designed it, and on their contractor, Mr. Thomas Henry Carroll, who so expeditiously and satisfactorily carried out the design. And it is further resolved that the chairman be requested to communicate copies of this resolution to the commissioners and the contractor."

LECTURES AT THE ARCHITECTURAL EXHIBITION.

Mr. Beresford Hope commenced the session on the 30th ult., treating of "Architecture in London;" Mr. Kerr will follow, on 7th inst., on "Sir Christopher Wren and his times;" Mr. Freeman on "Romanesque Architecture," 14th inst.; the Rev. J. L. Petit on "the Revival of the Styles," 21st inst.; Mr. Pullan on "Church Architecture of the 19th century," 28th inst.; and on the 4th prox., Mr. G. E. Street on "the Restoration of Ancient Buildings."

Testimonial.—The members of the Dublin Library have presented a purse of 30 guineas to their secretary and librarian, Mr. Cregan, to mark their sense of the efficiency and courtesy with which he discharges the duties of his office. The Lord Mayor was the willing medium of the presentation, and some of the gentleman's opponents at his election were amongst the foremost contributors—facts which we feel much personal pleasure in recording.

THE ROYAL DUBLIN SOCIETY AND THE VETERINARY COLLEGE.

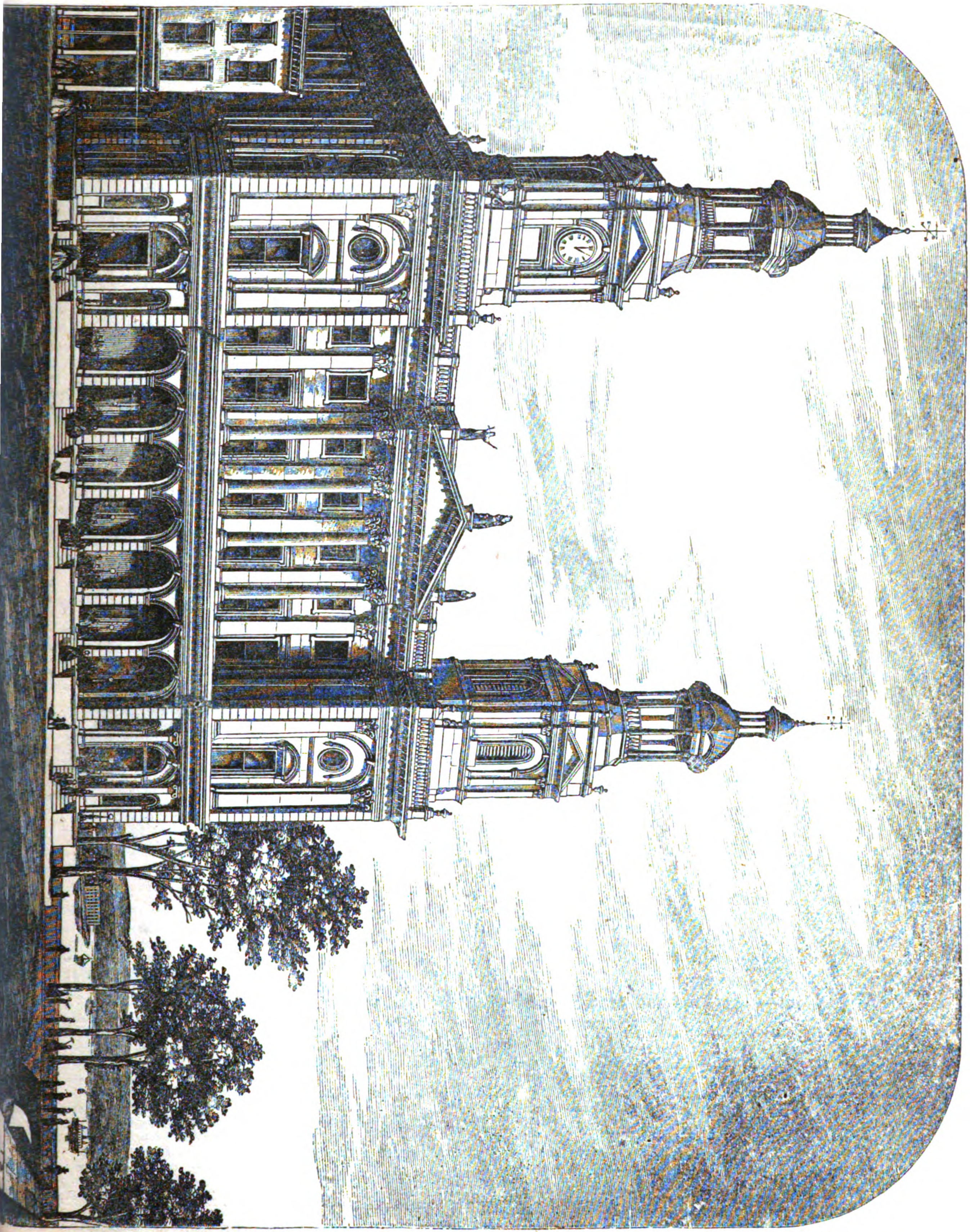
From the first mention of the proposal to found a Veterinary College for Ireland, there was no doubt entertained by any one of the necessity for the education which that institution was intended to confer. There was, it is true, a question raised as to who should provide the means of imparting this education, and some contrariety of opinion, seemingly, as to what constituted the requisite means. There were some who thought that a course or two of lectures, annually, would supply the want, and that these lectures, with some accessories, could well enough be provided by the Royal Dublin Society. The subject was thus brought before this venerable body; and, ever solicitous with regard to anything aiming at promoting the interests of Ireland, the matter was taken into serious consideration. If the Society had a duty to perform, it was not disposed to shrink from it; and it became the business of those who attend to such matters for the Society to know exactly what its duty was, and what means they possessed for performing that duty. A committee was appointed to report to the Council on the subject; and so determined were the Council and the Society to act according to the best information in the matter, that no fewer than three reports have been called for; and, in the light thus elicited the Royal Dublin Society has at last come to a decision. What that decision is, the following, which we take from a report adopted at the meeting, held on the 4th inst., will show:—

"In thus communicating to the Society the result of their inquiry, the Council feel called upon at the same time to observe that, the question of establishing a Veterinary College for Ireland, has not been confined to the walls of the Royal Dublin Society; since the reference to the Council in November last, the prospectus has been advertised of a joint-stock company, formed for a like purpose, upon commercial principles, under the provisions of the Limited Liabilities Act. Of that enterprise, it may be said, that while it indicates a strong public desire for a national institution, for the study of the veterinary art, the respectability of the names of the noblemen and gentlemen who compose the Council for its government, afford a guarantee that the undertaking has not been lightly entered into, nor without a reasonable prospect of success.

"The Society being desirous that Ireland should not longer be unprovided with an institution so much required, would probably view with interest the efforts of an idependent company to establish one; and so far from attempting the establishment of a rival or competing college, would rather give countenance and encouragement to a national enterprise of so much importance. Taking this view of the matter, the Council do not recommend that any immediate steps should be taken upon the reports now presented; but, that reading them in the proceedings of the society, any further action should be deferred until next session, whereby ample time will be given for the full development of the plans and resources of the company referred to."

These views, and this conduct of the Royal Dublin Society are in the most perfect accordance with what we have repeatedly said on this subject; and although some time has been allowed by the directors of the college to elapse, out of respect for the Royal Dublin Society, we feel perfectly assured they will now see that the time has not been by any means lost. They rested on their oars, not because they had any idea of abandoning the project to which they had put their hands, but simply that they did not wish even to seem to be in antagonism to so respectable a body as the Royal Dublin Society, and quite confident that they were but husbanding their energies against the time when the field of operations would be left perfectly clear for themselves. The field is now clear; and we believe we have good grounds for stating that it will be taken possession of in a manner which will leave even the impatient no cause to regret the delay. Not only have the directors been quietly preparing for the time which has now arrived, but they proceed to their work with all the countenance and encouragement which the Royal Dublin Society has so gracefully bestowed upon their efforts and exertions.

No one who has at heart the interest of the country in this matter, even if he took no special interest in the college which has been projected, can look upon the conduct of the Royal Dublin Society on this occasion, without increased sentiments of respect, nor without feelings of pride that the affairs of the country should be so sedulously looked after by a body of men governed by such praiseworthy principles. The sober, conscientious manner in which the matter was taken up at the beginning, and the graceful and courteous manner in which it is now, after mature consideration, dropped—or rather handed over to the company—are both in the most perfect keeping with our highest idea of what the character and conduct of such a body should be; and we have no doubt the council of the Veterinary College will meet the conduct and the views of the Royal Dublin Society in that spirit which the graceful conduct of the latter is so well calculated to inspire.—*Agricultural Review*.



PREMIATED DESIGN FOR NEW PLYMOUTH CHURCH, BROOKLYN, NEW YORK—J. R. HAMILTON, ARCHITECT.

THE LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

COUNTY SURVEYORS' ASSISTANTS.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR—A great deal has been said by the public journals with reference to the duties of Assistant Surveyors, and their remuneration—we believe with a good intention to us—and in almost every case there is an imputation of dependency on the contractors who work under us, and with whom we are necessarily brought into more immediate contact than are the County Surveyors, for they, as public officers, are not necessitated to walk from contractor to contractor, calling on each, in his turn, to point out the particulars of his contract that they may be examined into, whilst this is the express duty of assistants.

Now, we, as a body of men who pretend at least to some respectability, and who are entrusted, to a great extent, with the proper expenditure of the public money, and who are expected to possess not a small amount of intelligence, for we are supposed to be able to speak common sense to every gentleman of our several counties, and possess so much qualification for our office as shall satisfy not only the County Surveyors—gentlemen of superior abilities—but the chief engineer of the Board of Works, and not only these, but every gentleman and cesspayer of our several districts.

Are we, as a body of public officers. to remain quiet, and bear such calumnies as are vented from every pen, the feelings of which are entered into more or less by a prejudiced public? Surely we are bound, in duty to ourselves, to speak out, and demand such a position amongst our fellow-men as shall enable us to cast aside for ever such false imputations! Indeed, we feel grateful to our present Chief Secretary, and some others, for what they are trying to do at present on our behalf; but, withal, we believe ourselves still left in the shade, and that the present bill now before parliament does not provide ample remuneration for our duties and expenses.

Government should take into consideration that we are necessitated to keep a house, which must cost at least £25 per annum, and also to travel over our districts from twelve to sixteen times each year, attend at every sessions and assizes, and also attend to the call of every gentleman in our district, and are besides bound to the numerous calls of the County Surveyor, and necessitated to remain from home several days at a time, in going our necessary rounds of duty, at great expenses, all of which must be borne out of our pittance of £50 per annum,

The bill now before the House of Commons presents something of an amendment to the present salaries of the Assistants in Ireland. Clause eight (the only clause in which mention is made of us) is, that each of such assistants shall be paid such annual salaries not exceeding £80 per annum, as such grand jury shall direct, and the same shall be presented by the grand jury by half-yearly instalments at each assizes. We would now ask that the proposed bill be so amended, that we may be allowed not £80 but £100 annually, seeing that it shall be subject to be curtailed by the grand jury, if they shall so think fit.

And is it not too bad that the public should receive all the best of our days in their service, and after having worn us down to uselessness then cast us from them as a thing that has never done the least public good? Should we not be as much entitled to retiring allowances as other county officers? Humbly trusting that this omission is only an oversight, and that some of our Irish members will interest themselves on our behalf, and have these defects remedied, we subscribe ourselves, yours, &c., the useful servants of the public, ASSISTANT SURVEYORS.

Notes of New Works.

The Grand Jury of the county Mayo are about building a bridge, to cost not more than £400, on the road from Ballinrobe to Fairhill.

A new line of railway, extending from the town of Kells to Oldcastle, county Meath, is about to be constructed by the Dublin and Drogheda Railway Company. Mr. Blakiston, C.E.

Nearly 100 acres have been let at Foxrock, several detached houses are completed, and many others are in progress. The new railway station is nearly finished, the recently formed Westminster-road is fit for traffic, and other new roads are being constructed. Unusual facilities are offered to capitalists as regards certain building materials.

Two dwelling houses are to be erected at Ballybrack, according to plans by Mr. Caldbeck, architect.

New national bank houses are to be erected at New Ross, county Wexford, and Castlerea. Same architect.

A dwelling house is to be erected between Booterstown and Blackrock. Same architect.

The War Department are calling for tenders for works connected with the fortifications of the dockyards.

The committee of the Royal St. George Yacht Club have announced their intention of awarding a premium of £5 for the best design for a monument to the late Captain Boyd and his men. Cost not to exceed £150.

A large dwelling-house, in the early English style, has been commenced on the west side of Kenilworth-square, Rathmines. Mr. A. Jones, architect; Mr. W. Hughes, builder. The front is of Bridgewater stock brick, with Bath stone calp and white fire-brick dressings intermixed. The pointed gablets and their Bath stone weatherings, with the quaint arches over the window opes, will, we expect, form pleasing features in the elevation, and be an ornament to this square. "*En passant*," we would remark, it is to be regretted Bath stone dressings are not more generally introduced, as from the extreme facility of workmanship of this stone it becomes easy of adaptation to all purposes of ornament, while it resists the influences of our climate much better than is generally supposed.

The foundations of another large dwelling-house, for B. Faucett, Esq., have been just laid in Upper Rathmines. Mr. A. Jones, architect; Mr. Michael Kennedy, builder.

Mr. Joseph Kelly, timber merchant, &c., Francis-street, is erecting a handsome front entrance to his extensive concerns, comprising a lofty semicircular arched central gateway, flanked by coupled Roman Doric columns, resting on a cut stone pedestal, and surmounted by an entablature and blocking, with a smaller ope for pedestrians at either side, somewhat after the fashion, though less architecturally pretensious of course, of the ancient Roman triumphal arches. It will, when completed, form one of the most attractive features of its character in the city. The same gentleman is also extensively engaged in building dwelling houses and baths on his property at Bray.

The new church at Carrickmacross is abont to be commenced. It will be 150 feet in length by 50 feet in width, and comprehend nave, aisles, transepts, chancel, double sacristy, and spire, &c. The style will be decorated Gothic. Mr. J. J. M'Carthy architect.

The extensive alterations at Mr. Buckley's drapery establishment, Upper George's-street, Kingstown, have been just completed. Mr. J. S. Butler, architect; Mr. W. Hughes, builder.

The foundation stone of the new Cathedral to be erected at Monaghan will be laid on 8th June.

The Corporation of Derry have instructed the Mayor to communicate with the Board of Works with reference to the proposed registry office in Bishop-street, which they state would if completed be a disgrace to the principal street in that city.

A second side altar is in progress for the Church of the Conception. Mr. J. J. Lyons, architect; the works have been entrusted to Mr. W. Hughes.

The Standard and Colonial Assurance Companies are about rebuilding the houses at present occupied by them in Upper Sackville Street. The fronts will be of architectural character and in cut stone, according to designs by Mr. William G. Murray, architect.

Two dwelling houses are being built on Leinster road west, for Mr. John C. King, according to plans by Mr. Tarleton, Architect; Mr. Robert Donaghy, builder.

Extensive alterations and enlargements are being made at the church in Mullingar, according to plans by the architects to the Ecclesiastical Commissioners; Messrs. Barker, of Dublin, being the builders. Eight handsome traceried windows, in finely dressed lime stone, have been added, as also new galleries, staircases, furniture, &c. In excavating for portions of the works about 300 human skeletons, one of which was that of a giant seven feet in height and proportionately formed, were discovered, and carefully deposited in a vault under the church.

The triennial contract for the coast towns and batteries between Bray and Drogheda has been taken by Messrs. Barker, builders.

An important extension is about being made to the premises of Messrs. Henshaw & Co., of Christ Church Place, hardware merchants, &c., under the directions of Mr. Lyons, architect.

Extensive alterations are being made in the house taken by the National Bank, Newcastle West, County Limerick. W. F. Caldbeck, architect; Mr. Scanlan, Listowel, builder.

The number of works of art sent in for the approaching Exhibition at Paris is not less than 5,000.

SHAM ADVERTISEMENTS.—We conceive it to be our duty—having been duped ourselves—to put our readers on their guard against a certain person in London who advertised himself in recent numbers of this journal as an extensive watch manufacturer and jeweller, offering great inducements to purchasers whose remittances meet *no return*, there neither being the *individual* nor the *establishment* so advertised.

TURNING AND BORING GLASS.—The *Mechanics' Magazine* states that John Chedgey, of London, has succeeded in turning and boring glass, and has thus rendered it more applicable to a great variety of useful purposes. He makes glass cylinders perfectly round and smooth; also very strong glass pipes, as substitutes for metal in conveying acids and alkalies, and his cylinders are eminently adapted for the barrels of pumps. Glass tubes of moderate bore are quite common, but they are never made with a uniform size of bore.

THE WATER-WORKS BILL FOR IMPROVED SUPPLY OF DUBLIN.*

THE Select Committee of the House of Commons held its first meet-on the 16th ult.: Mr. Rice Talbot in the chair. Sir G. P. Galway, Messrs. Wyvill, Walter, and Brown Westhead (members) present.

The promoters of the bill were represented by Messrs. Calvert and Monk, Q.C.'s and Mr. Charles Barry, Q C., of the Irish Bar; and the counsel for the opposition were Sir William Alexander, Q.C., Mr. Hannen, and Mr. T. Webb, LL.D., of the Irish Bar.

Amongst the petitioners against it were the Provost and Fellows of Trinity College, the Rathmines Commissioners, the Earl of Meath, the Midland Great Western Railway, the Commissioners of the Borough of Wicklow, the Kingstown Harbour Commissioners, Messrs. Brett and Toomy, Mr. R. A. Mahony, Messrs. Holmes and Co.

Mr. Calvert opened the case and said, that the bill was one of the most important that had ever been brought before such a tribunal, and then referred *in extenso* in a very able speech to the history of the proceedings; the appointment and report of the Royal Commissioner on the various projects suggested; the nature of that now promoted by the Corporation, viz., the Vartry source, its capacity as a source of supply, cost of construction, the character of the opposition, &c., and concluded by saying that although on the one hand the petition in favour of the bill had been signed by upwards of 20,000 persons, the opponents had only obtained 1,000 signatures—a fact. however, on which his clients did not care to rely as they were satisfied that the evidence to be adduced would be sufficient to induce the committee to conclude that the preamble of the bill had been proved.

The first witness called was Dr. Corrigan, President of the College of Physicians, and Physician to the House of Industry, whose evidence was substantially to the following effect viz.: The quality of water in the latter house has been the cause of much complaint; the three requisites for good health were good *food*, good *air*, and good *water*; the North Union Workhouse was supplied from a foul part of the canal where the boats unloaded, and from that *alone*; at the Whitworth and Hardwick Hospitals the water has been *more than once* reported by the physicians as *very bad*; is of opinion that there is extremely little difference in the quality of the water on the different levels of the canal (produced samples of water before and after filtration at the hospital); filtering will not remove any impurity in solution, only organic matter; thinks that the water in the two canals is *utterly unfit for human use*; saw boats filled with manure on the canal; dogs swim in it, parties sometimes bathe in it; horses are sometimes carried in the boats, and soil the canal water; the higher levels are in a *worse* condition than the lower; the water is more still in the former, thereby favouring the growth of vegetable matter; wretched cabins are on the brinks; saw cattle in the water *for hours* of a summer's day; there are also large flocks of wild geese, from which source great impurities arise; a certain amount of velocity is necessary to render and keep water pure (Dr. Corrigan then experimented with a small filtering apparatus on water which contained poisonous solutions, to show that filtration would not remove them); is of opinion that the introduction of pure water into Dublin and other large cities would have a very favourable effect in diminishing intemperance; *never saw the Vartry water*; (cross-examined) made no analysis of the canal water; does not know the amount of animal impurity that would be injurious; believes that decomposed organic matter in *any* quantity is injurious; a large number of barges discharge their cargoes and lie at the harbour, from which the pipes supplying the House of Industry run; true, there are no barges in the basin itself; there is a filtering apparatus at mouth of supply pipe for hospital; the rate of sickness amongst the Dublin paupers is *greater* than among the country paupers; unpalatable and bad water induces people to *put whiskey in it*; quoted from his letter to Dr. Gray; the taste is acquired, the habit is established, and the hitherto temperate country liver returns home a dram drinker, to injure himself by his habits and others by his example;" cannot say how many were brought in sick into the union workhouses, or how many got sick therein, but can tell that during the whole of last year the proportion of the sick to the whole reached the *astonishing proportion* of *one* in *one and a-half* in the north, and *one* out of *two* in the south; the Dublin workhouses are situated in healthy positions, the South Union especially; the north lies below level of canal; country air is better than Dublin air; the lowest classes of Dublin are to be found in the liberties; the supply of food to the poor of Dublin out of the workhouse is very scanty; good sewerage is an element in promoting health; the General Hospital accommodation for Dublin is for 1,145 patients; in Cork 150 beds, exclusive of workhouse hospitals; the hospital referred to gets its water direct from a harbour into which the refuse of boats and barges is thrown; does not know that there are at the Broadstone harbour five large pipes to carry off the water; cannot tell that the existence of such pipes and the flow of the water would bring the impurities towards them; that would depend upon the bore of the pipes, and the level at which they are placed, with respect to the impure matter; cannot tell of how many gallons, or thousand gallons, or million gallons, the stuff he exhibited in a bottle yesterday, taken from the bottom of the filter, was the refuse; it was taken from five months' accumulation; before the filter was put up there was an order not to use the canal water, but to use well water; the latter does not require to be filtered; has not analysed the spring water; found it comparatively clean, and the other dirty and offensive; that was analysis enough; the deeply coloured water brought here did not pass through a filter; here is stuff (bottle No. 2) which was found in the bottom of the second filter; can hardly tell the difference in the colour of the two waters. and, therefore, cannot say that the first stuff would not have passed through. It may be simple deposit that never rose to the filter at all. Here is water (bottle No. 3) which has passed through all the filters; this black-looking dirty water is used in the hospital for culinary purposes; was drawn off for use; is satisfied that if the water generally used was of that muddy colour, there would be complaints as to it from the cook and others; if allowed to stand for five minutes it will get clear; after passing through the last filter the water goes into a reservoir containing 400 gallons; this water is taken from the pipe out of that reservoir, not from the bottom; the reservoir is only five feet six inches deep; did not take any water out of the pipes that supply the city; the stuff which was in the first bottle was a mass of living creatures called shrimps; some may have been bred in the vessel, and some may have been carried into it; they are carnivorous; they live only on organic matter, not at all on vegetables; animal organic matter is decidedly not the food of the greater number of fishes; some fish live on other fish; some organic matter in water would not be injurious; it must be in a state of decomposition to be injurious; beef tea contains a great deal of organic matter, and it is very good; the quality of the organic matter in the canal must be in a constant state of decomposition; weeds and animals die and decompose in it; the weeds rot away annually; has heard that it only moves at the rate of a mile a day; a great deal of the motion is surface motion; the existence of fish is not a test of purity; the carp lives in the mud, while the trout exists in rapid streams, there are trout caught in the canal, but cannot tell the amount; is not a fisherman, and cannot tell whether the trout caught are of the same class as those found in rapid streams; attributes the comparatively small rate of sickness in the South Dublin Union, as compared with the North Dublin Union, to the fact that in the former the Dodder water is used as well as that from the canal; the Dodder water is of a superior character, and the greater the admixture of that stream the better; the quality of the water was not affected so much by the quantity as by the nature of the animal matter which it contained; notwithstanding bad air, bad food, and bad clothing, persons may be greatly benefitted by the supply of good water, especially in such abundance as would flush the sewers; confined inquiry to the canal water supply, because it was the source of the present supply.

Surgeon Wilde examined—Is a physician and surgeon, Vice-President of the Royal Irish Academy, and a member of the Statistical and other societies; pays £2 8s. for water-tax—£1 10s. of which is the ordinary tax, and the residue for an additional supply; has to use force-pumps; at some times of the year it is pure, at other times it is offensive to the smell and taste, and would say, therefore, unwholesome; attributes the impurity to the decay of animal and vegetable matter in the canals; knows that the supply of water is not sufficient in Dublin; there have been many fires in Dublin for the last 20 years, and at none of them has there been a sufficient supply; saw in the *Times* of this morning a report of an inquest on the bodies of eleven persons who lost their lives at a recent fire in Dublin, and read that the coroner in addressing the jury said that this terrible calamity *was a solemn warning to the citizens to exert themselves to procure an abundant supply of water at high pressure*; from own experience, high pressure is necessary for the efficient protection of life and property from fire; the canals are, as it were, *open ditches*, subject to all sorts of impurities; all open conduits used for any other purpose than the supply of the city with water are to be deprecated. Witness then gave evidence as to the existence of spongillæ and animalculæ in the supply pipes of the city. Pieces of the spongillæ were exhibited. Had made a very careful examination of the substance *in situ*, and had it analysed by chemists; the large reservoir at Portobello was cleaned out about six weeks ago, and then found the walls covered *with a grey substance, like velvet*; in the pipes running from this reservoir found *masses of this vegetable material* about the size of his hand; as far as he could see into the pipes this substance existed; it was full of animaculæ; took away large quantities of this sponge for the purpose of microscopic examination, and it has been found that the skeletons of these creatures is composed of lime; considers the presence of these spongillæ in the pipes must be injurious; it is impossible that it could be otherwise; thinks that they could not exist in water which did not contain lime; knows the Vartry river; have made no chemical analysis of it, but the water is pure, cold, clear, pleasant to drink, and very hard to fish in owing to its extreme clearness; the geological formation of the country there is of granite and slate, which is far better for a water supply than limestone; there is scarcely any peat in the neighbourhood of the Vartry, and it would be a most eligible source of supply for the city of Dublin; knows the city of Drogheda well; it is unfortunately situated, not having a free current of air, and the water is also bad, to which circumstances the high rates of mortality in that town are attributable; in cases of epidemic, those who use *impure* water *are more likely* to take it than those who use *pure* water; does not consider the present supply of water to Dublin sufficient; many houses are altogether without water, and thinks it highly desirable that every house should be supplied; it would be greatly conducive to health if it was so; was in Dublin when the fire alluded to occurred, but did not witness it; the papers complained of the want of water on that occasion; knows nothing further as to that particular case, or whether there is a supply of water in the neighbourhood; had the spongillæ produced analysed by Professor Barker and Professor Apjohn; did not see that the inspector of the A division swore there was no want of water; saw the coroner's statement, that it was a solemn warning to the citizens to procure a supply of water at high pressure in all parts of the city; only knows of the existence of the spongillæ for two years and a-half; water is supplied from the canals to the city for over 60 years; they may have sprung up within the last few years; they cannot exist without lime and silicia; they have almost destroyed the water-works in Boston, United States; water deprived of lime would certainly lessen, and, theoretically, ought to destroy those animals; does not know what quantity of lime and silicia there is in the Vartry water, or whether there is any at all; there are some granite boulders in the Vartry, but the principal formation is slate; does not know of any city that *has suffered more from diarrhœa and dysentery than Dublin*; the last epidemic was in 1853, and was by no means an exceptional period; no statistics have been taken since 1851, but it has gradually decreased since then; the smaller the quantity of organic matter in water, the better it is for persons affected by those diseases; thinks that water with a mawkish and unpleasant taste is calculated to produce bowel complaints; spongillæ has existed for many years; only knows of it for a few years; the existence of spongillæ shows the existence of lime; does not know the quality of the Boston water, or what steps were taken to remove the spongillæ; the spongillæ adhered to the pipes, not to an incrustation on the pipes; it seemed to have a liking for iron, as it did not so much adhere to stone; has seen fish in the canals, but not near Dublin; botanists have lately handed over the spongillæ to naturalists; it was a disputed point whether the matter is vegetable or animal; inclines to the latter opinion; thinks the question has now been settled; the discovery of spongillæ was known during the whole of the present century; could not say that the particular kind found in Dublin has been found in rivers: has seen them in rivers in Connaught; the water that comes from bogs is coloured; has seen spongillæ in the river Suck; does not think that the spongillæ found in rivers is so offensive as that which grows in the pipes; after the spongillæ was discovered the corporation was anxious to have the canal water; believes Mr. Neville and Mr. Hawksley reported in favour of it; knows the water of the river Dodder; it is very seldom bright and clear; it is subject to floods, which keeps it generally muddy; passes it; has seen it in that state at Templeogue, below the mills; has not often had an opportunity of seeing it above the mills; the report of Mr. Neville, in which he was disposed to take the water from the canals, was made on the ground of economy; with respect to Dr. Corrigan's observation as to the Census Commissioners' returns of the statistics of disease, wishes to state that it is quite correct; as to the household returns, they are not reliable; they are deficient in number, and defective as to names; but with respect to hospitals, workhouses, and public institutions, it is a complete and perfectly reliable statistical return; it will be found to be very accurate when compared with books of a similar nature throughout Europe; is not aware of any disease having been caused by living on a bog and drinking bog water; never have ague on the bogs of Ireland; ague is only found in marshy districts, where there is a very different kind of formation; there are often very pure springs in the neighbourhood of our bogs, and the people of such localities drink that water; does not know that water coloured with peat is wholesome; the vegetable matter which bog water contains is not recently decayed, but is thousands of years old; spongillæ has been found in the Dublin pipes at a very great distance from the reservoir, rnd has remained there for months, rolling backward and forward, and continually giving to the water an unpleasant flavour.

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* Being well aware that there are numerous readers of this journal, through the kingdom and elsewhere, who may not have had an opportunity of seeing the detailed reports of the proceedings on this important question, we reprint them from our daily cotemporaries as much *in extenso* as space will permit. The examinations of so many distinguished scientific men, have elicited information of the highest general importance, on the question of water supply to cities and towns, apart from local considerations altogether, and therefore demand a space for being recorded in every journal of such a character as ours.

Dr. Ringland, examined—Is a Fellow of the King and Queen's College of Physicians in Dublin; upwards of 22 years practising in that city, and connected with the Coombe Lying-in Hospital since 1841; attends to a large number of extern patients; has been for some time the physician-accoucher to an institution called the "Maternity;" had an opportunity of becoming acquainted with the sanitary condition of the poor in their own houses; the Lying-in Hospital is situated in the Liberties; it is directly supplied with water from the Poddle; derives its supply from the public fountains; the water from the former is used for laundries and for flushing water closets, and that for domestic purposes is obtained from public fountains; the water from the Poddle is so foul that the servants of the hospital refuse to use it; the houses generally are dependent on water therefrom; in many cases, when attending patients in their own houses, the medical men have been obliged to use the same water again and again for washing their hands, owing to the scanty supply, or to wait a long time until water was obtained from the fountains; has known instances of great risk to the lives of patients from the deficient supply; his house is supplied with water from the Portobello Basin; it is pretty good in winter *after filtration*, but it is *foul* and *bad* in the *autumn* even *with* filtration; has not analysed the water; good water is one element of good health, and I do not consider that good water; has seen dead animals, cats, and dogs, in the canal, and also the bodies of human beings floating in it; has frequently observed manure boats loading, and has seen manure fall into the canal; observed lately two boats passing near the city basin, one of them a cattle boat, and the bilge water was being pumped out of both of them; does not think that filtration will remove organic matter in a state of solution; has been twice at the Devil's Glen, and once at the Vartry river above the Glen; drank the water, and found it very pleasant and sweet to the taste; the present is not a satisfactory supply, from the pollution of the canals, also from the vegetation in the canals, and the stagnant character of the water; understands there are about 700 boats trafficing on the canals, with three men to each, making upwards of 2,000 men who make the canals their water closet; with respect to the houses of the poor, the people have such a distance to go to the fountains, they generally have very little water in their rooms; often had to remove foul water from their rooms; several people wash in the same water, and frequently it is often used for washing clothes, and then for washing rooms and stairs; it becomes most foul and offensive; thinks fountains a most objectionable source of supply from their distance. In cold and wet weather the people are liable to disease from exposure, a number of improper women assemble around and use most obscene language, which has the effect of contaminating young girls who are waiting there for their supply. In many cases of the trepanning of young girls has arisen thereby; considers water at a high pressure necessary. (Cross-examined) was not examined before the Royal Commissioner; nor asked to attend before him, has heard that the Poddle is supplied from the Dodder; in the poorer houses there are several families residing in each; would have the water brought into each room, but that would involve great expense; visited the Vartry; was brought through the catchment basin at Roundwood; the Vartry is about 25 feet wide, and about 15 inches deep, and is a rapid stream; no chemical analysis of the water was made in his presence; used the water on each occasion; in the glen it is a deeper river, but not so wide; experience as to the houses of the poor is confined to Dublin; he always filters the water which he uses in his own house; used it for several years, and enjoyed good health; heard it said and contradicted that the Vartry passes through a mineral district, Wicklow is a mineral county; knows the River Dodder; read the report of Mr. Hawkshaw; knows that he places it in the same class as the Vartry—in the first class. The water course is derived from the Dodder; observed it to be foul; there is a paper mill on the Dodder, which would account for the impurity of the water; does not know that the Earl of Meath has taken proceedings against the mill owner; took samples of the Vartry water at three places; saw the water of the tributaries to the river; it was quite clear; the majority of the houses in the Liberty have yards, and it would be quite impossible to get pipes into the yards, irrespective of the architecture of the houses.

Dr. Rawdon Macnamara examined—Is a Fellow of the College of Surgeons in Ireland, and a Licentiate of the College of Physicians, and Professor of *materia medica* in the College of Surgeons; has become well acquainted with the sanitary condition of the poor; at least eighty per cent. of the houses have no supply at all, and the water supplied to the remainder is infamously bad; the observations made as to the infamous quality of the water applies to the water of the canal; its impurities consist of organic and inorganic matter which in the summer months causes it to have a most offensive smell; agrees with the evidence given by Dr. Corrigan as the causes of that impurity; thinks it arises from decomposing vegetable matter and pollutions of various kinds mentioned; it appeared to him that there was no current whatever in the canal; thinks the water could not be purified by filtration tor so large a city as Dublin; is satisfied that the bad quality of water is a fertile source of diarrhœa; don't remember any case of fire in which there was a proper supply of water; even if there was a sufficient supply, high pressure would be necessary for the effectual extinguishment; visited the Vartry; drank the water, and it was perfectly clear and sweet; it appeared also to be very soft and to have a great sparkle in it; the water of the tributaries was not as clear as that of the river, but the difference was slight; the poor in Dublin have to go to the fountains for their water, and in many instances the people have great distances to go; made no analysis of the water; found the water perfectly colourless; saw but little peat on the catchment basin of the Vartry; very heavy rain fell in Dublin on the Thursday previous, which made him wonder to see the water clear; is distinctly of opinion that the water produces diarrhœa, and not the use of fruit in the fruit season; the eating of unripe fruit does predispose to diarrhœa; from dispensary books finds that in the first half of 1858 he had 96 cases of diarrhœa, &c.; in the second, 235; in the first half of 1859, 110; and in the second, 365; in the first half of 1860, 104; in the second half, 183; in the latter part of 1859 the water was most *offensive*, and the fruit the finest that had ever been seen in the city, while in the latter part of '60 the water was *good* but the fruit *unripe* and *bad*; these figures show that the water and not the fruit causes diarrhœa; cold and wet more disposes to diarrhœa than hot weather; looks on ripe fruit as being anti-dysenteric and anti-diarrhœtic; hopes for the sake of humanity, that the people who are opposing this measure to procure a better supply of water for the city of Dublin are not well acquainted with the condition of the poor; looks on good sewerage as an important element in the health of a city; portions of the sewerage of Dublin is in a very satisfactory state. He saw the Poddle had the appearance of *pea soup*; this was farther down than at the tongue; if there was no organic matter in the Dodder would consider it pure. The impurity of water depends on the quality and not the quantity of organic matter which it contains; it was since the present corporation came into office that the improvements in the sewerage of the city have been effected.

Dr. Phelan examined—Is Secretary to the Board of Superintendance of the Dublin Hospitals; the water supplied to those institutions from the canals was very bad, and some years ago, when governor of the House of Industry, made an order that no more water should be taken from the canal; in the hospitals the water has been filtered since 1858, and it considerably improved the water; never would allow the canal water to be used for drinking, brewing, making tea, or other purposes; knowing its impurity, has not the slightest doubt that an improved supply, both as to quantity and quality, is necessary for all classess in the city of Dublin; judges of the quality of the water by his palate, and not by any chemical tests.

The Chairman said the committee were unanimously of opinion that they had beard sufficient evidence as to the quality of the water and the deficiency of the present supply, and would wish the promoters to go into their evidence as to the mode in which they proposed to supply water to Dublin.

Mr. Boyle, inspector of fire brigade in Dublin, examined—At fires which occurred, there was no water to be had for a considerable time after the engines had arrived; the supply was also deficient at the fires which destroyed the Round Church, the Kildare-street Club; there was a sufficient supply of water at the recent fires in High-street and Grafton-street; owing to the defective supply of water, the fire destroyed the premises in which it originated, and sometimes spread to the adjacent houses; if there was a high pressure on the main and a sufficient supply of water, it would save a good deal of property; there is not sufficient water in the basins to supply the mains continually, so as to be always available for the extinction of fires. In some streets the water is only supplied during three days in the week, and fires may occur when there is no water in the main.

Francis Codd examined—Enumerated the circumstances connected with the consulting of Mr. Hawksley and his stated opinions, the refusal of the canal companies to supply the city on the same terms as before, the subsequent ineffectual negociations, the adoption of the Coyford scheme by Mr. Hawksley, &c.; is a magistrate of Dublin; was a member of the committee having charge of the water question eight or nine years ago; never heard an objection to the Royal commission, or to the report of the commissioner, until a letter from Master Fitzgibbon appeared in the public papers, calculated to excite great alarm and prejudice amongst the citizens, and this letter was written after the bill had been promoted and considerable expense incurred; as far as he recollects the press of all shades of politics *approved* of the recommendation of the Vartry as a source for the supply of Dublin, until Master Fitzgibbon's letter appeared; thinks that a better supply of water is absolutely necessary, and that the Vartry scheme is a good one, recommended, as it has been, by an engineer of such eminence as Mr. Hawkshaw, after holding a public inquiry; Mr. Alexander Boyle, a highly respectable citizen, and chairman of the opposition committee, withdrew from the opposition after the issuing of the commission; the rejection of the present bill would lead to great public inconvenience; if it were thrown out many persons who had subscribed to the guarantee fund would probably refuse to subscribe to promote another bill, and the citizens would be left without an improved supply unless it were provided by private companies; thinks it most expedient that the water supply of Dublin should be managed by the corporation; amongst the subscribers to the guarantee fund is Mr. Guinness, the great brewer; heard him state at a public meeting that the corporation were bound in honour to promote the scheme suggested by the Royal commissioner; believes that the members of the Corporation are actuated by the purest and most disinterested motives in promoting the bill, and have no other object than to benefit the citizens; does not think the opposition are actuated by a disinterested motive; Mr. Ennis, the chairman of the M. G. W. Railway Company stated at a recent meeting of that company that he did not like to give up £1,500 a-year, which they received for the supply of water from the Royal Canal, and therefore he opposed it; the Coyford scheme was changed into a canal scheme, on which we supposed the opposition would be abandoned; this left a defect in the bill, which the opponents took advantage of to defeat it on standing orders; is bound to say Mr. Ennis acted most fairly; Mr. Jeffers was acting as solicitor for the G. S. and W. Company, and he attended and opposed the bill on standing orders; Mr. Cane, a director of the Great Southern and Western Company, told him that he opposed for him; is aware that the opposition fund has been subscribed to by the Archbishop of Dublin, the Lord Justice of Appeal, the Chief Justice, and other persons of high position in Dublin; is not aware that the opposition committee have published a document repudiating having had anything to do with the issuing of the commission; has not read all the *rubbish* that has been written on both sides of this question; Master Fitzgibbon has lately become a Master in Chancery; is not aware of any instance of public spirit on his part until this water question drew him out, but he is a most respectable gentleman; has understood that Mr. Hawksley is a man of the very highest eminence as a water engineer; thinks it is wholly indefensible that the citizens of a great city like Dublin should be supplied with water of the character described by the eminent scientific men who have examined it, and that the providing of a purer water does not brook delay; a day should not be lost in putting an end to such an *atrocious* state of things as now exists.

Mr. Webb—Do you think there is such urgency for an improvement in the supply that not a single session should be lost in the adoption of a doubtful scheme, involving an expenditure of £300,000?

Mr. Codd—Thinks there ought to be no doubt whatever after the subject has undergone a careful examination by so eminent an engineer as Mr. Hawkshaw, and after it shall have undergone an investigation by this committee. Heard Mr. Hawksley say that he would have recommended the Vartry scheme, but that he thought it too expensive for the taste of the citizens at the time; the valuation of Dublin, which is an official one, and considerably below the actual worth of the houses, is £500,000.

Mr. Patrick Jeffers examined—Was a partner of the late Sir Matthew Barrington, and one of the solicitors of the Great Southern and Western Railway Company; opposed the bill on the part of Colonel White, Colonel Connolly, Mr. Cane, and other owners of land on the banks of the Liffey; never opposed bill No. 2; opposed the conversion of bill No. 1 into bill No. 2 under the circumstances stated; opposed the bill before standing orders on behalf of the riparian proprietors; attended the meeting on the part of the Great Southern and Western Company.

Alderman Roe, examined—Is a deputy lieutenant of the city of Dublin; ex-Lord Mayor, ex-sheriff, and has been for many years of opinion that an improved supply of water, in quantity and quality, is most necessary for the city of Dublin; has no doubt that the Vartry scheme is a most valuable one, and it is promoted by the corporation in that belief; there was some difference in the corporation as to the Coyford scheme, but there is very little dissent in the corporation as to present measure; founds his opinion on that of Mr. Hawkshaw, Mr. Hawksley, and other eminent scientific men; thinks it would be attended with bad consequences to the city if the bill was defeated; a great deal of the laudation of the canal water has been got up since the Vartry scheme was proposed; the opposition is composed of various elements; the gentlemen who take part in it were very much interested in a good supply of water; is under the impression that the corporation are bound to adopt the scheme proposed by the royal commissioner, more especially as it has been supported by the opinion of Mr. Hawksley, our own consulting engineer; Mr. Hawksley reported in favour of the canals, but that was from water taken at a higher level; thinks that would have been satisfactory; is not capable of instituting any comparison between that and the Vartry scheme; believes that the minority of the corporation on this question is confined to three or four members; thinks £800,000 would be a very moderate sum for supplying Dublin with water; water taken from the canal at a high level would be an improvement; would not compare the present supply with a supply from the Vartry; has heard that a petition in favour of the bill has been signed by 20,000 inhabitants of Dublin.

Alderman Kinaham examined—Is a magistrate of Dublin, ex-Lord Mayor, and a member of the waterworks' committee with Dr. Gray and Mr. Codd; is of opinion that an improved supply of water is essential, and that the Vartry scheme is a valuable one; it is promoted by the corporation *bona fide* for the benefit of the city, and there is very little difference in the council on the subject; thinks a delay in passing the bill would be productive of much evil to the city; the corporation were actuated by *bona fide* motives in advocating the canal and Coyford schemes; visited the Vartry, and think it the best water of the three.

Alderman Reynolds examined—Is a magistrate of Dublin, ex-Lord Mayor and M.P. for the city; believes that the corporation have come to a correct conclusion as regards the *quality* and *quantity* in promoting the Vartry scheme. There is an *urgent necessity* for an improved supply, and that is the opinion of the citizens; believes the citizens at large are in favour of the Vartry project; visited Vartry, and found the water pure, sweet, and soft; the corporation consists of 60 members, and of these 56 are in favour of the bill and four opposed to it; two or three of these are supposed to oppose as landlords; the opposition is made up of different elements; thinks pecuniary considerations influence the opponents; Mr. Guinness, the great brewer, proposed the first resolution in favour of the bill at a meeting of the citizens of all classes; the opponents were invited to attend, and did so; all the resolutions in favour of the bill were unanimously passed; a petition in favour of the bill was also adopted; the discussion lasted seven hours; is *perfectly satisfied* that the Vartry scheme is the *best* that could be devised; the corporation also considered themselves bound in honour to carry it out, having been recommended by a royal commissioner; a learned gentleman, who is also a man of literary attainments, also made a speech in opposition to the Vartry scheme, and said—"Surely you are not going to take the muddy water of the river that supplies the waterfall at Powerscourt." We all looked rather astonished, because the river that runs through Powerscourt is the Dargle, which has no more to do with the Vartry than it has with the Thames (laughter); Dr. Gray corrected the learned gentleman's mistake, and Dr. Waller thanked him politely for the correction, and then went on to discuss the chemical qualities of the water, with respect to which he had made so great a mistake; considered the financial question maturely, and believes that £300,000 is a very moderate sum for the construction of waterwork to supply such a city as Dublin; the taxation of Dublin is now very great; of course, increased taxation for water would be a matter of great importance; was told by Mr. Hassard that £300,000 would be ample, and that he thought the Vartry scheme could be carried out for £40,000 less.

(To be continued.)

IMPROVEMENTS AND PROGRESS OF THE CITY OF DERRY.—We are glad to learn that a new and attractive feature has been added to the "Maiden City," by the formation of a square in the west end, similar to those in our own. The large field adjoining the New National Model School has been laid out in a very handsome style for the purpose alluded to. In the area it is intended to erect thirty-four first-class houses, disposed over three sides of the space. The north side will form a terrace, consisting of 16 houses, five storeys in height, facing the river Foyle, and commanding (as will also the other houses) a most delightful view of the surrounding scenery, and, in order to render this the more enjoyable, the centre and extreme ends will be ornamented by handsome projecting windows, plate glass being used throughout; four of the houses forming a centre, and the wings terminating by two projecting houses, surmounted by pediments, ballustrading, &c.; Scotch stone dressings to the windows, &c. Already we observe one-fourth of this terrace is in active progress of erection. The east and west sides being on an easy gradient, the houses are laid out semi-detached, thus breaking the dull effect observable by stepping where there is a continuity of buildings. The centre of the ground is neatly formed into ornamental gardens, and planted, for the use of she residents. The space set apart for that purpose has been enclosed with fencing and ornamental gates, by Messrs. Musgrave, Brothers, Belfast. The roads, carting, and drainage have been completed, and every requisite to make the locality a first rate site have been secured, which with its natural beauty, commanding as it does a fine panoramic view of both the city and county, must make these houses most attractive residences, and a great boon to the citizens as large. The whole works are from the designs and under the superintendence of Mr. Fitzgibbon Louch, architect, Sackville-street, Londonderry. Samuel Law Crawford, Esq., is the proprietor.

On the opposite side of the river, at Fountain Hill, the property of Wm. M'Carter, Esq., T.C., we observe new roads formed and sites for villas laid off. The proprietor is erecting a handsome villa, now nearly complete, in the Italian style, with projecting roofs, bowed windows, with Scotch stone dressings throughout. Expenditure, £900.

Adjoining, a similar villa for Robert Cooke, Esq., is also in course of erection. The contractor for both villas is Mr. James Harrison, Derry; the architect is Mr. Fitzgibbon Louch, C.E.

THE VERNON ESTATE.

THE following letter has been received from the agent to this property, and with pleasure we accord it space for insertion:—

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—I have just seen in your paper of the 15th inst. a statement with reference to this property, which appears to have been made without any knowledge of the facts. As it may tend to mislead the public with regard to the encouragement which is given for the investment of capital at Clontarf, I feel satisfied that you will gladly correct the misstatements therein made. I have been for about four years in the management of this property, and during that time Mr. Vernon has made leases on terms highly advantageous to parties who have built. The moderate restrictions in his leases are quite as necessary for the protection of the interest of the tenants who have built, as they are for the proprietor. In this view of them, the parties who have taken ground have all acquiesced, and I am not aware of a single negociation having been broken off in consequence of the restrictions in the building leases, nor have I ever known such a condition proposed as that mentioned in the statement in your paper, viz., "That the builder should ornament his dwelling with an expensive bow window." There cannot be any advantage in removing one set of cabins to substitute others, but for the building of houses that cost from £400 or £500 each, in terraces or for detached houses near the sea-shore, Mr. Vernon makes leases of land for terms of 150 years by the foot, or for building villas involving a larger outlay, more inland, he sets by the acre in lots suitable for such purpose.

THOMAS FRANKS.

21, Lower Fitzwilliam-street.

GLASNEVIN BOTANIC GARDENS.

IN the recent report of the curator, for 1860, submitted to the Royal Dublin Society, we find the following:—

"*Plant Houses and Conservatories.*—Although no new additions or alterations worthy of particular notice have been made in this department during the past year, the conservatories have undergone considerable repairs, by directions of the Commissioners of Her Majesty's Board of Works of Ireland. The whole of the curvilinear-roofed range has been painted with two coats of paint outside, and the central palm-house, with one of the wings of the range, the same inside. All the broken and badly cracked glass was taken out and repaired, consequently this range is now in good condition.

"With a view of rendering the heating apparatus more efficient, the committee of botany have ordered three of Miklejohn's patent boilers for heating plant-houses, &c., to be got, such as he exhibited a few year's ago at one of the Royal Dublin Society's exhibitions of improved implements, &c. These boilers have been placed in three of the houses where the old saddle-boilers were previously used, but had worn out; and the result is satisfactory, inasmuch as a higher temperature can now be obtained, with less fuel and labour than has been the case hitherto. It was supposed that the long, span-roofed house, built last year, could have been heated sufficiently for all the purposes required by the old smoke flue; but when practically tested, it was found that the amount of heat required to reach the extreme end from that where the furnace is placed twice burst the flue, and nearly destroyed all the plants in the house. This being the case, the committee gave directions for a cheap hot water heating apparatus to be erected in place of the flue, which has been done; and now the plants are safe, besides a saving of fuel effected.

"The architect of the Board of Works did not think it desirable to do much repairing on the old conservatories, which are soon to be replaced, a plan being at present in course of preparation by him for supplying more commodious structures, better adapted for the requirements of a public garden, than houses built upwards of fifty years ago now are. It is, therefore, earnestly to be desired that the small sum of money placed by the Treasury at the disposal of the Board of Works for this purpose may not prevent those plans from being carried out as they ought to be. In my report last year I pointed out the sort of houses which I considered should be erected, after having had the concurrence of the committe of botany. The architect has, I believe, taken that report, in some degree, as a basis to form his plans on; and I have agreed to be ready to give up the central portion early next May, when building operations will be commenced."

GLASGOW ARCHITECTURAL SOCIETY.—The seventh meeting of the third session of this society was held on Monday night, 15th ult, in the Scottish Exhibition Rooms, Bath-street, Mr. Charles Wilson presiding. Mr. David Haire read a paper upon "Decorative Art," which was followed by some conversational remarks by the members present; and after the transaction of some other business the meeting separated.

NOVEL APPLICATION OF PHOTOGRAPHY.—A photograph has been taken of the bed of the sea in Weymouth Bay, by a Mr. Thompson. The camera was placed in a box with a plate glass front and moveable shutter to be drawn up when the camera was sunk to the bottom. The camera being focussed in this box on land for objects in the foreground, at about ten yards, was let down from a boat, carrying with it the collodion plate, and the shutter raised and plate exposed for ten minutes. The box was drawn up, and the image developed was of rocks and weeds; but the great advantage anticipated to be derived from this application of the art is to obtain a knowledge of the condition of piers, bridges, piles, and structures under water.

SCENIC ARRANGEMENTS AND LIGHTING OF THEATRES.—M. Barthelemy, of Nancy, is said to have discovered improvements by which he professes to be able to raise or sink the entire stage, or part of it, at a few moments' notice, and to bring about transformations of the greatest complexity with rapidity impossible under the old system; also, in lighting more powerfully and with greater effect.

BIRMINGHAM FREE LIBRARY.—This establishment was recently opened, and the proceeding was immediately followed by an eager rush for the first reading of the books. Upwards of 1,000 volumes were applied for during the first afternoon and evening.

THE NEW RAILWAY STATION AT OMAGH.—The engineers visited this town a few days ago, and it is understood that the site likely to be fixed upon for the railway station will be those fields occupied by Bowland Barton and Armer Alcorn, on the other side of the road from the present passenger station. It is intended to form a new road on a straight line with John-street, the entrance to which would be at the lower end of the Methodist Chapel grounds. This arrangement, if carried out, would go far to meet the wishes of the inhabitants, as the passenger station would then be as convenient to the town as could be reasonably expected.—*Derry Sentinel.*

REMOVAL OF THE BALLAST BOARD.—We have been given to to understand the removal of the Ballast Board has been decided upon, and that it will in future be represented here by a single commissioner.—*Mail.*

THE ORIENTAL BATHS, LIVERPOOL.—The proverbial slowness of joint-stock companies in getting to work is certainly not exemplified in the case of the Oriental Bath Company of this town, as already a handsome building has sprung up, which promises to be a credit to Liverpool in every sense of the word. One thing is especially remarkable about the heated rooms, viz:—Their great size compared with those of any other concern in the country; and when they are domed in (as intended), we have no hesitation in saying that the effect will be more truly Oriental than that produced by the flat or arched roofs of the baths hitherto erected. The principle of the Eastern bath will be consistently carried out in the larger apartments; but those who desire it can have the use of an additional sudatorium, in which the air is comparatively dry, and the temperature higher than is used in the East. But it is not anticipated that it will be much used except under medical direction. We believe that one suite of rooms will probably be open to the public by the first of next May.—*Liverpool Post.*

WIDTH OF BROADWAY.—The width of Broadway at various points is as follows: At Wall street, 35 feet; Fulton 42 feet 1 inch; Chambers, 44 feet 8 inches; White, 41 feet 6 inches, Broome, 44 feet 8 inches; Seventeenth, 36 feet 5 inches; Twenty-first, 41 feet 5 inches; Twenty-fifth, 28 feet 2 inches; Thirty-second, 38 feet 9 inches—an average of between 50 and 41 feet.

BARK STOVE.—This kind of stove, sometimes termed *moist*, is a hot-house, the temperature and moisture of which is maintained by an open reservoir of hot water, or by a mass of fermenting matter. It is adapted to plants which delight in a warm, damp, atmosphere. The term bark stove has its origin in the circumstance that tanners' spent bark was formerly used as the chief source of the heat employed.

NEW CEMETERY FOR RATHDOWN UNION.—It is proposed to form a new cemetery for this union, and offers have been made to the guardians by Sir C. Domville of three to five acres at Shankhill at £10 per acre per annum; by Mr. Carter, to sell three acres at Dalkey for 500 guineas; and by a Mrs. Neill, the residue of a lease of three acres at Kill-of-the-Grange, for £140. Objections were recorded to each, but the subject has been referred to a committee to report.

TO UNITE STONE AND GLASS.—M. Bru, curator of the museum at Narbonne, has discovered that silicate of potash possesses, in the highest degree, the property of uniting surfaces of stone, glass, and pottery. It is applied with a brush to the surfaces which it is desired to bring into contact, and in a few days acquires a great solidity. It appears that the same material can also be successfully used in joinery, and for all the purposes to which common glue is applied.

TO SUBSCRIBERS AND ADVERTISERS.

Subscribers and advertisers to whom frequent applications have been made by circular and otherwise for various amounts of accounts furnished, will have the goodness to remit same to the office, as directed. It must be obvious to all that the character of this journal entails more than ordinary *expense for each publication, and judging from the good feeling manifested towards our mission by all classes, we are quite sure it is only necessary to remind those indebted that a multiplication of individual items, however small, serve to form a very important aggregate.*

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Post-office Orders and Remittances should be made payable to MR. PETER ROE, *Printer and Publisher*, 42, MABBOT-STREET, DUBLIN.

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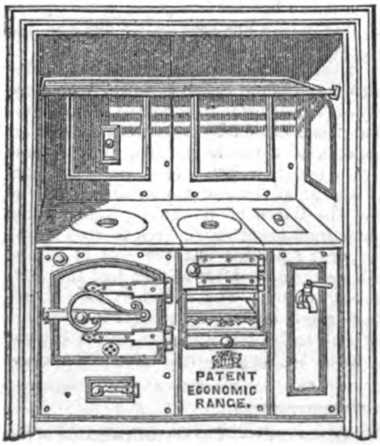

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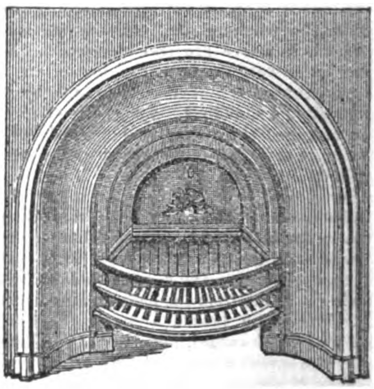

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The Dublin Builder.

VOL. III.—No. 34.

THE ROYAL HIBERNIAN ACADEMY EXHIBITION.

WITH increased interest—owing to circumstances hitherto fully recorded in these columns, and now unnecessary to allude to more than *en passant*—we proceeded to view the collection of paintings, sculptural and architectural works, at present exhibiting at the Royal Hibernian Academy; and though we cannot hope, in the limited time that intervened between the opening and our publication, to do even moderate justice to its importance, yet, reserving the pleasing privilege of recurring to it again and again, we note in current number a few remarks concerning it. The energies of the academicians, and more especially those of the officials whose peculiar province it is to act as "faggers" in preparing for exhibition—but who doubtless, in their most laudable enthusiasm for the advancement of art, become reconciled to their arduous, responsible, and comparatively thankless duties by the conviction that "the labour we delight in physics pain," must have been taxed in a more than ordinarily severe manner on the present occasion, considering that elsewhere in this city are being congregated, in a building devoted to somewhat similar purposes, some *two thousand* pictures of the choicest character. More honour is therefore due to them now than under ordinary circumstances; and viewing the result both numerically and with regard to its excellence, it has been rarely equalled, and certainly not surpassed, by any previous effort, at least to our knowledge.

Both foreign and British artists—of the latter of whom the sons of Erin form not the least important proportion—are well represented, and we have only to mention, that amongst the former are to be found the works of Starkenborg—No. 16, the Vale of Lauterbrunnen, a truly glorious production; Camille Venneman—Nos. 17, Resistance, and 55, Strolling Musicians, after that preeminent artist's well-known style; Eugene de la Croix—No. 25, Lion and Panther, an admirable animal study; Van Dwenter, No. 35; Kruseman Von Ellen, No. 43; A. DeBylandt, 84—all landscapes of considerable merit, together with many others, to convey a fair idea of its excellence in that department. One of the most conspicuous pictures in the exhibition is John Falconer's Pass of Glencoe—No. 49—in which that young Irish artist has excelled himself, though we are not not disposed to regard his View of The Dargle—No. 155—as a proportionately successful work. No. 162, by the same author, representing the brig Endeavour ashore at Bray, is a highly meritorious painting. Mr. P. Vincent Duffy, R.H.A., contributes—Nos. 18, Bray Head; 37, The Dargle; 77, The Vale of Rest; 100, Moonlight; 143, Ross Castle, Killarney; 146, The Haycock; 176, The Eagle's Nest and Purple Mountain, Killarney—all of which, but the latter especially, together with some water-colour drawings, in the anteroom, are quite in accordance with that gentleman's previously established reputation. No. 180, by T. H. Maguire, valued at £250, and representing Matilda relating Northam's history, has many notable points as to general effect, though we do not quite coincide in the artist's estimation of the whole. No. 61, In the days of the Merry Monarch, by the same artist, and valued at £300, is charmingly effective in its lights and shades. Amongst the academicians' works, the marine subjects by Kendrick demand premier notice, and the visitors, while admiring all, regard with additional interest No. 45, wherein the artist has perpetuated the memory of the unfortunate fate of Captain Boyd and his brave fellows at Kingstown on the 9th of February. Mr. M'Manus exhibits two pictures—Nos. 93, Venus in the Tent of Mars, and 95, a Hymn to the Setting Sun—both of a very ambitious character, in a style seemingly and peculiarly this artist's own. The oil and the water colours by Messrs. Edwin and Edward Hayes, and Not to be Caught, by Michael Angelo Hayes, are very noteworthy. Mr. Mulrenin, the courteous and efficient secretary, as usual has a goodly display of miniatures on ivory, beautifully handled, and Mr. Catterson Smith, the eminent portrait painter, also contributes some of his latest works in that line. We miss Mr. George Mulvany's portraits, which, without drawing invidious comparisons, are inferior to none others, but notice that No. 67, Francis I. surprising Henry VIII. in the Castle of Guisnes, in the vicinity of "the Cloth of Gold," is by that artist. The suggestion of the subject, which is delineated with considerable merit, is explained by the underneath quotation from Montfauçon's antiquities of France:—

> "The King of France, who was not a suspicious man, was much troubled that they distrusted each other's faith. One day he rose, contrary to custom, very early, and taking with him only two gentlemen and a page, the first he could find, with a Spanish cap on, mounted his horse without housings, and went to the King of England, at Guisnes. Brother, said Henry, who was highly surprised to see Francis enter his room alone, you have played me the finest trick ever man played another, and have shown me what confidence ought to be reposed in you by me, who surrender myself your prisoner, and plight you my faith."

We must for the present pause here and pass on to the antique gallery, where, while fully appreciating the beauties of the painter's art, admittedly is to be found "metal more attractive.'

In the architectural department we were led to hope that the recent acquisitions to the Academy, as well as the inducement of associateship, still an open question, would have ensured a specially meritorious display this year; but while confessing that it is somewhat better than a few of the preceding exhibitions, yet it falls far short to our mind of what it might and ought to be considering the available resources of our practising professionals, local and otherwise. Commencing, in the order of the catalogue, at the left of the entrance doorway, Mr. Trevor Owen exhibits his design for the Boyd Testimonial, as adopted by the committee; but our notions of a monumental structure harmonizing to some extent with those of a royal critic, who was pleased to designate the prototype of this—viz., the Wellington Testimonial in the Park—"an overgrown milestone," we have no reason to congratulate any of the parties concerned on the result. A little farther on, however, this gentleman retrieves himself by his exterior and interior views of the Catholic Apostolic Church, Liverpool; the latter being peculiarly noteworthy both in design and the handling of the drawing, although the artist's license is rather extensively encroached on in the colouring of the roof, and the former is by no means free from fault, but very questionable, especially as regards the tower and spirelet treatment. Mr. William Murray, one of the newly-elected R.H.A's., contributes a neat and effective view of the chapel and infirmaries of the District Lunatic Asylum at Grangegorman, a creditable production in its way, though we should have preferred a newer subject. Mr. Charles Geoghegan has a very phlegmatic design for a collegiate school (No. 558), though better in every respect to that by the same author for a Catholic Church (No. 600). Mr. Wm. Fogerty's competitive drawings for Presbyterian Church, Cork (the adopted design for which appeared in our number for March 1st), has some clever grouping about it, and colour is sought to be obtained throughout by introducing bands of dressed stone dissimilar to that of the body of the structure. We are not, however, permitted to regard favourably in *any* respect the same gentleman's drawing of a villa at Ennis (No. 616). Looking first at Nos. 564, 568, and 571, views respectively of the east portico of the Bank of Ireland, and the principal front of Trinity College, Dublin, the interior of our Town Hall, and the south-east view of the Custom-house, we were strongly impressed with the conviction of their being the productions of "an old master," nor were we disappointed on referring to the catalogue to find the name of Patrick Byrne, R.H.A., associated therewith. Though somewhat less pretensious in colouring than the style generally adopted by the architects of more modern schools, yet these drawings are very truthful, and suggest desirable subjects for study. No. 569, a design showing three sides of proposed Grosvenor-square, has no recommendatory feature as a work of art for exhibition, though in execution it may be found to answer its purpose very well, the houses being externally of the most common-place character, and the whole very strongly resembling a published lithograph of Queen-square, which everyone knows has no architectural pretensions whatever. We should have wished both for a better *drawing* and a better *subject* from the exhibitor—Mr. Caldbeck—who enjoying an extensive practice could have found no difficulty in providing both. Mr. W. J. Barre, of Belfast, contributes several drawings, viz.—(No. 570) exterior view of the Ulster Hall, Belfast, the basement of which displays a piazza with through carriage drive, somewhat after the fashion of that at the Covent Garden Theatre, but otherwise it is almost devoid of architectural features; (No. 576) interior of same building (illustrated in our number for April 1st), on which the artist has plied his brush too freely, and we hope the colours are not really intended to represent the hall as it will be decorated; (No. 580) Presbyterian church, Sydenham—apparently either a greatly burried or an unfinished drawing; (No. 601) Adam Clarke memorial church,—a better drawing, and presenting some notable points, in which, however, we cannot include the introduction of a concealed roof behind a battlemented parapet, surmounting the nave walls, and the chancel projecting therefrom after the ordinary manner, with exposed roof; (No. 605) view of Duncairn Presbyterian church; and (618) views of Bray and Rockcorry churches —a trio of drawings admitting of more suitable finish for exhibition purposes, and in some respects displaying close similarity in style and treatment. Messrs. Lanyon, Lynn, and Lanyon contribute the two views of approved design for St. Andrew's church (Nos. 575 and 578), previously exhibited in College-street, and illustrated in this journal (on the merits of which having previously expressed our opinions, it is unnecessary here to repeat them); also the approved design for Trinity church, Edinburgh (No. 612) —a truly meritorious composition — and a view of Killileagh Castle, county Down (No. 613), as lately restored, all in the first style of art, and contrasting strongly, especially in the manipulation, with the general works exhibited in this department, and fully sustaining the high character of that eminent firm. Mr. John J. Mulvany, R.H.A., has an outline perspective—apparently intended to be coloured—of a marine residence at Dunmore, in which a cantilever roof, with curvilinear outline, and a multitude of brackets, is the principal feature. Nos. 577, Clonea Church, 611, South-east view of St. Saviour's, and 614, St. Joseph's, Carrickmacross, are by Mr. M'Carthy, R.H.A. Messrs. Deane & Woodward have an enlarged design for the staircase angle of the proposed War Office, in the well-known adopted style of that firm; and two designs for the new Molyneux Church and Asylum (with which our readers are already familiar by illustration and description), by Mr. Rawson Carroll, and a sketch for the De Vesci Testimonial, by Mr. Charles Papworth, may be said to comprehend the entire display. The sculptural department, excepting the Goldsmith testimonial model, a Titania, by Lawler, and "Pastime," by Terence Farrell, comprises only busts and a head of the Saviour, which latter, however, is a remarkably meritorious work.

THE REMAINS OF ANCIENT ROMAN BATHS IN ENGLAND.*

MUCH curiosity exists as to the nature of the ancient Roman Bath, the accounts which have been given of it being often full of discrepancies. This arises to some extent from actual differences in the Roman system of bathing at different periods, but generally speaking it arises from blindly copying what others have written, without any investigation whatever of the sources of their information.

Fortunately we are not altogether dependent upon the "tender mercies" of compilers of classical dictionaries, but have means of informing ourselves on the subject, by the investigation of ancient ruins at our own doors, pregnant with relics of the past, and conveying to the educated eye much which is invaluable for helping us in the decision of present difficulties.

It may, perhaps, be supposed that there are no ruins now existing which are capable of affording accurate information on the subject, and, to a certain extent, this cannot be denied, but when the ruins recently excavated are compared with those of which detailed descriptions have been laid before scientific societies, many difficulties are got rid of which otherwise would be insuperable; and the entire system of bathing practised by the Romans becomes sufficiently manifest. The localities in which the most perfect ruins have been found are so distant from one another, and so well distributed over the country, as to prove that the custom of using thermal baths had become national, as will appear from the mere mention of the places —viz., Lincoln, Chester, Boughton parish, Kent; Carisbrooke, Isle of Wight; and more recently, Uriconium, near Shrewsbury.

Those enumerated have been found in a tolerable state of preservation, but traces of similar buildings occur in almost every district of the country.

The bath at Chester has been a good deal talked of lately, and was described by me in detail, at a meeting of the Royal Dublin Society (Lord Talbot de Malahide in the chair). I visited it personally on the 30th November, 1857, while bringing an invalid from Dublin to Florence, and it was owing to my not being able to find anywhere a correct account of it that I undertook to bring the subject before the Royal Dublin Society, which I did on the 8th of January, 1859. The ruins of Uriconium are worthy of far more attention than has yet been given to them, and the most interesting portion of them is fast disappearing under the hand of time. With a view of satisfying my own mind as to the nature of the buildings found there, I made a special trip to Shrewsbury about three weeks ago, and walked along the beautiful valley of the Severn until I came to the site of the ancient city. When pretty near the spot, I asked a man who was digging if he knew whereabouts the old Roman city was? He replied that there was no such thing there now; but he could direct me to "what they called the excavations." When I arrived, I was a little disappointed at the small extent of ground which had been excavated in the space of two years, but I was rejoiced to see five distinct systems of tile pillars, belonging to as many hypocausts, which, according to Mr. Thomas Wright, and the most competent authorities, belonged to the baths, or thermæ, occupying (with their appurtenances) nearly half the space which had been uncovered.

That Uriconium was a city of considerable magnitude admits of no doubt, as the fact may be proved in several ways. Whether we consult ancient records, or the accounts of buildings formerly discovered in the same locality, or visit in person the excavations lately made on the property of the Duke of Cleveland. These excavations were commenced on the 3rd of February, 1859, and a person is continually in charge in order to prevent the speedy demolition of the buildings, &c., by "cockneys" of an inquiring mind, who not merely stumble against the ricketty pillars, but generally pocket something or other, as a trophy of having "done" the city of Uriconium.

I cannot say whether the disintegration which the tiles are undergoing is owing to the effect of exposure to the weather, or the original quality; but it is certain that they are rapidly falling to pieces, and many parts now supposed to be *in situ* have evidently fallen down, and been built up again. That the Romans knew how to manufacture good tiles is well known, for those in the bath at Chester and elsewhere are very hard, and of remarkably good quality; but they are perforated with small holes at regular intervals, which those of Uriconium are not. In the latter city there are no bricks visible, such as we manufacture, but stone is freely used, and tiles are employed in all places where nice workmanship is required. They are not, however, by any means accurate in either size or shape, but are rough, uneven, and irregular in appearance. The general size of those forming the pillars of the alveus (or body of the hypocaust) is about 7 inches square, by 1½-inch thick, standing upon others about a foot square, and each pillar surmounted by another tile of the same size. In the most perfect of the hypocausts I counted 16 tiles in one of the pillars, cemented together, and making a total height of 3 feet 6 inches. Most of the pillars showed no trace of cement between the tiles, and were either originally laid without cement or had fallen down and been rebuilt. In each hypocaust there were a good many pillars, and the largest measures 43 feet in length by 85 feet in width. In height they were about 5 feet, counting a layer of concrete which was laid on the upper tiles to a depth of from 14 to 18 inches, and appeared to have been put down in two distinct operations.

It is not easy to say what was the exact arrangement of the public baths of Uriconium, as almost nothing is left of the flooring of the heated rooms, but from its general appearance I am quite satisfied that they comprised two distinct systems of rooms, one devoted to men, and the other to women, a kind of quality being observable in most of the arrangements. The most westerly hypocaust was pretty well preserved, and measured 37 feet by 25, and contained 120 pillars, which (when complete) stood about 3 feet high, exclusive of the concrete which was placed above them. Many circumstances concur in proving that the city was suddenly and violently destroyed, being sacked and burned to the ground (probably by the Picts and Scots in the middle of the 5th century), and it is very remarkable that the most perfect buildings are the public baths or thermæ, and the basilica or town-hall, immediately adjoining one another. This alone is sufficient to show the estimation in which the baths were held, and the importance to the state of their proper administration.

The bath at Carisbrooke was attached to a villa, and does not need any particular description. The soot of thirteen centuries was found still adhering to the tiles in large quantities, and the walls and ceilings were painted in the most gaudy colours (as red, blue, yellow, green, white, and black). At Uriconium it is said that some of the exterior walls of the buildings were found painted red with stripes of yellow.

The date of Vespasian's invasion of the Isle of Wight is believed to have been A.D. 43, and its subsequent taking by the Saxons, under Cerdic, took place nearly 500 years afterwards, so that we are thus enabled to form an idea of the time during which the Romans had possession of this country. The small lithograph to which I have alluded represents a bath found 160 years ago near the modern village of Wroxeter, very close to the site of the late excavations, and presents in a complete form the system of flue bricks running up the sides of the apartment, so imperfectly traced in the eastern hypocaust of Uriconium, and evidently belonging to the same city.

With the exception of Carisbrooke and Uriconium, it is, I believe, the most modern discovery of Roman civilization in England. The account of it was communicated by Mr. Clement Taylor Smythe to a member of the Society of Antiquaries, in the year 1841, and the ruin in question on the property of Charles Wykeham Martin, Esq., M.P., in the parish of Broughton Winchelsea, in Kent.

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* From a paper read by Edward Haughton, M.D., before the Architectural and Archæological Society of Liverpool, 17th April, 1861.

Its extent from north to south was about 60 feet, and from east to west 80 feet, and the walls about 8 feet in height by 2 feet in thickness. The destruction of the roof of this hypocaust leaves us in the dark as to the arrangements for ablution in the hot room or caldarium, but if we are to judge from the usual arrangements of Roman baths found elsewhere (as at Pompeii), the recesses in the western sides of the sudatorium were probably reserved for this purpose, or for the hot water vessels, labrum, and solium. But the sink was placed at the opposite side of the apartment, so that water must run entirely across the room in order to flow off. Thus we see that the only room in which the atmosphere was not moist was the tepidarium, and that it had no hypocaust under it, but only a single flue, so that its object was that of seasoning the skin for the higher temperature of the caldarium, rather than the production of free perspiration. If any nation was ever fitted for the endurance of high temperatures in dry air, it certainly was the Roman nation, for the constant practice of gymnastic exercises (as a kind of preliminary to the bath) rendered the skin capable of performing its functions with great activity whenever necessity arose for it.

It does not appear that it was their practice to indulge in that kind of "roasting" which is now so fashionable, nor do we find mentioned by any author any such thing as the modern practice of drinking immense quantities of water in the bath. On the contrary, we actually find Celsus warning his patients against remaining too long in the baths, on the ground that vapour baths were debilitating when indulged in to excess. He might have said the same on any bath; but it is the use made of anything which determines its influence on society. When luxury was rampant and decency not inculcated by the prevailing form of religious belief, it was not to be expected that the Romans would have made any better use of the bath than they did, when an unhallowed civilization had reached its climax, and the city of abominations was living at its ease, and enjoying the spoils of many conquered countries. In Britain, however, the case was different. The hardy soldiers who ventured so far were not the men to spend their days in idle luxury, but they used the bath as a means of invigorating during the most arduous achievements; and it seems to me that, inasmuch as an Englishman is neither a Roman nor a Turk, the use of the bath in this country will neither be accompanied by the laziness of the one nor the sensuality of the other. On the contrary, I congratulate myself on whatever part I have taken in its introduction into the country, and believe that every man who has aided the cause may justly boast that he has assisted in giving the people a harmless enjoyment, which is capable of curing disease, preserving health, and giving new capacity for labour. The only true way of checking the intemperance and vice which unfortunately so much abound, is to increase the number of our innocent recreations, and thereby diminish the temptations of the people.

PROCEEDINGS OF ARCHITECTURAL SOCIETIES.

THE Royal Institute of British Architects held its annual general meeting on the evening of the 6th inst., and after the report of the Council had been read, the following officials were elected for the ensuing session:—*Vice-Presidents.*—Messrs. T. L. Donaldson, M. D. Wyatt, and G. G. Scott. *Honorary Secretaries.*—Messrs. T. Hayter Lewis and James Bell. *Honorary Secretary for Foreign Correspondence.*—Mr. F. C. Penrose. *Ordinary Members of Council.*—Messrs. B. Ferrey, W. Haywood, C. C. Nelson, J. Norton, E. M. Barry, J. Fergusson, R. Kerr, W. Slater, and J. B. Waring. *Treasurer.*—Sir W. R. Farquhar, Bart. *Honorary Solicitor.*—Mr. W. L. Donaldson. *Auditors.*—Messrs. Horace Jones and Arthur Cates. A long discussion took place on the question of the election of President. Professor Donaldson proposed Mr. William Tite, M.P.; and Mr. G. E. Street nominated Mr. Beresford Hope. No decision was arrived at, and the discussion was adjourned at a late hour to the following Monday.

The Architectural Association of London, on the preceding Friday evening, also held a special business meeting, at which the question of erecting a statue in the Westminster Palace to the late Sir Charles Barry, the representation of architecture at the forthcoming Great Exhibition, were, together with many other matters, discussed. The Liverpool Architectural Society has also held its concluding meeting of the thirteenth session, and the President, Mr. M. Hay, delivered an admirable address, from which we quote the following:—

"Architecture is a fine art, and like its sister arts exercises a refining and elevating influence upon the human mind, but in order that its influence be felt and enjoyed, it is absolutely requisite that some knowledge of its principles and its powers be obtained. This knowledge can only be acquired by study, but its acquisition is like the acquisition of a new sense or avenue of pleasure, or the entering upon a new world. Travel then becomes doubly interesting, and the embellishment of our own town by noble buildings and spacious and well planned thoroughfares, a desirable object. We have outlived those ages when the study of our art was confined to the guilds of the Freemason, when its language was intelligible only to the initiated, when its principles were secrets, and all round it wore the air and aspect of mystery. We, on the contrary, invite and encourage inquiry, knowing full well that it is mainly, if not entirely, through the fostering patronage of a discerning and appreciating public, that our art can advance. We would raise and foster public taste to such an extent that the artistic powers of the architect would be stimulated to the uttermost in order to gratify that taste. But such a taste can only be acquired by individual study, and that of nearly as laborious and extensive a kind to the layman as the professional. A pure, elevated taste, and sound critical judgment must be based on a thorough knowledge of principles and their general application. Architecture is moreover an art thoroughly conventional and constructive, and demands, in order to judge wisely of its works, even greater critical acumen than is requisite to judge of those of painting and sculpture, which are more directly imitative of nature. You will, however, meet with few who hesitate to hazard an opinion on architectural works, unprepared as they may be by previous study from forming any opinion. I believe that the grudging spirit in which the services of the architect are sometimes remunerated, and the grumblings and not unfrequently absolute refusal to pay for those services, are chiefly attributable to a deplorable ignorance on the part of a large portion of the public, of what those services actually are. The architect is considered a sort of angelic creature, living on ethere[illegible] food, cheap and choice as the air of heaven, or else, rejoicing in a private fortune, is independent of the fruits of professional toil, and is ready to draw out pretty pictures for any one, simply to amuse himself. The architect, I need not inform any here, is not this *lusus naturæ*; but one who, on the groundwork of an expensive education, has spent his youth in study and research, his later years in exploring the great monuments of modern civilization, at home or abroad, and is qualified and prepared to carry into execution the instructions of his client, for which he is entitled to a certain remuneration. If his client be a gentleman of education, and possess a knowledge of architecture, he will not have any serious difficulty, for every objection will be intelligible, and every suggestion worthy of consideration. If, on the other hand, his client be ignorant and conceited, there is no means of illustrating the absurdity of his whimsical notions, unless the architect possessed the magic power of calling into existence two buildings, one as desired, and the other as it ought to be. Some of the irregularities with which the profession is charged arise in a great measure from a prevalent impression that an architect's commission is just so much money lost or thrown away, and a great saving is thought to have been effected when his services are entirely dispensed with, and a builder employed in his place. An unwise proceeding is sometimes adopted of striking a bargain at something below the regular commission. At other times a greater folly is perpetrated, when a man has just that modicum of knowledge of building matters sufficient to engender the notion that he may be his own architect. The most wilfully blind and conceited generally find out somewhat, but seldom know or admit the full extent of the folly and extravagance resulting from these practices. Architects have been exceedingly remiss in not having determined ere this upon a scale of charges and fees to place in the hands of a client when their services are about to be engaged. The usual commission of 5 per cent. on the outlay is an exceeding vague one, for while, in some cases, as that of a large warehouse involving an expenditure of some thousands of pounds, it may be too high; in others, as that of shop-fronts, where a hundred pounds or two only is expended, it is very much too low, for here the same process has to be gone through of making drawings and large details, specifications, superintending the operations and settling up the tradesmen's accounts, as when fifty times the cost has been incurred.

"It is very important that each man should get into the right sphere of action, and take his proper place in the vineyard of art; important to his usefulness and to his reputation and happiness. He does this when he applies himself to that which he likes best and can do best. 'Each man,' says Emerson, 'has his own vocation. The talent is his call; there is one direction in which all space is open to him; he has faculties silently inviting him thither to endless exertion; he is like a ship in a river, he runs against obstruction on every side but one, on that side all obstruction is taken away, and he sweeps over God's depths into an infinite sea. This talent and this call depend on his organization, or the mode in which the general soul incarnates itself in him. He inclines to do something which is easy to him and good when it is done, but which no other man can do. He has no rival, for the more truly he consults his own powers, the more difference will his work exhibit from the work of another. When he is true and faithful, his ambition is truly proportioned to his powers. Every man has this call of the power to do somewhat unique, and no man has any other call.' This passage is fraught with most important suggestion and advice to the young student, who may throw the reins on the neck of his natural genius, and give his mind its natural bent. If he has a strong love for a certain style or walk of art, let him not abandon it because obloquy has been thrown on it by its foes. If he has a love for pointedness in architecture let him study Gothic, and devote himself to the practice and elucidation of its principles. If he has not a love for pointedness, let him not try to love it because he is told that as a Teuton he must love it. If he love the architecture that came to us from the south, let him cultivate his natural or acquired taste, and use every means to increase his susceptibility to the sublimity and beauty of the world around him, and to everything beautiful in the world of art, because *that* every man who aspires to be an artist should in a greater or less degree profess. But there are elementary studies which are a necessity to the architect, and ought to be mastered, though he may not feel any particular liking for them—such, for instance, as the study of the mathematics and mechanical construction, architectural statics, and dynamics. These are most important to the architect, whatever style he pursues, and some degree of proficiency every youth who would excel in architecture should attain to. They form a golden key to unlock the treasures of all styles, by which he is to acquire a mastery of their latent principles and laws of composition.

"Let the student of architecture not be discouraged by any aspect of the times, or suppose that the great days of architecture are past never to return. We shall not again build cathedrals, and pyramids, and amphitheatres—the spirit of our age does not call for them: but it will call for great works still, for works which will bring every faculty into play. Architecture must manifest itself in forms very different to what it assumed either in ancient Greece or medieval Europe. But it is the same thing in its essence that it was in ancient times, it is the art of the beautiful in building, and being connected with a higher state of humanity, and made subservient to loftier aims of social advancement, may become more powerful."

The Manchester Association met on the 1st inst., and Mr. Fisher read a paper on "Chemistry in Relation to Building," in which, after noticing the small attention usually devoted to chemistry in the education of the architect, the essayist referred to the action of the weather and other influences on the various materials used in building, and pointed out some of the best methods for preventing the decay and dilapidation which result from this cause; he described several reactions which take place during the setting of mortar, cements, &c., and called attention to the fact that slate and stone are the only two materials used on the exterior of modern buildings, in a natural state, unprotected from the weather, and that it appears probable that the coating of one of these, with some impervious preparation will ere long be deemed indispensible in all cases where durability is desired. Among other means of preserving stone, he alluded to the generally received opinion that this end is attained by setting it on its natural or quarry bed, and showed that under many circumstances stone bedded vertically offers more resistance to the penetration of wet, and is therefore preferable. The essay was concluded by a brief reference to the value of photography to the architect.

THE ART EXHIBITION AT THE ROYAL DUBLIN SOCIETY.

The 24th inst.—the birth-day of her Majesty—has been fixed upon as a suitable day for the inauguration of this unrivalled display of the choisest available art treasures in the three kingdoms. Although the vast collection of paintings, sculpture, carvings, manufactures, &c., which are being arranged in the society's great hall are gratuitously contributed by many public bodies, and public and private personages who are cordially co-operating in this fine arts congress, still a heavy expenditure has been necessarily incurred for the carriage of the contributions, the fitting up and decoration of the hall, the insurances and other accessory purposes which none but those actually concerned in the preparations could imagine. Those who visited the Great Exhibition of 1853, in this city, will be enabled to form some idea of the extent and value of this art collection when it is mentioned that, while there were in the Fine Arts Court, in Merrion-square about 1,000 paintings, there will be here nearly 2,000. Of these more than 1,600 have arrived, and are being rapidly placed. The great hall has been subdivided into three compartments, extending the entire length, of which the centre forms the nave, and the remaining two the aisles; and a series of elegantly designed and constructed galleries have been erected. There are to be seen some of the best of the immortal pictures of Titian, Corregio, Murillo, Salvator, Rosa, Paul Veronese, and in the same department come the works of the fathers of the Royal Academy of England, side by side with those no less illustrious accademicians of our own time, Reynolds, West, Lawrence, Landseer, Eastlake, Maclise, Mulready, Redgrave, Webster, &c. Some of the works referred to come from the Sheepshanks and Vernon collections. Amongst the historical paintings, which will, doubtless, attract a large share of attention, there are the Investure with the Garter of Edward the Black Prince, and the celebrated judicial rebuking of the warlike Henry V. when Prince of Wales. The designs are by Cope and Redgrave for the new Houses of Parliament Maclise's splendid pictures, Malvalio and the Duchess, is amongst the contributions from the National Gallery. There are portraits of General Ireton, Lord Nelson, Warren Hastings, Congreve, Dibdin, whose songs did more than all the bounty money of his time to man the British navy, and there is a portrait of Siddons, the expressive beauty of whose face, as well as the artistic merit of the painting, would alone repay a visit. Who is it that has seen the engraving of Landseer's "Dignity and Impudence," and will not hasten to see here the original, as also of the "School-Teacher," and Mulready's "Crossing the Ford?" In the third compartment are the works of the old masters, beautiful specimens of modern art from the Sotheby collection, which arrived last week, and it is stated also Mr. Alloway's contribution of Pompeii remains. Amongst the contributors of the old masters are Prince Albert, the Lord Lieutenant, Lords Drogheda, Besborough, Massareene, Talbot de Malahide, Harberton; Sir T. Larcom, Mr. Watkins, Sir R. Levinge, M.P.; Dr. Kennedy, Charles Brien, Mrs. West, Mrs. Purcell, Mr. White, Mr. Barton.

In the section of sculpture are busts of Moore, Sir L. M'Clintock, Lord Gough, &c., and a beautiful group denominated "The Mother's Kiss." The nave or central hall will have at one end Bevington's grand organ, the arrival of which has been unavoidably delayed. Upon the organ Dr. Stewart and Mr. Torrance will alternately perform on the "select" or "half-crown" days, Tuesday and Friday, when bands will also contribute their sweet sounds to regale the ear while the eye is dazzled. Curiously enough out of the entire week the day selected for the "working classes" by the Royal Dublin Society committee is Saturday, and on that impossible day to neglect their avocations, closing the week, they will be allowed in for a shilling each. The general impression up to the present, we think, has been that Monday is, of the six working days, the most available for the working classes. In the central hall will be the most practically useful portion of the exhibition, for here are placed the manufactures whose artistic excellence entitle them to admission into this art exhibition. Long lines of splendid glass cases will contain jewellery, plate, laces, poplins, china, porcelain, fancy articles in wood and leather, musical instruments, &c. Amongst the exhibitors are Forrest and Sons, Acheson, Allen, Kerr, Scates, Elkington, Mason and Co., Fry and Co. A handsome fountain in the centre of the hall, and from which water will be constantly playing, has been sent by Edmundson and Co. who also contribute a variety of beautiful articles in metal.—*Freeman.*

COLLEGE OF PHYSICIANS COMPETITION.

As already announced, the premises in Kildare-street, recently occupied by the Kildare-street Club, and destroyed by fire, have been taken by the College of Physicians for the purpose of erecting thereon a building suited to their requirements; and we learn that the following gentlemen have been invited to send in plans in competition:—Mr. Wm. G. Murray, John J. Mulvany, John M'Curdy, Duncan Ferguson, Turner & Drew, and Charles Geoghegan, architects.

THE KINGSTOWN WATERWORKS COMPANY.

When this bill was called on there was no appearance on the part of the oppositionists, viz., the Kingstown Commissioners and the Corporation of Dublin. It was, therefore, referred to the committee of selection. Mr. Barry, Q.C., appeared as counsel for the promoters, and Mr. R. D. Kane, as solicitor.

ROYAL DUBLIN SOCIETY.

The seventh evening scientific meeting for the session of 1860-61 will be held on Monday evening next, May 20. Chairs will be taken at eight o'clock. Royal Dublin Society (board-room)—Henry Lawson, M.D.—On the affinities of the groups trematoda, planariæ, and hirudinei; and on the formation of a new class of the anneloidæ for the reception of these animals. Henry T. Vickers —On the preparation of entire insects as microscopic objects. For exhibition—Portion of the lower jaw of the diprotodon Australis (gigantic kangaroo), from the river Condamine; and other specimens recently presented to the museum. Dublin Statistical Society (lecture theatre)—1. Judge Longfield—A plan for parliamentary mortgages. 2. D. C. Heron, Q.C.—On joint stock frauds.

One-third of Dr. Barter's Turkish Baths at Blarney has been consumed by fire.

NEW ST. PAUL'S, LONDON.

It being determined to erect a new cathedral, Sir Christopher Wren was nominated to the superintendence. To form a just estimate of the talents of the architect employed in conducting a work of such magnitude and national importance, it is necessary to consider those preliminary steps and contemporary opinions which must ever influence or control the proceedings of an architect. We shall, therefore, condense from his posthumous collection, the *Parentalia*, an account of the formation of the design of the present church.

Before the great tax upon sea-coal, which did not commence till May, 1670, it was expected that the expenses of the building would be defrayed by voluntary contributions alone, and therefore it seemed expedient to restrict the plans to an edifice of moderate bulk. Upon these considerations, the architect prepared a design and model of a structure, with a choir, vestibule, porticos, and a lofty dome. This was applauded by some persons as containing all that was necessary for the church of a metropolis, being of a beautiful figure, and capable of erection at an expense that might reasonably have been compassed; but being designed in the Roman style, it was not so well understood and relished by others, who thought it deviated too much from the old cathedral form; while some wished for more magnificence, and were unwilling that the principal church in London should be inferior to any similar structure on the continent. The architect, enlarging his ideas, endeavoured to gratify the connoisseurs and critics with a grand colossal design, after the best style of the Greek and Roman architecture. This being much admired by some persons of distinction, a highly-finished model in wood, with all its proper ornaments, was made, which was carefully preserved, and at length deposited in a room over the morning-prayer chapel of the present edifice. Sir Christopher always appeared to set a higher value on this design than any other he had made; but the prevailing prejudices still interfered, and the architect finally turned his thoughts to what was called a cathedral-form, but so modified as to reconcile, as nearly as possible, the Gothic to the new mode of architecture. Thus the design of the present edifice was formed; and, being approved of by king Charles II., a warrant was issued under the privy seal for beginning the work, May 1, 1675. The first stone was laid on the 21st of June following; and the works were prosecuted with so much vigour, that, within ten years from the commencement, the walls of the choir and side aisles were finished, with the circular porticos at the north and south sides, and the great pillars of the dome, were conducted to the same height. Some difficulties now occurred in procuring funds for the prosecution of this great work, but, through the operation of the coal duties, they all vanished; and, in the year 1710, the last, or highest stone, at the top of the lantern, was laid by Mr. Christopher Wren, son of the architect. Thus, by a fortune unusual to edifices of such magnitude and labour, this church was completed in thirty-five years, under the direction of one architect; and, as it has been commonly remarked as a singular coincidence, by one master-mason, Mr. Strong; and under one bishop of London, Dr. Henry Compton.

On investigating the exterior of St. Paul's cathedral, we find the general form to be that of a Latin cross, with an additional arm, or transept, at the west end, to give length to the principal point, and a semicircular projection at the east end, for the altar; there are also at the north-east, south-east, north-west, and south-west angles of the cross, square projections, which, besides containing staircases and vestries, serve as immense buttresses to the dome. This is extremely different, both in proportion and general effect, to the plan of St. Peter's at Rome, where the cross-shape is scarcely marked externally. The first object of attention is the *western front*, which is distinguished by a portico of two orders, the Corinthian supporting the Composite, of grand dimensions and rich arrangement. A noble flight of steps, of black marble, forms a basement to this portico, which is terminated at the summit by a pediment. On each side of the front is a steeple; one serving as a belfry, and the other as the clock-tower: singly considered, these may be said to want repose, but yet they are picturesque; and their springing forms not only harmonize with the cupola in the distant view, but also give effect and elevation to the western front, to which they particularly belong. Nor are they without parts of considerable beauty.

The entablature of the upper order is remarkable, from the consoles of the cornice occupying the whole of the frieze. In this, as in many other instances, we see Sir Christopher sacrificing a particular, to a general, effect; for this cornice, considered as the grand termination to the body of the building, required to be treated in a bold and striking style, rather than with that delicacy appropriate to the order. The idea of this may probably have been taken from the upper entablature of the Coliseum at Rome, where the same motives of general effect have prevailed.

The ornaments of the front are well executed; and though not remarkable for elegance, are placed with judicious frugality, so as to enrich without overloading or confusing the aspect. A very large composition, in basso-relievo, representing the conversion of St. Paul, occupies the tympan of the pediment. This is said to be the best work of the artist, Francis Bird. At the apex of the pediment is placed a gigantic statue of the patron saint, while St. Peter, St. James, and the four Evangelists, occupy situations at his right and left hand.

The rest of the building is a vast fabric of a wall decorated with coupled pilasters, arranged at regular distances; the intervals below being occupied with large windows, serving to light the side aisles, and those above with niches; in the pedestals of which are singularly inserted windows, belonging to galleries and rooms over the side aisles.

In the whole surface of the walling, the joints of the stones are marked by horizontal and perpendicular channels; a simple decoration, which, while it gives a vigorous expression of strength and stability, has the advantage of defining and rendering conspicuous the pilasters and entablatures.

The entrance-doors of the transepts are adorned by semi-circular porticos; objects equally beautiful, whether considered separately or in connection with the total mass of the building, which they adorn and diversify, by the contrast of curves and straight lines, and of insulated columns, with engaged pilasters.

At the centre, formed by the crossing of the nave and transept, rises an ample cupola, which is the most magnificent feature of the building. The basement of this part of the fabric is an octagonal wall, pierced through each side by an arcade; the two, which are in the direction of the nave, are open to the top, as are also the two in the direction of the transept; the other four have an intermediate arch, which supports the continuation of the dado or panelling above the entablature. The spandrels of the arches are spherical, and form a complete circle at the level of the summit of the arches. Upon the archivolt of the arches is placed a corbelled cornice of considerable projection, the upper side forming the floor of the whispering-gallery: from the floor of the whispering gallery rises a cylindrical wall, called by the French, *tour du dome*, for which we have no technical expression. This is surrounded by a Corinthian peristyle, so placed as to conceal the projecting buttresses of the cupola; and thus, by a happy combination of profound skill and exquisite taste, a construction adapted to oppose, with insuperable solidity, the enormous pressure of the dome, the cone, and the lantern, is converted into a decoration of the most grand and beautiful character. The idea of this arrangement was, doubtless, taken from the interior of the Pantheon at Rome, to which it bears a striking resemblance.

On the exterior side of the building, the general disposition is divided into eight parts by piers, containing staircases, with two columns attached to the angles of each. The spaces between the piers form eight recesses, having in each two columns, which at a distance, to a hasty observer, appear to be insulated; but they are in fact joined to the dome-tower by walls, serving as counterforts. All these buttresses are, however, pierced with arcades, so as to leave a free communication around this part of the cupola. The columns being of a large proportion, and placed at regular intervals, are crowned with a complete entablature, which, continuing without a single break, forms an entire circle, and thus connects all the parts into one grand and harmonious whole. Above the colonnade, but not resting upon it, rises an attic-story, with pilasters and windows, from which spring the exterior dome, of a bold contour, well adapted to the rising form of the lofty and elegant lantern by which it is crowned. It has been said, with some justice, that the columns of the cupola are too high in proportion to the body of the building, as they are indeed little less than those of the lower-order, but higher than the columns of the upper order. This incongruity would not have existed, had circumstances allowed the architect to construct the main edifice of a single order, extending the whole height of the building; but being baffled in this his original intention, it would have been too great a sacrifice to relinquish the peristyle, the noblest feature of the building, or to materially diminish the cupola.

Comparing the cupolas of St. Peter's and St. Paul's, we shall find that, though the latter has, in a great degree, been the model of the former, there is a material difference in the decorative part, though the general idea of the construction is the same. In St. Peter's, the buttresses of the dome-tower, though decorated each with two engaged columns and pilasters projecting from the cylindric wall, destroy the continuity, and render the effect disagreeable. The dome is likewise pierced with three ranges of little dormer-windows, which are suffered to spot and break the surface for the paltry consideration of lighting the interior staircases. The idea, originated in St. Paul's, has been prosecuted in the church of St. Genevieve, at Paris, where the appearance of a peripteral temple is completely obtained, as the columns surrounding the tambour are all insulated; but it is to be lamented that the dome itself should be so deficient in grandeur of dimensions and grace of proportions, as to destroy the effect of this beautiful decoration.

Beginning the examination of the interior of St. Paul's at the west end, we find the body of the building, as to the general form, entirely upon the plan of the ancient cathedrals; an edifice of three aisles, divided by piers and arches, and covered with vaulting.

Sir Christopher Wren has not only adopted the form of building practised by the architects of the middle ages, but he has imitated their mode of construction; for the lofty vault of the middle aisle is supported by flying buttresses concealed by an enormous screen wall. The architectural detail is in the Roman style, simple and regular.

"The Romans," says Sir Christopher, "though they sometimes used a hemisphere, as in the exhedræ of the baths, of the tribunes, of the temples, and basilicæ, yet, generally, they used a *plain cylindrical vaulting* where the walls were parallel, or cross-vaulting where the two cylinders intersected in diagonals, as in the Temple of Peace, and in all the theatres, in the passages under the steps. The moderns, whose arches are not circular, use commonly another sort, where the spandrels, resting upon the pillars, spring every way round as their arch rises in sections of circles, parallel to the horizon; that is, in four quadrants described from the angles of a square, and terminated by its sides; and at the summit these quadrants come in contact in the middle of the sides, the four curves forming a quadrilateral, each side being convex towards the centre; and the space thus included is filled with tracery work, which gives them great opportunity of divers variations, which I need not insist on. Another way (which I cannot find used by the ancients, but in the latter eastern empire, as appears at St. Sophia, and by the examples of all the mosques and cloisters of the Dervises, and everywhere at present in the east, and of all others the most geometrical), is composed of hemispheres and their sections only; where, as a sphere may be cut in all manner of ways, and that still into circles, it may be accommodated to lie in all positions of the pillars.

It appears that these domes are of considerable antiquity, and, from the reasons here given from the *Parentalia*, that Sir Christopher Wren was justified in his choice in their adoption; their form is beautiful; and, when investigated, it is truly geometrical. Each wing forms a flat dome, supported by four spandrels; a rich wreath of foliage encircles the base, while the centre and the spandrels afford spaces well adapted, and probably intended, to receive ornamental paintings. The western transept is a beautiful part of the building; here insulated columns and screens of iron-railing separate from the aisles, on either side, the morning-prayer chapel, and the consistory.

In the progress of examination, we come to the intersection of the nave and the transept; and here, instead of four openings, eight are produced, which afford striking and picturesque views in various directions; and, in this respect, St. Paul's differs from every church with which we are acquainted, the cathedral of Ely only excepted. On the other hand, the junction of the aisles with the central area presented difficulties, which have caused various defects and mutilations in the architecture. The central area, as before observed, is an octagon, supported by eight piers, with as many apertures; four of which, terminating the middle aisles, are forty feet wide, while the others are only twenty-eight feet; but this disparity only exists as high as the first order of pilasters; at which height the smaller openings are expanded so as to make the main arches all equal. Spandrels between the arches form the area into a circle, which is crowned by a large cantiliver cornice, partly supporting, by its projection, the whispering-gallery. At this level commences the interior tambour of the dome, consisting of a high pedestal and an order of pilasters, the intervals of which are occupied by twenty-four windows and eight niches, corresponding with the inter-columniations and piers of the exterior. All this part is inclined forward, so as to form the frustum of a cone. From a double plinth above the cornice of the pilasters, sqrings the interior dome.

The choir is of the same form and architectural style as the body of the church, and is terminated by a semicircular apsis. The stalls, an enclosure, though not remarkable for elegance of design, are valuable for their ornamental carving, which is by the masterly hand of Gibbons.

In surveying the decorative parts of the interior of St. Paul's, it must be acknowledged that the general impression is that of simplicity bordering upon meanness and nudity, a defect which implies no censure on the great architect, who has left his work in that state to receive the ornament of painting and sculpture, which the frugality of following times have withheld.

The few ornaments which exist are, in general, well executed, and disposed with judgment. The soffits of the grand arches, under the cupola, are in the best style of simple and appropriate decoration. The dome is painted by Sir James Thornhill, who has deformed this beautiful vault with an absurd, heavy, and fictitious architecture, serving as a frame to eight pictures representing so many actions of the patron saint. It is to be lamented, that instead of placing historical paintings in a situation where the spectator can distinguish nothing but the most obvious and general effect, some other system of decoration had not been adopted.

The design of the cathedral of St. Paul has been charged with various defects, the chief of which are the following: A want of proportion between the cupola and the body of the building; the division of the exterior into two stories, of orders of columns and pilasters nearly equal; and the coupling of the columns in the western front.

In the interior, the omission of the architrave and frieze of the order, in the spaces between the great pilasters of the nave, for the purpose of raising the summits of the arches above the level of the architrave; the circumstance of the tambour of the dome being inclined forward out of the perpendicular; and, lastly, the awkward junction of the side aisles and mutilated arches.

With respect to the general division of the body of the building into two orders of architecture, we have the authority of the architect himself, as expressed in the *Parentalia*, and exhibited in his favourite model, in favour of the single order; but, with regard to this, he was obliged to yield to circumstances, as the Portland quarries could not afford stones of the required dimensions; this necessity led to another, viz., the coupling of the order.

On an inspection of the ground plan of the building, it will be seen that the exterior pilasters are placed at intervals corresponding to the interior piers, an arrangement which could not be deviated from. As to the omission of the architrave of the order, above the arches of the interior, we are informed in the *Parentalia* that, in this respect, Sir Christopher Wren "always insisted that he had the ancients on his side; and that, in the Temple of Peace, in the great halls of the Baths, and in all the great structures of three aisles, this is done, and for this reason, that in these wide intercolumniations, the architrave is not supposed to lie from one column to another; but from the column to the wall of the aisle, so that the end of it only will appear upon the pillar of the inside of the great navis." This is a sufficient answer to those rigorous critics who would subject the composition of a cathedral to the strict rules which limited the Grecian temples; and it shows that the architect had studied those antique models, which, if not in the purest taste in point of ornament, were yet the most analogous, in general form, to the edifice he had to construct. But, though this was the ostensible excuse, it was not the real reason; for, upon referring to the section of St. Paul's, it will be seen that Sir Christopher has made the pilasters of the interior a little higher than the exterior columns, which could not be much without incongruity; and wishing to give the arches, opening to the aisles, as much elevation, and consequently, lightness, as the design admitted, he chose to encroach on the entablature of the order; and thus, by a slight alteration from general rules, he improved the effect of his building.

According to the large plan, published by Gwyn, the external length of the building, from east to west, exclusive of the projection of the portico, appears to be 502 feet; from north to south, excluding the two circular porticos, 244 feet; the breadth of the western front, 177; the diameter of the octagonal area, at the crossing of the nave and transept, 107; the diameter of the tambour of the dome, 112; and the diameter of the dome itself, 102. The total height, from the pavement of the church-yard to the top of the cross, is 370 feet. The total expense of the building amounted to £747,954 3s. which was defrayed by a duty on coals imported into London; but not less than £126,604 6s. 5d. was furnished by voluntary contributions, chiefly from the clergy.

LAW NOTE—A BUILDER'S LIABILITY.

The memorable case of Kempston *v.* Butler, respecting the falling of the house 82, Grafton-street during the progress of rebuilding 83 by the defendant, as contractor (and which has been already reported *in extenso* in the Dublin Builder), again came before the full Court of Common Pleas on the 8th instant, upon motion showing cause on the part of plaintiff against the conditional order obtained by defendant last term for a new trial.

Judge Christian first delivered an elaborate judgment, and said that the conditional order for a new trial had been obtained on the ground of misdirection on the part of the Chief Justice, in telling the jury that the custom alleged by the plaintiff to exist amongst the building trade in the city of Dublin was a reasonable custom; and secondly on the ground that the verdict was against the weight of evidence. As to the first ground, the question was whether the custom, as alleged by the plaintiff was reasonable. An averment of custom should be construed with the utmost strictness, and should not be aided by the court. The custom, as alleged in the pleading, was that if a party employs a person in the building trade to take down a house, that person is bound to shore up and take care of the adjoining houses; but if he takes it down himself he is not liable, for there was no allegation that such was the custom as between the owners, and, therefore, in his opinion it should be held void for unreasonableness. It was capricious and against the common law, and, therefore, in his opinion, the objection to the verdict on the ground of misdirection should prevail. As to the ground of the verdict being against evidence, before the court could say that in this city there existed a custom derogatory of the common law, they should see that the evidence in support of it was clear and unequivocal. The custom should be established by evidence of users as far back as memory could reach. User was to be proved by acts of usage, and not by the deductions of witnesses. The evidence here appeared to him to apply between builders themselves, to be used in construing their contracts, or matters of that sort; but as not interfering with the common law, which, in this case, was, in his opinion, clearly against the alleged custom; and, therefore, the defendant was entitled to a new trial on both points.

Judge Keogh declined to give judgment, as he had been sitting in the Consolidated Nisi Prius Court when the case was argued.

Judge Ball next delivered judgment, expressing his entire concurrence with the finding of the jury, but offering no opinion on the question of the reasonableness of the alleged custom, as that question was not properly before the court for decision.

Chief Justice Monaghan next delivered judgment. As to the grounds for misdirection, the case was twice tried, and on each occasion a special jury found. as a matter of fact, that the custom did exist as alleged, and in addition it appeared as evidence in the case that the defendant expressly promised the plaintiff that he would take care of the house, and see that it suffered no injury. The issue, in his opinion, did not involve the reasonableness of the custom, but as to whether such a custom existed in Dublin, and the arguments were also on that point; the real question in this case had not as yet been argued; and, by the decision the court would make, the parties could argue it—for an argument should take place on the record, before the matter could be decided, as to the reasonableness of the alleged custom. Upon the whole he concurred with Judge Ball, and the ruling of the court would be—No rule on the new trial motion, without prejudice to the defendant moving in arrest of judgment within the first four days of next term, until which time execution would be stayed, and each party to abide his own costs of the new trial motion. The registrar would also be directed to prepare the *postea*, and submit the draught to both parties before it was settled.

Arthur Baker v. *John Meighen.*—His lordship directed a verdict for the plaintiff in this case—an ejectment on the title to recover possession of the house and premises No. 8, Bolton-street—and reserved for the consideration of the full court the legal questions raised by the defence, which were of a technical nature, and uninteresting to the general public.

Connolly v. *Teeling.*—Action for amount of a builder's account. An interlocutory judgment was entered by the plaintiff, and the jury were now to assess the damages. Verdict for £640.

TRADES' UNIONS AND STRIKES.

THE following is an abstract of the Barrington lecture on the subject of "Trades' Unions and Strikes, and the Co-operative Principle," delivered recently by Mr. G. Gibson, A.M., in the lecture theatre of the Royal Dublin Society:—

"Trades' unions are by no means a modern institution; their origin is almost lost in remote antiquity. The national principle of voluntary union early produced guilds, which tended in no mean degree to the growth and rise of the middle classes. The guilds of early times nobly defended trade from the assaults of the nobles and the laws of Parliament, which constantly interfered against the labourer. But these laws were all necessarily inoperative, as they attempted an impossibility—to place wages lower than their unchanging regulator, the law of demand and supply, ordained. However, labour has been quite unshackled since 1824, from which time trades' unions have grown so much in numbers and power as to make the present inquiry a question of the day. A trades' union exercises, either as accessories or principals, various functions, which we must carefully discriminate, each from the other, as they cannot be praised or condemned summarily. In the first place, many trades' unions exercise the offices of friendly societies and other bodies of a similar character. I shall not pause to criticize these functions; blame would be ridiculous, praise superfluous. There are another class of functions which I cannot call by any single name, anomalous functions which exceed the scope of a friendly society, and yet stop short of any direct interference with wages. As illustrations of what I mean, I may mention periodical publications of the state of the trade, keeping a book of the names of unemployed men, &c. The mere fact, also, of the existence of a trades' union is not without its results as an education in the art of self-government. All these functions must meet with a favourable verdict from all impartial men. We now come to the marrow of the whole question, the functions of trades' unions which would regulate wages and partially do away with the law of demand and supply. This involves a short consideration of the labour question. The aggregate wages in a country can depend on nothing else save the labour fund. Trades' unions do not pretend to increase the aggregate labour fund; therefore, trades' unions cannot increase the aggregate wages in a country—they can only re-distribute them. Now, do you think that the trades' unions will be honester than the law of demand and supply? Where do the increased wages of the members of trades' unions come from unless from the pockets of those labourers who are not members? In considering this question economically, I regard the interests of all the labouring class more than the particular interests of small sections of that class, represented by trades' unions. There is a claim of trades' unions, always stoutly advanced, which I would notice—'Granted,' they say, 'that labour is a commodity; it is, but it is something more; it is a vitality, and we never can bring ourselves to think that it is to be bartered for, just like a senseless bale of cotton.' Now, what is the question? It is not a discussion of why man was created, or why he was endowed with certain powers and feelings, but simply a question of how much man will obtain for his labour when he proceeds to exchange it for the produce of the labour of his brother man. We say that the law of demand and supply can alone answer the question. Men may say, if they choose, that they are above that law, and refuse to be governed by it. This happened in the Dublin shipping trade, which is now absolutely ruined. The men said that they were vitalities and all that, but they could not make the ships say it, and accordingly the ship building trade moved away and left the vitalities to starve. It is constantly argued that, as a matter of fact, strikes are often successful. I do not consider it necessary to go at any length into a consideration of the several cases of successful strikes, as they have been discussed so much recently that there are few who are not conversant with their working. The division of labour has now proceeded to such an extent, the chain of industrial life is formed of so many and such fine links, that the harmony of each element, the strength of each link has assumed a terrible importance. No part of a chain is stronger than the weakest part. This should never be forgotten; each trades' union represents a link, and should not forget its responsibility. In the year 1836, the strike of 600 men spinners, at Preston, threw 7,840 human beings, satisfied and uncomplaining, out of employment, to starve. This requires no comment. I would not be misunderstood on this point. I do not say that a trades' union is bound to turn itself into one of those philanthropic institutions so common now-a-days, and forget the interests of their own members in a sentimental love for universal humanity. What I mean to say is this, that bodies of labourers, who vaunt lofty aims, and breathe noble aspirations, should pause and carefully consider whether their circumstances have come to such a sorry pass—whether the ruin that stares them is so utter—before they commit not only themselves, but thousands of their fellow-beings, to a course so admittedly hazardous as a strike. This movement, this increased growth of trades' unions, springing as it does from a rousing-up of the natural mind, must fairly be regarded as an indication of progress. Many men think that our social and industrial system requires a dissolution and reconstruction, that a system of antagonism between the two greatest classes of the community should be terminated if possible. The great evil at present is certainly the want of community of interest between employers and employed. How is this to be remedied? John Stuart Mill has suggested a practical solution of the difficulty. It lies in the extension of the co-operative principle, which, he says, "is the great economic necessity of modern industry." He means that when the capitalist and labourer shall become partners, when their interests become one, the future of our country will look brighter. The thought is noble, and worthy of its author, worthy of a great effort. Shall that effort be wanting? I cannot see that the co-operative principle would bring any danger to vested interests, or disturb the sacredness of property. So far from property being rendered insecure, it will obtain an additional guarantee from the change. Does not this stand to reason? Men who have nothing to lose are converted into men who have everything to lose. I cannot imagine a greater security or a stronger guarantee. It is difficult to anatomize a movement or deduce laws in the midst of a rapid transition. When buffeting the waves with might and main, the calmness of a spectacled philosopher on a rock above is utterly impossible. We are now in the agonies of change; classes artificially divided are seeking their natural affinities, and expelling from their organization elements which have been found deleterious. Under these circumstances it is not easy to divine or anticipate the verdict which impartial history will pronounce; but I have endeavoured to show that if the movement tends to the co-operative principle, no danger need be apprehended."

FRENCH LABOUR IN THE BRITISH MARKET.—Between forty and fifty workmen, belonging to the different building trades in Paris, arrived in London recently, *via* Dover, having defrayed their own expenses of transit, in the full persuasion that they would be readily engaged by the master builders to replace the operatives who had withdrawn from their employment.

EFFECTS OF FINE WEATHER ON THE LABOUR MARKET.—A short ten days since and numbers of labourers could be had throughout Westmeath at from 10d. to 1s. per diem each, now that weather suitable for spring operations has fully set in, it is found difficult to procure able-bodied workmen at 1s. 8d. per day, and in the vicinity of towns 2s., and even 2s. 4d., is freely given.

DEPRESSIONAL INFLUENCES ON ART UNIONS.

WE notice to each of the reports of the Art Union of Ireland, the Shilling Art Union of Dublin, and the London Art Union, respectively, the prize drawings of which have recently taken place, a premise to the effect, that a variety of circumstances connected with the present state of political and monetary affairs both at home and abroad, has acted prejudicially in these institutions. It is but reasonable to suppose, that with reference to projects involving amounts of magnitude or even comparative importance, that such influences would and must necessarily prevail when the general atmosphere of the political and commercial world has a lowering aspect, but however true, it does seem somewhat inconsistent that it should so *materially* affect others composed of individual contributions of an insignificant character. However, as sunshine by no means appears even now to be "looming in the distance," we would urge on those connected with our Art Unions to be warned by the past of the difficulties that may bestrew the path of future operations, and to apply the spur with increased energy and earlier than hitherto. Up to the present, considerable encouragement has been afforded by these institutions to young and to struggling artists, pecuniary and otherwise, and they have also served to stimulate even in a degree so far an increased national taste for art which previously had dwindled into a nothingness. Possessing, therefore, such characteristics, we desire to see them prosper, and trust that in each case the next year's reports will be more favourable.

THE ILLUMINATION OF COAL MINES.

AT a meeting of the Institute of Civil Engineers in Ireland, held on the 8th instant, Mr. Herbert P. Ripton, C.E, read a highly interesting paper on the above subject, chiefly descriptive of a peculiar lamp, invented and patented by him, the object of which is alleged to be twofold, and to afford a brilliant and effective light, equal to that of eight or ten candles, ensure perfect safety, and also to be capable of being burned without danger in the most explosive atmosphere. The invention consists of a gas-burner, on the Argand principle, supplied from a main tube running through the galleries of the mine, and is enclosed, not in wire gauze, but in a glass cylinder, so arranged by a simple invention that although closed at both ends, and completely shut in from the surrounding atmosphere, the combustion is constantly maintained. It is protected from fracture by a strong wire cage, which is also so adapted that any substance striking the wire will extinguish the light before reaching the glass cylinder. It may be erected and lighted in any part of the mine; and, if necessary, can be at once detached from the gas main, and removed to any other position where it may be required.

As a safeguard where hundreds of lives are placed in constant jeopardy, the inventor urges that this apparatus possesses advantages which may render its adoption in fiery seams universal; and further that it can be managed by the most inexperienced workman; and, after the first outlay, is the cheapest light that can be burned. The expense of erecting a small gas work is, in its present advaneed state, inconsiderable; and the whole cost of burning such a light as described above, with a power equal to that of ten candles, is but *sixpence a week*. It is estimated that the whole annual cost of 100 lights, that is, the yearly cost of gas consumed, together with the interest on the first outlay, and all other items, would not exceed a few hundred pounds per annum.

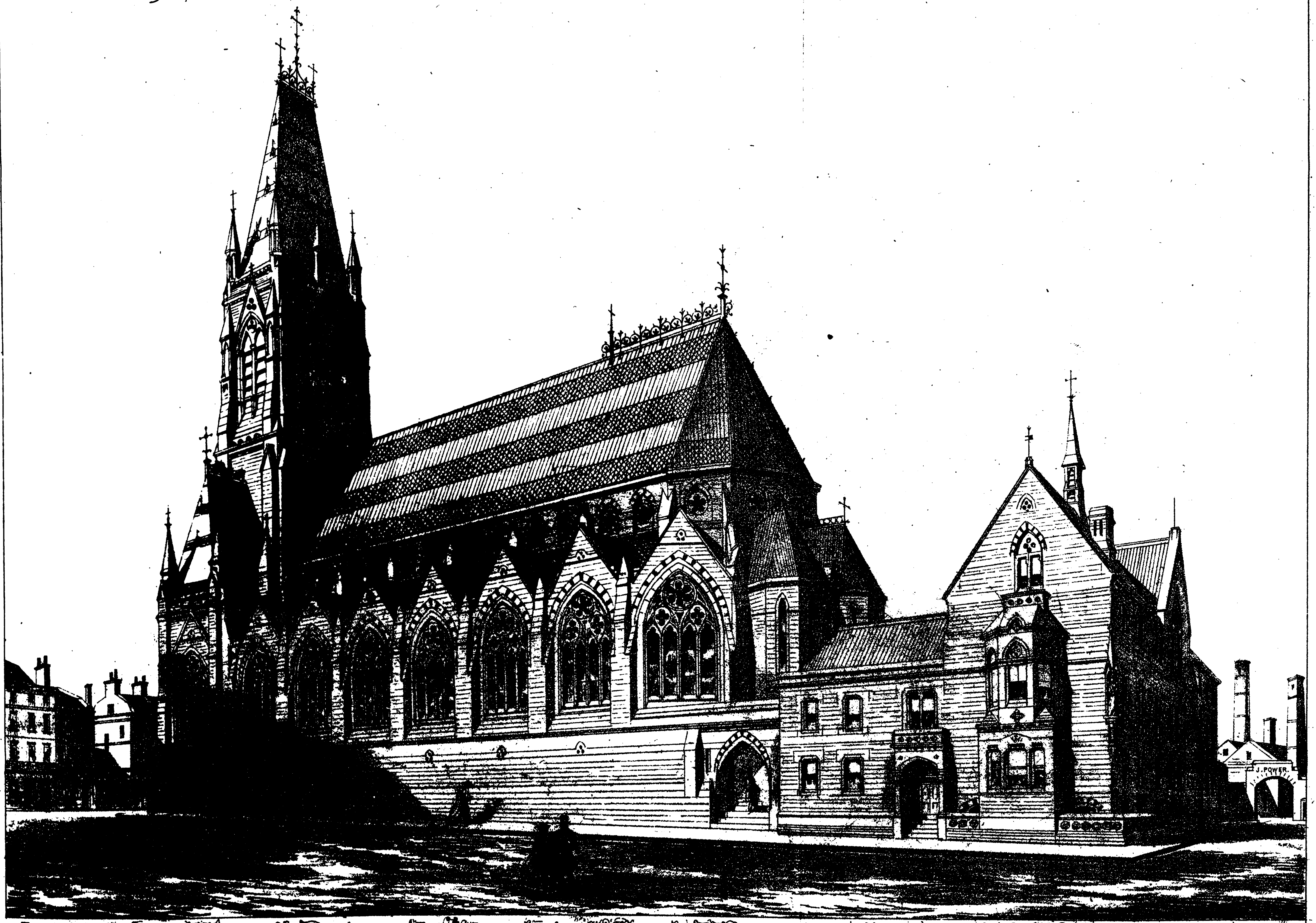
Referring to the wire-gauze lamp, the invention of the late Sir H. Davy, it is stated to have one great disadvantage, in consequence of which it is always used with unwillingness, and that this consists in the obscure and imperfect light which it affords; also that it cannot be used in an atmosphere of fire-damp, but. when that element manifests itself, must be immediately extinguished.

DISCOURAGEMENT TO CAPITALISTS.

SIR—The public—as well as the very unimportant unit, the subscriber hereof—has much reason to congratulate itself on the existence of at least *one* national medium sufficiently independent and proof against general misgivings to question occasionally the very questionable doings of certain parties, who will neither be led nor driven in the general van of improvement, in which every *well-wisher* of the community vies with his compeers to occupy a prominent position: and referring to your very apposite and excellent remarks on the contrast between the northern and the southern suburbs—Clontarf district especially—allow me to offer a few comments on the qualified justification of *the charge d'affaires*, in the former case as alluded to in your columns. Although it is universally admitted that "one story is good till another is told," yet I think that if a defence falls short of tangibility, or of an *exposé* of *some* amount of fallacy on the part of him who makes the charge, it merges into a very pitiable exhibition of fool hardiness, and as such only can I characterise that in reply to your article entitled "Restrictions in Building Leases," as regards the Vernon estate. You are, after a *suaviter in modo* fashion, accused of being "ignorant of facts;" now it strikes me that facts speak definitely in their own behalf, and what more incontrovertible do you require to rely on than the *actual condition* for many years *past*, and at *present*, of the property in question. In the vicinity of an important metropolis, and with all the advantageous recommendatory elements which nature could bestow, there is a scene of dilapidation and neglect unparalleled in the three kingdoms. Clontarf has its historical associations as well as its natural beauties, and for the former is greatly an object of curiosity with strangers; but as my peculiar avocations happen to throw me in contact with very many English and Scotch, I must in candour—but confessedly from national reasons—with regret, tell you, that the invariable remark is—to say the least—not complimentary to our appreciation of the advantages at command. Taking Mr. Franks on his own statements, which, I must say, seem to fence off the main point—but very clumsily—allow me to ask, who in his senses would expend his capital in erecting substantial dwellings on a 150 years' lease—the average *duration of two lives?*—and, moreover, with a ground-rent considerably disproportioned—all circumstances taken into account—to its actual value. This "lease on highly advantageous terms" is paraded before your readers as a conclusive argument against your strictures. Will any of them regard it as such? Again you are told that "Mr. Vernon makes leases for terms by the foot," or in some cases "by the acre," but *the rate* is not named; that was carefully evaded, most probably anticipating the reception such an announcement as 4s. 6d. a foot would meet with for this locality in its present condition, when *less than half the amount* would be nearer the mark. What about the sewers, boundary walls, &c., which other landlords, who *do* encourage, build themselves? *they* seem to have escaped the astute agent's notice altogether. Referring to the leases being "highly advantageous to those who *have* built," allow me to ask who are they?—very few and far between indeed. Mr. Byrne, who has recently finished a terrace of four houses in Castle Avenue, Sir John Bradstreet, and Mr. Tisdall, each of whom erected a single villa in the Green Lanes (some two years ago, and, sir, all of which I saw were noticed in the DUBLIN BUILDER), may be said to comprehend the entire of the speculative capitalists' operations on this improving estate, extending over a vast area. If the terms have proved so favourable as alleged to those who *have* built, how is it that there has been for so many years past such a display of black boards, and to no purpose, in various positions? Reference is made by Mr. Franks to a remarkable circumstance, viz., that "a single negociation has not been broken off in consequence of the restrictions in building leases;" but with all due deference to that gentleman's veracity, I will only say that *that* is not *exactly* in accordance with statements elsewhere; but as I am not personally interested on that point, I will not pursue it. Fearing I have trespassed unduly on the space in your very excellent and popular journal, allow me to submit a concluding suggestion, viz., that, for the edification of your readers and the public, you should extend your illustrative subjects to the antiquated architectural features on the Clontarf road. SUBURBAN.

Under a somewhat similar title we have received the following, authenticated:—

SIR—At length, in the person of the DUBLIN BUILDER, has appeared a champion sufficiently chivalrous to maintain my rights intact against a host of enemies perpetually besieging and plundering my estate, and I am both proud at, and grateful for, your skilfully directed attack against the citadel of the generalissimo, so feebly replied to therefrom. The northern suburb of Clontarf had so long and so successfully resisted all attempts at innovation, that I had nearly deserted it outright, and almost exclusively directed my attention to more favourable fields of operation; but as ubiquity is my characteristic, and is unattended by trouble, I hover about occasionally, in the hope that sooner or later I might gain a firm hold in that locality. The day, however, seems still as far off as ever, unless, indeed, your *partial* victory may serve to turn the *general* scale, and ensure an overwhelming acquisition to the ranks of my *corps d'armee*, which owing to the non-publicity of my cause by your contemporaries, has not been in the desired proportion. All must agree with you that the locality in question is *about* the most favoured by nature of any in the vicinity of our metropolis, and yet it is but my "shadow," not my "substance," that dwells there. Do, dear DUBLIN BUILDER, in your usual vigilant manner, acquire some employment for me here, even a trifle—"a slight brush"—to commence with, and probably I may "make work" for myself after a little. PROGRESS.



Pugin & Ashlin Archts

View of Proposed Augustinian Church & Monastery, John Street, Dublin.

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UNIVERSITY OF ILLINOIS

ORIENTAL BATHS IN LIVERPOOL.

THE Oriental Baths of Liverpool are making rapid strides towards completion, and in some respects differ from any that have yet been erected in any part of the kingdom. The heated rooms are covered in by lofty domes, lighted by stars of stained glass, and the arrangement of the interior of the tepidariums is that of sloping benches in the Moorish fashion. The largest hot-air chambers that have hitherto been built could easily be put into those of Mulberry-st.; and we anticipate that in the working of these baths the expectations of the public (which are far from small) will be fully realized.

THE WATER WORKS BILL FOR IMPROVED SUPPLY OF DUBLIN.

(Continued from page 505.)

RESUMING the report of this enquiry, but to avoid an almost unlimited amount of our space being occupied therewith, we are obliged to omit the evidence of Dr. Gray, J.P.; Mr. Glaisher, Professors Galbraith and Haughton, &c. (which, however, has in substance been already communicated through these pages), and pass on to that of the professional engineers examined on both sides.

Mr. Thomas Hawksley, C.E., examined by Mr. Calvert, Q.C.—Is one of the council of the society of civil engineers; in practice over 30 years, and have constructed many water works in Great Britain and throughout Europe; first visited the sites of the proposed water supplies for Dublin in January, 1855; highest level of present supply is 60 feet above the level of the sea, quite insufficient for the extinguishing of fires; there is a great deal of vegetation and a considerable amount of impurity in the water; found deposits of lime in the pipes, and a very large quantity of confervæ or spongillæ; the canals are not sufficient in dry years to supply the quantity of water required by the Corporation; in 1859 the quantity supplied by the canals was less than the requirements of the city by about one million and a-half of gallons; the corporation could not get from the canal companies a guaranteed and preferential supply; Mr. Neville and self were engaged to devise a scheme; in 1858 we were limited to £200,000 for the cost; afterwards, in 1859, the limit was extended to £250,000, and it has now been extended to £300,000; visited, together with Mr. Neville, the various water sheds from which the supplies were proposed to be derived; in August and October, 1859, we advised that it was possible to get the required supply within the cost limited, from Coyford—a place on the Liffey about 20 miles from Dublin; the water could have been distributed not only to Dublin but to the extra-municipal districts; there is a drainage area above the Coyford of 210 square miles; a bill was introduced and subsequently withdrawn, owing to the opposition to it, principally from the canal companies; after the withdrawal of bill No. 2 a royal commission was issued, and a report made by the commissioners in favour of taking the supply from the Vartry river; was also guided in consideration of the subject by the limitation of the cost; always held the Vartry scheme, suggested by Mr. Hassard in 1854 or 1855, as being the best for a supply to the city; the report in favour of the Vartry, which was made by Mr. Hawkshaw, gave universal satisfaction; Mr. H., between himself and his assistants, spent 60 or 70 days in the investigation; no consideration sàve that of cost prevented me from reporting in favour of the Vartry scheme; the waters of the Vartry are beautifully clear and soft, and the river rapid; there are no minerals worked in the district, and no probability of any being found there; it is the cleanest mountain district I ever saw; the formation is clay slate; the proposed large reservoir is calculated to contain 400 millions cubic feet—namely, 200 days—supply for the city; the water is to be taken to the city in 36 inch pipes; there will be only one embankment to impound the water, and that will be perfectly safe and secure; we have tenders for *bona fide* contractors for the construction of the works; the vertical height of the embankment will be about 60 feet; the amount of the tenders is £216,385 1s. 8d.; the main rain fall at the nearest guage to the Vartry, near Bray, is 34 inches per annum—33.82; the quantity that can be relied on at the Vartry is 34 inches per annum; allowing for evaporation, the available rain fall would be 19 inches, taken on the average of three consecutive dry years; the amount required for the city would be 14 inches; *entertains no doubt whatever that the quantity would be amply sufficient*; the yield will be 13½ millions of gallons per day; has never seen water equal to it, except that of Emerdale Lake, in Cumberlandshire, which is the finest water in the three kingdoms, and very similar to the Vartry water; the latter is very clear and soft; generally the water is perfectly colourless; the base and end of the embankment is rock, and the district is peculiarly favourable for the construction of works of the required description; the service reservoir will be 267 feet above the level of the sea; the estimates for purchase of land, buildings, compensations, contingencies, and reserve is £84,000; the reserve to be derived from the extra-municipal districts will be more than proportioned to the cost of the pipes, and, consequently, operate *to relieve the taxation* of the city of Dublin; from £6,000 to £7,000 a-year will be received from the districts through which the pipes pass, such as Kingstown, Bray, &c.—districts which none of the other schemes contemplated to supply with water; the revenue which would arise within the city by the application of the rates proposed by the bill is £28,824; the revenue for the extra-municipal districts will amount to £13,000; the expenditure in the extra-municipal districts will be £5,250, and the revenue about £15,000, and, therefore, the supply to those districts will be a source of *great profit*; they are occupied by persons in wealthy circumstances, and the houses mainly are of a first-rate character; they are badly supplied with water; some apprehension was entertained in the city of Dublin with respect to the cost of pipes for the extra-municipal districts; when the whole system is carried out, which will not be for many years, there would be 113 miles of pipes in the district at an expense of about £80,000; the general cost of gravitation waterworks is £2 per head of the population; in Dublin, taking the population at 350,000, the cost will be below £1 per head; in Liverpool the cost was £2 5s. per head, and in Bradford £5 per head; the taxation here, as limited by the bill, will be 1s. in the pound for domestic water-rate, and the rateable value in Dublin is 33 per cent. below the actual value, so that the domestic rate will in reality be only 8d. in the pound; this rate will vary in amount, but cannot exceed 1s. in the pound; the public rate is proposed to be an unfluctuating rate, because the purposes for which it is required will be constant—viz., the flushing of sewers, and other public purposes for which water is required; the public rate is 3d. in the pound on the rating, which will be in reality 2d. in the pound on the actual value; it is found where the public rate is not fixed that it gives rise to disputes between the owners and the occupiers; the cost of laying down the 25 additional miles of pipes will be about £15,000; the present service pipes are remarkably strong; they were cast in the old times, and are nearly twice as thick as the pipes that are cast at present; they will be strong enough to bear the proposed pressure; the estimates for the works proposed under this bill have been prepared with unusual care, because there was a good deal of discussion in Dublin on this subject; *bona fide* tenders have been received from persons who have gone over the plans made their own calculations; there are two tenders for the construction of the reservoirs; one for the laying down of the main pipes, by a contractor who has done much of that work in London, &c., a third from a manufacturer of pipes—Messrs. Cottrell, of Woodside, Staffordshire; from day to day the canal companies asked more money and offered less water (laughter); by the pressure which this scheme will give, the corporation will be able to supply large quanties of water in case of fires; Dublin has suffered much from fires, and many of them have been most calamitous; the want of water to work engines has been very much complained of; the pressure proposed from the canal was 210 feet; the proposed pressure will be 267 feet; the old pipes are capable of sustaining a pressure of 2,000 feet. (To Sir William Gallway)—The proposed pipes will not be two-thirds the weight of the old ones. A single thunder storm passing over a rain guage would destroy the calculation for the time being; aspect has, of course, a great deal to do with the amount of the rain fall; the Vartry catchment is favourably situated with regard to the winds from the westward, which are the wettest winds; is acquainted with the catchment area for the Kippure or Ballysmuttan scheme; the rain guages in the Phœnix Park, though kept for 23 years only, give the fall for 17 years; thinks that less than 20 years is not satisfactory as a period of observation; if the observations do not extend over a long series of years they are worthless; a drainage area of less than 13,300 acres in the neighbourhood of a mountain would not be sufficient for Dublin; speaking from experience an estimate of rain fall made from such results as those given by the Ordnance Survey Office on an increment of 2½ per cent. in respect to every 100 feet of height may be depended upon; the three driest years at Farraro give a mean of 28.22 inches rain fall; it is beyond Bray, about twelve miles from Dublin; never recommended Kippure as the *best* source, only under the circumstances of its cost being limited; knows that there is opposition to this scheme in Rathmines; does not know anything of the Commissioners; had the detailed estimates on which the calculation of £216,000 was made up, but thought it was a very unusual thing to produce detailed estimates containing lists of prices, &c., at such an inquiry as the present: would hand in his estimate, and the tenders which had been received for carrying out portions of the works, but for obvious reasons it was not desirable that these details should be made public, or be placed in the hands of the opponents of the bill; had nothing to conceal on the part of the corporation; would place every information fully before the committee, but unless the committee required the prices should decline to give them.

The Chairman said it was impossible for the committee to form an opinion without having some details before them; the only question was the extent to which those details should go. He thought a detailed estimate, showing the gross sum for each work, such as the cost of piping, the cost of earthworks, &c., would be sufficient. Was Mr. Hawksley prepared to give this information?

Mr. Hawksley replied that he would do so, repeated that he had nothing to conceal, and was desirous of affording the committee all the information in his power; assumes the mean height of the Kippure drainage area to be 1,400 feet; calculated fourteen inches and a half as the smallest quantity of rain-fall in the driest year capable of being stored and utilized in the Kippure district; assumes the mean elevation of the Vartry basin to be 1,060 feet, and estimates the available rain-fall to be 19 inches; constructed the water works for the Leeds Corporation; the drainage area of Leeds is very small, and the soil is sandy and favourable for evaporation; does not know the amount of evaporation in that district; estimates the population in the extra-municipal districts of Dublin at 64,000 souls; propose to give a maximum supply of 25 gallons a head per day; the capacity of the storage reservoir is fully 380,000,000 of cubic feet; have only two reservoirs; the service reservoir will contain about 40,000,000 of gallons, and the storage reservoir 2,400,000,000 of gallons; the estimate for the works of the storage reservoir is £36,680 13s. 6d., exclusive of land; the cost of the service reservoir is estimated at £15,067 17s. 7d., exclusive of land; we are prepared to comply with the requirements of the Lords of the Admiralty with respect to Wicklow harbour; that is included in the £83,644 18s. 4d. reserved for compensation and contingencies; thinks bridge and sluices are the contrivances which will be required; the rise of the spring tides at Wicklow harbour is six feet, and three only at neap tides; has been concerned in the works at the harbour at Lowestoff; does not think there would be any risk of flooding the adjoining lands by the contrivances suggested at Wicklow harbour, by which the water of the salt lake near the mouth of the river would be kept in; the water in the lake would only rise to the level of the tides [Mr. Hawksley exhibited photographs of the lake in question, the harbour of Wicklow, &c.]; these photographs were prepared for the present inquiry; a gentleman went over from *London* to take them; the Dodder water is not objectionable for manufacturing purposes; no new works would be necessary to make that supply available; the cost of the embankment for the proposed great reservoir is estimated at £18,250; there will be 306,220 lineal yards, at 1s. 2¼d. per yard; the tide does not overflow the railway at Wicklow, but the sea rolls in occasionally; one-third of the Dodder yields about 2½ or 3 million gallons of water per day; the entire of it would therefore yield about nine; does not speak of dry weather, and calculates the yield of one-third during such seasons at one million and a half; the principal manufacturers in Dublin are brewers and distillers, who use a great deal of water; hopes to get a sufficient supply of water from the Vartry for all purposes, but reserves the river Dodder as a supply for manufacturing purposes in case it should be required; at present the Dodder supply flows into one of the canal basins, and is mixed with the canal water; if the water from the canals should be discontinued we will dispose of the basins at Portobello and Blessington-street, and receive the Dodder water in the basin at James's-street; it is not contemplated to supply pipes to the entire of the extra-municipal districts for some years to come; the estimated water reserve from the city, including the water supplied for manufacturing purposes, will be 2s. per head on the population of Dublin, which we estimate at 280,000 persons; the expense of piping for the extra-municipal districts will be charged on the revenue derived from those districts solely; the sum of £300,000 will be charged on the city; the Kingstown Water Company have no works; understands, as an engineer, that the corporation intend to supply Kingstown as a part of the extra-municipal districts under the powers contained in this bill, and not otherwise; contemplates a supply to Kingstown of twenty gallons per day per head; the Vartry project had been frequently considered by him since 1854; the consideration of cost alone prevented him recommending it to the corporation; up to 1858 the limit imposed by the corporation in recommending a scheme was £200,000; it has now been extended to £300,000; Mr. Hassard admitted that his original estimate for the Vartry project was too low; he gave a revised estimate in 1858, the amount of which was £250,000, but the cost of the reservoir was guessed at; the amount put down was £45,000; witnesses' estimate for the Vartry reservoir is £36.000; Mr. Bateman, the advising engineer of the opposition committee, was the advocate of Kippure scheme; has always been strongly in favour of the Vartry scheme; never had a doubt on the subject; has never adopted the canals as the best source of supply for the city, and in the report of the 10th of November, 1858, recommending the canals in consequence of the consideration of cost, stated that the beautiful water of the Vartry was the best in point of quality, and that the expense of procuring that water alone prevented him from recommending that scheme to the corporation; the royal commissioner was much struck with the Coyford scheme, and asked whether a compensation reservoir could not be made; made plans for the satisfaction of the royal commissioner; a compensation reserve is generally estimated at one-third the entire produce, and not one-third the available water; advocated before the royal commissioner 160 days' supply, and the Vartry reservoir will contain 200 days' supply, exclusive of the supply of the river itself, which is running at the rate of four millions of gallons a day; in calculating the rain-fall of the Vartry district I have taken it most unfavourably for the district; calculates the rain-fall on the returns for the three driest years in the locality; in dry years the evaporation is less than in wet, because, though there is a greater evaporation positively, there is less liquid to be evaporated, and the greater the moisture the more the evaporation; fifteen inches is admitted by Mr. Bateman to be a large allowance for evaporation, and no doubt it is; but has taken it at that amount in order to be safe; Mr. Hassard, who suggested the Vartry scheme, is in the employment of Mr. Hemans, engineer to the Midland Great Western Company; the tax upon the city of Dublin will not be more than 2s. per head per annum on the population, which is very low indeed; it is only one halfpenny per head per week; in Liverpool the water rate amounts to somewhere about 4s. per head; the whole capital invested by the corporation of Liverpool was £1,800,000, but the largest portion of that sum was incurred in purchasing up two old water companies; the works constructed exceeded very little indeed the amount of estimate, excepting in certain costs which had been incurred by the corporation themselves; the original estimate was £400,000, and the actual amount expended was £1,800,000; Lough Owel is an immense lake covering 2,600 acres of ground, but the drainage area is very small, amounting to only 8,000 acres.

Mr. M'Cormick, M.P. for Londonderry; Mr. John Aird, an extensive contractor in Lambeth, and Mr. John Cochrane, member of a great iron founding firm in the North of England, were sworn and deposed that they had put in tenders for the execution of the proposed water works, amounting in the gross to £216,335. These were *bona fide* tenders, under which they were prepared to undertake and execute the works, and to give security for the due performance of their contract. Mr. M'Cormack's tender included the making of the two reservoirs, the tunnel, and all the other earthworks. Mr. Aird undertakes the laying of the pipes, and Mr. Cochrane, who stated that the firm to which he belonged were the most extensive pipe founders in England, furnishes the pipes requisite for conveying the water.

Mr. Cochrane, cross-examined—The contract includes not only the pipes requisite for the direct supply, but the bends and irregularities incidental to the branch supply; have satisfied myself that the pipes are of such a thickness that they can be cast for the money; cannot tell you the average thickness; must decline to give you the amount of my contract, or the proportion which it bears to the total amount.

Mr. M'Cormack, M.P.—Does not think any large amount is requisite to cover contingencies; we have gone into the contract carefully, and are prepared to meet every contingency.

Sir John Benson, C.E.—Practises in Cork; has had considerable experience as an engineer; have constructed the Cork water works, which have been in partial operation since 1858; they are now in full operation; the pressure is very high—one pressure being at 180 feet, and one at 360 feet; previously the water was at very low pressure; the inhabitants are perfectly satisfied, notwithstanding that they have to pay higher rates; have been informed by the doctors that the change has operated in a most beneficial and wonderful way, especially on the poorer districts of the city; have examined all the proposed sites in connection with the water plan; think it a most feasible plan; have never seen estimates more carefully prepared; *they are ample for the works*; met the contractors, and examined the proposed sites; all agreed as to the facilities for construction, and the sufficiency of the estimates; considers that the valley is well adapted for the catchment basin; does not consider that there are any engineering difficulties connected with it; the water is very pure; thinks the plan has been judiciously laid out, in order to supply the extra-municipal districts, from which a large revenue may be expected; the Ballysmutten district presents a remarkable contrast with the Vartry, in respect to the peat; in my opinion canals are not eligible sources of water supply, if any natural and pure source can be obtained; is not apprehensive of any injury to the harbour of Wicklow from the small quantity of water which is taken from the Vartry. (Cross-examined)—Has never constructed any gravitation water works; his experience is confined to the pumping system, on which principle the Cork works have been constructed; Mr. Hawksley was brought over at his request to report on the Cornish engine, which was to be used in dry weather, when the forcing power was not sufficient; there was a great deal of jealousy on the part of local manufacturers, who made more of the engine question than it was worth; the engine was found to burn more coal than was expected; the fact was we got too cheap an engine in the first instance; it was made by MacAdam, of Belfast; would not call the catchment basin of the Vartry a sloping upland plain; it is a mountain district; water pent up and stagnant in narrow canals must disimprove; the Romans used aqueducts to supply their cities, but they were often covered; was four days examining the Vartry district; should call the supply of a city of 100,000 inhabitants, such as Cork, something more than experience in distributing water; does not see any objection to a reservoir of 400 acres; the larger the body of water kept together the purer it is likely to be; his objection to the stagnation of the canal waters applied equally to the Grand and Royal canals; does not know the height of the railway above the sea at Wicklow, but should think it is only subject to damage from storms of extreme violence.

Mr. J. J. Byrne, examined—Is a land surveyor and valuer of estates, and have had upwards of 40 years' experience in that profession; has been extensively engaged in purchases for railway purposes; have examined the land required for the Vartry district, and is familiar with the details of Mr. Hawksley's estimates as far as they relate to land; has examined every field separately, and believes they can be purchased for the sums estimated; did not estimate the amount of compensation for mills on the lower Vartry; his estimate was £20,775 for the quantity of land required, including the service reservoir at Stillorgan; the land there was near the railway station, and was not far from Dublin; he had surveyed and valued the adjoining land for building purposes.

Mr. Parke Neville, examined—Is the engineer to the corporation of Dublin; has practised his profession from twenty to twenty-five years, and twelve years connected with the corporation of Dublin—ten years officially; is well acquainted with the canals and the supply of water which they afford; at present the water is taken from the levels within the city boundary; the level of the two basins on the south side is 76 feet above the ordnance datum; on the north side the level of the basin is 78 feet; the level of the line of quays may be taken at twenty feet; some portions of the city are higher than the basins, and particularly at the north side; some of the localities are not supplied with water; very numerous complaints have been received at the pipewater department of the quality of the water, and on account of spongillæ being drawn into the pipes; in the year 1858 was engaged with Mr. Hawksley in examining the sources from which a better supply could be obtained; there was no satisfactory result, and in 1859 we again considered the subject; the limitation of supply was to be ten millions of gallons, and of cost £250,000; recommended Coyford, which is 20 miles from Dublin; the water is generally well coloured; after heavy rain it is sometimes coloured with peat; it was found on analysis to be an excellent water; is sure the people of Dublin would never be satisfied to take a brown water; the corporation, in consequence of our recommendation, promoted a bill in 1860, which was ultimately abandoned; in consequence of the opposition to the bill negociations were opened with the canal companies, and bill No. 2 was introduced, the object of which was to obtain a supply from the Royal and Grand Canals; first became acquainted with the Vartry district as a source of supply for Dublin in the year 1854; it was then suggested as a source of supply by Mr. Hassard; immediately visited the district accompanied by Mr. Hawksley; considered the water very good and beautiful, and thought the plan was too expensive; the water is pure, clear, and soft in a great degree; it is judicious in an economical point of view to carry the water by Bray and Kingstown, and the supply to those districts will be a source of profit; Bray is increasing with greater rapidity than any district he knows of, and much frequented by the inhabitants of Dublin of the better class; the compensation to millowners is to be in money, not in water, which greatly simplifies the plan and improves it; it gets rid of the lower reservoir altogether, and the expense of maintaning it; the supply contemplated is 12 million gallons per day, calculated at 25 gallons per head per day; agrees with Mr. Glasher as to the extent of the rain-fall, and with Mr. Hawksley with respect to the estimates. (Cross-examined)—Deficient sewerage is one of the great causes of unhealthiness in a large city (counsel quoted a passage from a report made by Mr. Neville in 1853, in which he stated that a large quantity of earthy matter had been found in the pipes, and that when removed, there was an abundant supply to the street fountains); concurred in the canal scheme from motives of expediency; is now in favour of the Vartry; the estimate for taking the water to Leeson-street is £216,335.

After the address of Sir W. Alexander, counsel for the opposition, Mr. John F. Bateman, C.E., was examined—Is fellow of the Royal Society, and engineer to about twenty water works; devised and constructed works to supply two millions of people at an expense of two millions; constructed the works for the supply of Glasgow from Loch Katrine; examined the water shed of the Vartry district, which has an entire gathering ground of 13,628 acres, inclusive of the 600 acres which will be required for the reservoir, the rain-fall into which will hardly compensate for the evaporation; the extent of country available to rain-fall will be about 13,300 acres; a rain-fall of 14 inches and 4-10ths will be required to supply 12 millions of gallons per day; has reason for believing that 16 or 18 inches must be allowed in that district for loss by evaporation, &c.; with the exception of one-third of the whole district, about 5,000 acres on the east side of Douce Mountain, never saw a district in which the loss was likely to be so great from evaporation and absorption as the Vartry catchment; is engineer to the Bolton, the Dawen, the Chorley, and the Blackburn water works; described the situation of the catchment basins of the Sheffield and the Glasgow water works, and stated the result of the rain guages on the hills there, showing a rapid diminution of rain-fall from south west to north east; with certain winds the rain would have to pass over twelve miles of country more than 2,000 feet in height before it could be deposited in the Vartry district; never saw a basin so unlikely to collect rain as the Vartry basin; speaks of the flat and gradually sloping ground—not of the mountain side; the evaporation at the Vartry would be from 16 to 18 inches; would not reckon on a greater available rain-fall than 12 inches, which would be altogether insufficient; 14½ inches would be required at the very lowest to supply 12 millions of gallons per day; the evaporation and absorption at Kippure would be about 15 inches; the position of the two catchments is altogether different; is engineer to the Kingstown Water Works Company; the supply calculated on from the Kingstown catchment was 12 inches; it is more favourably circumstanced than the Vartry catchment; is aware of the fact that more rain falls on high land than on low land—in a mountainous district than in a plain, but the increase varies so much according to local circumstances that it is not safe to depend on any fixed or general rule; there is no rule by which the rain-fall can be calculated; has found by comparing the returns of the guages at Ballysmutten and Fassaro, from February to December last, that his view as to the fall of rain during easterly and westerly winds is confirmed; Fassaro is situated similarly to the Vartry district; has examined the estimates of the corporation, and made calculations thereon; estimate amounts to £227,000 against £216,000; the estimate of the corporation for the works—that is to say, about 5 per cent. higher; but the estimate makes no provision for contingencies, for which certainly 10 per cent. should be added, amounting to over £22,000, making in all £250,000 for the engineering works, not including purchase of lands, or compensation to millowners and others; the works are, no doubt, easy of construction, the site for the reservoir safe and eligible, and the works could be carried to Dublin without any considerable engineering difficulty; with reference to the purchase of land, is of opinion that you may almost double any estimate before you can get at the sum that will be required; considers that the limitation of the service reservoir at Stillorgan to three days' supply is not judicious; it should at least be large enough to contain ten days' supply, for if any accident happened to any part of the long line of works between it and the storage reservoir, the city of Dublin would be left without water; to increase the size of the reservoir in order that it may contain ten days' supply would take £18,000 more, which would have to be added to the estimate; the water of the Vartry is white and good, but believes it will be vapid to the taste, as all water from clay slate is; also that, from the shallowness of the stream, favouring the growth of vegetables, it will require filtration as much as the water proposed in any of the other schemes; should there be a failure, water could be got from the Dargle or Lough Dan, but that would involve the construction of an entire set of works at great additional expense; believes that an ample supply of pure water can be had for the city of Dublin for £100,000 less than the cost of the scheme proposed by the corporation; thinks by proper treatment the canal water may be rendered fit for human use, but it is a hard water, and not such as a city like Dublin should be permanently supplied with; it is a wholesome water, clear and potable, and the citizens can get on very well with it until a better scheme is carried out; believes the Ballysmutton scheme is the *best* and *cheapest* that can be devised for the supply of Dublin; the only objection raised to it by Mr Hawkshaw was the brown colour of the water, and considering that though a very eminent engineer, he is not conversant with water works; according to his calculation of the rain-fall, Ballysmutten would yield 27 millions of gallons, which would afford a supply of 12 millions of gallons to the city, and 6 millions of gallons as a compensation to the river, leaving a surplus of 9,329,000 gallons, which might go either for error in calculation, or for extra dry years, or for the rejection of the most highly coloured water; his estimate for carrying out the Ballysmutten scheme was £218,000, which included the purchase of land and way leave; so satisfied was he of the accuracy of his calculations, that he would undertake to carry out those works, and supply Dublin with water equal to that of the Vartry for £230,000, being £70,000 less than the promoters' estimate for the present scheme, and £100,000 less than his estimate of the cost of that project. (Cross-examined)—Was employed some years ago by the Royal Canal Company to report on their canal; is not now engaged professionally on their behalf; appears here on behalf of the citizens opposing the bill; appeared before Mr. Hawkshaw, the Royal Commissioner, in Dublin; believes that in the whole range of the Wicklow mountains, or in the entire of England, Ireland, or Scotland, you could not find a place which would produce such little rain-fall as this Vartry catchment (much laughter); heard of Mr. Glasheir's evidence; does not think that his conclusion is correct, said that the water of the Vartry has a vapid taste, owing to the want of æration; the plain portion of the Vartry catchment is two-thirds of the whole; spent two days in examining the district; as nearly as possible examined the whole district as well as if he had spent a week in doing so; a large portion of the surface of the Ballysmutten gathering ground consists of peat soil; the storage reservoir proposed at Ballysmutten would contain 312 millions of cubic feet, which would give ten millions of gallons of pure water per day for 210 days; the water is colourless during five months of the year, from December until May, and more or less coloured during the remaining months of the year; during the latter the springs, which are colourless, could be used for the supply of the city; the colour of the water depends on the temperature; the action of the sun on the peat and vegetation causes the water of the stream to be coloured, but at the same time the springs would be beautifully clear, and besides there will be months during the summer when pure water can be taken from the river and stored in the lower reservoir for the use of the city; is not aware that the contractors have tendered to undertake the work for the estimated sum subject to contingencies; heard their evidence, and saw the witnesses turning round to each other as if they did not know what to say about contingencies; the canal scheme, as proposed, would cost £137,000 for works; the capitalizing of the rent would be £90,000, and the cost of filtration £15,000, making a total of £242,000, being £58,000 less than the estimate for the Vartry scheme, namely, £300,000, and is satisfied that the present project cannot be carried out even for that sum; the canals at present yield water which the citizens may be satisfied with until they are perfectly sure that they have the very best scheme for an improved supply before them; is authorised to show that the Ballysmutten scheme is in all respects better than the Vartry, *cheaper* as regards *cost*, more *certain* as regards *quantity*, and as good as regards *quality;* does not now state that the Ballysmutten is the *very best* scheme that could be devised for the supply of Dublin, because he thinks that there has not been a sufficient investigation of the whole subject; about £40,000 or £50,000 would be the expense of bringing the water of Lough Dan to the reservoir, and besides, Lough Dan should be raised so as to insure the getting of the summer water; if you brought more water you would also have to increase the capacity of the Vartry reservoir, which is only just large enough for its own drainage; the difference between the area of the Vartry and that of Ballysmutten is about 4,000 acres in favour of Ballysmutten; estimates the cost of the proposed works at from £330,000 to £350,000; to that you must add the expense of pipes for distributing water through the city, estimated at from £40,000 to £50,000; therefore, the entire expense of carrying the scheme into operation would be about £400,000; four hundred thousand pounds does not represent the cost of the Dublin works as compared with £1,300,000, expended on the Manchester works, for the latter sum included all the preceding costs, the purchasing up of old companies, &c.; the new works, including everything, cost £700,000, and the £400,000 for Dublin does not include the existing debt of £72,000; the Glasgow works cost £1,800,000 for the supply of 500,000 persons, and the Liverpool works £1,500,000 for the supply of a like amount of population.

The inquiry, after protracted sittings, has been brought to a conclusion, and the preamble of the bill proved.

THE PHŒNIX PARK.

A MEMORIAL, signed by the Lord Mayor, the Roman Catholic and Protestant Archbishops of Dublin, the Provost, &c., has been addressed to the Lord Lieutenant respecting the condition of this park, and therein, amonst other matters, it is urged that—

"An obscure French or German town has gardens, fountains, and walks, where all classes meet, and which lead to facility of intercourse and self-respect, and a propriety of manner and dress, not always to be found on the part of the poor in the United Kingdom.

"It is hardly too much to assert that the attention thus devoted to the enjoyment of the people proves an accurate test of the social progress of the nation, and especially of the relation which exists between the governing body and the people at large. The Phœnix Park is the largest public park in the United Kingdom, and its area somewhat exceeds that of all the London parks united.

"About the year 1840 considerable improvements were effected in the park, which have largely added to its healthiness and usefulness. They were, however, abruptly stopped in the year 1847, and have unfortunately not been resumed. It is to be regretted that these improvements had not then been extended to planting timber-trees in the more remote parts of the park, to the embellishing and making more ornamental the entrance of the park nearest to the town, so as to give pleasing walks with flowering shrubs, so much enjoyed at Kensington Gardens or at Victoria Park, or even to the perfect drainage of the park. It is believed that the plan, which evinced considerable taste and judgment, has not been lost, and we have to suggest that it be gradually carried out, and the estimates moderately enlarged for the purpose, to such extent as may be consistent with other demands on the public expenditure."

Touching the same subject, the *Express* has the following:—

"It has always been the boast of Dublin that, whatever superiority might be claimed in other respects, we possess in our magnificent park an advantage which is unrivalled. The Phœnix Park is justly regarded with pride by every citizen, and with astonishment and delight by every stranger. For extent and natural beauty it stands unequalled in the British empire. Who can traverse without feelings of delight its verdant surface, gracefully undulating and clothed in its most gorgeous robe of emerald? Who can without rapturous emotion survey the glorious panorama which surrounds it, where the Divine Artist has painted in varied and indelible hues a landscape of imperishable beauty, and moulded forms of grandeur and sublimity which no human hand can ever imitate. Its historic memories excite the interest of the antiquarian, and stir the passions of the patriot. Here some monuments of the struggles and the triumphs of Ireland's native chieftains, the emblems of her subjugation by the proud invader, the traces of a former dynasty, are to be found, whether we turn from Chapelizod, the Castle of the great Duke of Ormonde, the asylum of the exiled Huguenots, the once famous centre and seat of Danish supremacy, and the noble residences of the Lords Deputy, to the ivy-crowned Hill of Castleknock, identified with the names of Bruce and Strongbow. The citizens fully appreciate the attractions of the park, but it is a matter of reproach that these are not developed and displayed as they deserve. Nature has bestowed her richest treasures upon it, but what has man done to improve the advantages which she has conferred upon him? Since the time when Sir John Temple, an ancestor of Lord Palmerston, obtained from the Crown the grant of some thousands of acres as a splendid reward for the substantial service of enclosing by a wall what had been a wild forest, successive Governments have treated it with neglect, and, until a few years ago, no care was bestowed upon its preservation or improvement. About the year 1840, some measures were adopted to remove the reproach which attached to its then disgraceful condition; but they were soon discontinued, and nothing has of late been done to extend the substantial improvements which were then effected. We are glad to observe, by a memorial which we elsewhere publish, that the subject has engaged the earnest attention of some of our most eminent and influential citizens, who intend to urge upon the consideration of the Government the claims of Dublin to a share of the funds so lavishly expended upon other parts of the kingdom. The document to which we beg to refer the reader makes an irresistible case, established by facts and figures; and we trust that it will enlist the cordial interest of the Lord Lieutenant in behalf of the most laudable object which the memorialists have in view.

THE TURKISH BATH.

THE following report, which was read by Dr. Power at the last meeting of the Board of Governors of the Cork District Lunatic Asylum, records some interesting facts as to the results of an application of the Turkish Bath in cases of insanity:—

"*Report on the Effects of the Turkish Bath in Treatment of Insanity. For the Board of Governors.*

"GENTLEMEN,—The Turkish bath established in this institution on my recommendation, aided by the inspectors, Drs. Nugent and Hatchell, approved of by the Board of Governors, and sanctioned by the Privy Council, having now been some months in operation, it is time I should report to the Governors my experience of its value as an agent in the treatment of the insane.

"It may be well, however, to introduce the report by stating a few particulars in explanation of the motives which actuated me in recommending it so confidently as a remedy likely to prove efficacious in the treatment of a malady so difficult of management and so afflicting in its nature.

"Any one conversant with those suffering under this disease cannot fail to perceive that there is a peculiar odour of a most disgusting character emanating from their persons, and most probably exhaled from the skin and its minute glands and fellicles. Now this must arise from an unhealthy state of the blood, which must exercise a deleterious influence on the system generally, and on the organs connected with operations of the mind in particular, and any means which effect the removal of the vitiated humours and other secretions must benefit the disordered intellect, and probably cure the diseased and tainted system where other means have failed. I have found that active and even violent exercise, powerful sudorifics and hot baths, have failed in correcting this unhealthy action of the skin and its glands.

"When I saw the Turkish Bath got up by Dr. Barter at St.

Anne's Hill, and experienced its power, its applicability to the production of the result I required at once struck me, and I have not been disappointed; but in all cases where the patients' state required it the digestive organs were put in healthy action before commencing the use of so powerful an agent, and in consequence of this precautionary measure, no untoward results of any kind have taken place from its use, except occasional faintness and slight headache, and these slight inconveniences have ceased to recur on persevering in the use of the remedy. The natural secretions and excretions are occasionally excited during the action of the bath, which demonstrate the varied extent of its action and power.

"In the great majority of cases, even those on whom the remedy has failed to make an impression on their mental disorder, signs of improved bodily health soon become apparent, such as clearness of complexion and skin, keen appetite, and increase of weight. One girl, a timid, frightened creature, refused to go into the bath a second time, saying it was hell; another refused in dread of getting a return of the vomiting and headache which she experienced on the first occasion. With these two exceptions, all who have once tried it express the greatest satisfaction at the result, and are loud in praise of the pleasing langour and tranquillity they experienced while in the bath, and for the day, sometimes two days after, the same calm tranquillity of mind continued to be felt. The justness of expression and correctness of language used by some of the commonest and most illiterate of them, while describing their sensations of comfort and enjoyment, was truly surprising, and indicates the strength of the impression produced upon them.

"Since the opening of the bath, in January last, 124 patients have been submitted to its action. Out of these eight are discharged cured, two to be sent out cured to-day, two cured and relapsed, improved and improving fifty-two, unchanged sixty, the latter being all cases of long standing in the house. Having shown so very favourable a result from the use of the Turkish bath, which far exceeds what I could have anticipated when I first directed your attention to the matter, I feel fully justified in calling on you to provide additional attendants to enable me to extend its use, and allow those who have not hitherto had the benefit of it to be placed on an equality with their more fortunate companions. Up to the present it could be used only two days in each week, being about 80 patients a week—40 males and 40 females. Now, if used the six days, its advantage would be extended to 240 per week, at little additional cost, as the furnace is always kept heated. Hot and cold water, independent of the laundry, should always be plentifully provided.

"I cannot conclude this report without stating as the result of my limited experience, that such a provision should constitute an appendage to every institution where many persons are congregated for a lengthened period within a confined space. It seems to me to possess a power of compensating in a degree for the absence of pure air and exercise; and it seems to me a Turkish bath should form a part of every union workhouse, and Government prison, and all similar establishments."

Notes of New Works.

A detached dwelling house is about being erected at Vico-road, Dalkey, in addition to those already mentioned, for Mr. Henry Gonne. Mr. Lyons, architect.

Additions are being made to the dwelling-house of J. C. Josephs, Esq., T.C., Artane, comprising new drawing and dining-room, conservatory, &c. Mr. Lyons, architect.

The gallery at Banagher Presbyterian Church, county Derry, before noticed by us, is now completed, at the sole expense of the Worshipful Fishmongers' Company of London, from the designs and under the superintendence of Mr. Fitzgibbon Louch, architect, Londonderry; Mr. James Adams, Culmore, contractor.

A manse, in connection with the above church, on the Worshipful Fishmongers' estate, has been erected at Banagher; style, Elizabethan, with sandstone dressings throughout, from Dungivin quarries. The works have been creditably executed for Rev. Robert L. Rogers by Mr. James Adams, contractor; the architect is Mr. Fitzgibbon Louch, C.E., Londonderry.

A large school-house, with master's residence, has been erected at Fintona, county Tyrone, for Rev. Henry Tottenham, under the superintendence of Mr. Fitzgibbon Louch, C.E., Sackville-street, Derry; Mr. Joseph M'Elroy, contractor. Expenditure, £520.

Mr. Thomas Henry Carroll, of Baggot-street, builder, has been declared contractor for a new church to be erected at Lurgan by the Ecclesiastical Commissioners; also, for another church at Bray, according to plans by Mr. Slater, of London, architect. In each case the expenditure to be about £6,000.[*]

A new dwelling-house, entitled Knockmaroon Lodge, is to be erected for Gilbert Burns, Esq. Mr. D. C. Ferguson, architect; Messrs. Cockburn, builders.

Four station buildings, goods stores, and various workshops are being erected on the Boyle and Sligo extension line. Mr. Wilkinson, architect; Messrs. Crowe, Brothers, contractors. Contract about £23,000.

A mansion house is to be built at Portlaw for Frederick Malcomson, Esq., according to plans, and under the direction of Mr. J. S. Mulvany, architect. Tenders have been invited.

The time for receiving tenders for the construction of a line of railway from Kells to Oldcastle—Mr. Blakiston, C.E.—is extended until the 16th inst.

The Countess of Glengall has purchased Castle View House, at Caher, and the demesne attached, lately the property of Mrs. Sargint, and her ladyship intends erecting thereon a suitable mansion for her future residence.

At the little churchyard of Caher it is intended to erect a very splendid and massive testimonial to the memory of the late Earl of Glengall, his lordship's mother, Emily Countess of Glengall, and his younger daughter, Lady Matilda Butler.

We hear that it is proposed to form a new road, communicating between the main approach to Clontarf and the Howth-road, commencing in the former instance near Mrs. M'Knight's tavern, and opening up a very advantageous range of building frontages, as well as affording additional facility of access between the two thoroughfares. Unfortunately, however, in this locality there is generally a vast amount of "talk" before any decided action, and we should be much better pleased to chronicle the matter in question as *un fait accompli* rather than a mere project.

Messrs. Moore, Brothers, contractors for the construction of the Liffey Branch Railway, have upwards of 400 labourers, together with masons, carpenters, &c., &c., and a large number of horses employed on the works, which they are pushing forward with all possible expedition.

A new road is about being formed at Enniskerry, to run parallel with the present street on its west side, from Mr. Shirley's Hotel up the hill, in the direction of Powerscourt gate. A large embankment must, however, be removed. Mr. M. Burke, engineering contractor, has obtained the work.

PARLIAMENTARY NOTES ON IRISH RAILWAY MATTERS.

IN the case of the Banbridge Extension Bill a question was raised before the committee of the house, relative to a certain level crossing in the townland of Edenderry, but a report from an officer of the railway department of the Board of Trade recommended that it should be allowed, and the committee confirmed it, requiring, however, that the company in addition to same should afford a communication by making a new road under the railway with a bridge affording a headway of 11 feet, which will be sufficient for all except high loads.

An arrangement has been made between the above company and the promoters of the Downpatrick and Newry Junction Railway, by which the former gave up a portion of the original scheme, for making a railway from Banbridge to Castlewellan, with branches to Rathfriland, Dundrum, and Newcastle, and confined their undertaking to a line from Banbridge to Ballyroney, with a branch to Rathfriland. The competing bill of the Downpatrick and Newry Junction Railway Company for making a railway from Downpatrick by way of Dundrum, Castlewellan, and Rathfriland to Newry, with a branch to Gorah Wood, has been agreed to by the committee in its integrity, without opposition on the part of the company.

The Londonderry and Coleraine Railway Bill has been amended in committee, and it empowers them to sell or lease their undertaking.

The allegations of the Downpatrick and Newry Junction Railway Bill have been found to be true.

The select committee of the House assembled to consider the Cork and Macroom direct, and Cork, Blarney, and Macroom Railway Bills, when Mr. Serjeant Wrangham, in stating the case for the promoters, said that he appeared for one of the two lines—viz., the direct line from Cork to Macroom, and against the line not *really* direct. The former was in length, from the terminus at Cork to Macroom, 21¼ miles, and the estimated cost was £118,000. In connection with it there was another recommendatory feature in the comparison between the two lines—viz., the branch from the village of Tower, forming a junction with the Great Southern and Western line, and which would bring the line into immediate connection with the whole railway system of the country. The importance of a line between Cork and Macroom is illustrated by the fact that there are two companies competing for the construction of such a line. It was of great importance that some line should be made, but it was of greater moment that it should not stop at Macroom, a place of considerable importance, as the centre of an agricultural district, but that it should be extended to points more important than even Macroom—for instance, to Bantry, which was only 29 miles from Macroom, and to the harbour of Berehaven, which was only 16 miles from Bantry—all these towns being brought through the junction with the Great Southern and Western Railway, into direct connection with the metropolis of Ireland. His line had this advantage also, that its station at Cork was adjacent to the Cork Butter Market, and also to the cattle station of the Great Southern and Western Railway, so that produce and cattle could be at once transferred from one line to the other, even though there were no junction, such as that proposed at Tower Village. On the other hand, the station of the opposing line was on the southern branch of the river, and, consequently, produce and cattle destined for Dublin should be drawn through the whole length of the city of Cork before they could reach the cattle station of the Great Southern and Western Railway. The cost of the branch line is estimated at £21,000, and the total cost will be £139,000. The promoters intended to make the line and the branch. The worst gradient was one in 100, and the greatest curve half a mile. It would be objected to the scheme that the line did not go nearer than three and a half miles to Ballincollig Barracks, while the opposition line approached within half a mile; but in order to travel by the latter line, troops coming from Dublin or Athlone would not have to change at Cork. They would have to do so in the case of the other line. In conclusion, he might state that the Great Southern and Western Company had withdrawn their opposition, and were now on the best terms with the promoters.

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[*] For these and the works referred to in the three following paragraphs we are requested to mention, that Mr. Benjamin T. Patterson took out the quantities.

In support of the project several witnesses were examined, including Sir George Colthurst, Mr. St. John Jeffries, the Earl of Cork, Mr. W. G. Browne, Mr. Ilberry (traffic manager G. S. & W. R.), &c., &c.

Miscellaneous.

ROYAL NATIONAL LIFEBOAT INSTITUTION. — Rewards amounting to £19 10s. were given to the crews of the lifeboats of the Institution stationed at Margate, Drogheda, and Arklow, for putting off to vessels in reply to signals of distress, but which, after the arrival of the lifeboats, had got out of their dangerous positions, and proceeded on their voyages. The silver medal of the Institution was voted to Captain Goss, R.N., Inspecting Commander of the Coast Guard at Queenstown, who had previously received the gold medal of the Society for some distinguished services, and to John Slarke, together with £2 to the latter, and £16 to their boat's crew of eight men, for putting off in a Coast Guard boat during a truly awful night, and rescuing by means of the rocket apparatus, which was fired by them from a rock over which the sea was occasionally breaking heavily, twelve out of thirteen of the crew of the Austrian brig Uredon. It appeared that the ship, in endeavouring to make in the night for Cork harbour, during a heavy gale of wind from S.W., upon a dead lee shore, drove on some isolated rocks off Guilleen, about a quarter of a mile from the shore. The seas in their fury leaped up to the masts on which the poor creatures were crowded, and death in one of its most appalling forms stared them in the face, for they thought it was impossible for help to reach them in such a dangerous place. The silver medal of the Institution has been voted to Lieutenant Hutchison, of Kingstown, and Lieutenant Parsons, of the 35th Regiment, in testimony of their gallant services in aiding to save three out of four of the crew of the brigantine Industry, of Whitehaven, which during the memorable gale of the 9th of February last, was wrecked off Kingstown, on which occasion Captain Boyd, R.N., and his brave crew unhappily but nobly perished. Lieut. Hutchison, in rushing into the surf to save the master's life, was severely injured and rendered insensible, in which state he was himself rescued by some other men. It was reported that the Institution had, during the past month, sent new lifeboats and transporting carriages to Whitby, in Yorkshire; and to Irvine, in Scotland. A legacy of £500 was announced to have been received by the Institution from the late Mrs. Shedden Watson, who wished it to be appropriated in the purchase of a lifeboat, to be called "The Brave Robert Shedden," in memory of her late son, who was a lieutenant in the Royal Navy, and had been round the world in his own yacht. It was reported that a benevolent gentleman had intimated his intention to bequeath to the Institution £3,000, under conditions, to enable it to place two or three lifeboats on the coast. The thanks of the Institution were voted to the Rev. H. J. Hutchesson, M.A., for presenting to the Society £180, to pay the cost of the Dungeness lifeboat, and £20 in aid of its general funds. Also the Institution's thanks to a lady for her munificent gift of £200 to the Institution. The committee decided on exhibiting at the Great Exhibition of 1862 one of its first-class lifeboats on her transporting carriage. Payments amounting to £1,050 having been made on various lifeboat establishments, the proceedings closed.

A parliamentary return shows that the total estimate for works proposed for Dover is £650,000; for Alderney, £1,800,000; for Portland, £1,047,125. The votes still required to complete the works are—for Dover, £151,000; for Alderney, £363,000; and for Portland, £74,125.

ALTERATIONS IN THE NEW CUSTOM-HOUSE, BELFAST.—Lately as this beautiful and extensive building, comprising the most important of our public offices, has been erected, it has already been found necessary to make very considerable alterations in order to provide increased accommodation. The demands of the Post Office department have rendered it indispensable that additional room should be afforded for the transaction of its augmenting business. The office of the Local Marine Board has, therefore, been removed from the south to the north wing, and the space appropriated to the postal service. The Court of Probate is about to be immediately removed from Donegall-place to the Custom-house Buildings, and this has caused further extensive alterations. Among these has been the erection of two strong rooms, to serve as safes for the custody of deeds. These, which consist of a lower and an upper chamber, are constructed of fire-brick, set in Roman cement, with flagged floors, arched ceilings, and iron doors. The lower floor rests upon a bed of concrete, intervening between the flags and the arch of the crypt or vault underneath. The ceiling of the upper chamber will also have a thick layer of concrete between it and the roof of the wing in which it is situated. The whole will be thoroughly fire-proof. The apartment for the sittings of the Court of Probate will be spacious, and suitably fitted up; and there will be convenient waiting-rooms for persons having business there. The Registry Office of the Consistorial Court of the Diocese of Down and Connor has already been removed to the Ulster Chambers, Waring-street. The changes just noticed have rendered others requisite in the Customs and the Inland Revenue departments. The whole of the alterations are under the directions of persons appointed by the Board of Works.—*Belfast News-Letter.*

THE DISPUTE IN THE BUILDING TRADE.—No settlement of this unfortunate dispute has yet been effected. A postponement of the opening of the Horticultural Gardens has been necessitated owing to the scanty supply of skilled workmen yet obtained by the contractors, Messrs. Kelk & Lucas; and the Exhibition building, so far as bricklayers' and masons' work is concerned, is progressing but slowly. At the Grosvenor Hotel, Pimlico, about half-a-dozen plasterers are employed, while upwards of 300 are required; and the roof is suffering materially from the weather, owing to the plumbing work remaining undone—the plumbers being still "locked out" refusing to work under the hour system. The number of men originally locked out was about 600, but not more than 200 are now on the funds of the societies, at an average of 25s. per week per man, the rest having obtained employment in other yards under the old system of payment.

RAILWAYS IN ITALY.—The Italian Government is about to make a great effort to give to the whole of the kingdom the advantages of a system of railways. The first four and a-half miles of railway in the old State of Piedmont were only opened in August, 1848, and now that State has in operation 850 kilometres (the kilometre being two-thirds of an English mile), whilst there are 382 kilometres in progress of construction. Projects have now been prepared, and are shortly to be submitted to the Chamber of Deputies, by which, if approved, the Italian kingdom will have 1,779 kilometres of railway lines in operation, 1,704 kilometres in progress of construction, and 2,650 to be given out for private speculation. By adding to this the lines either in operation or in progress of construction in the Venetian and Roman, or present Pontifical provinces, the whole of the Italian railway lines will rise to 6,800 kilometres. In Naples the lines in work are only 142 kilometres, those in progress 96, and the projected lines 1,900 kilometres. The lines projected for Sicily, where as yet no railway exists, amount to 400 kilometres. Within six years the whole network is to be completed.

TO SUBSCRIBERS AND ADVERTISERS.

Subscribers and advertisers to whom frequent applications have been made by circular and otherwise for various amounts of accounts furnished, will have the goodness to remit same to the office, as directed. It must be obvious to all that the character of this journal entails more than ordinary expense for each publication, and judging from the good feeling manifested towards our mission by all classes, we are quite sure it is only necessary to remind those indebted that a multitude of individual items, however small, serve to form a very important aggregate.

NOTICE.

Post-office Orders and Remittances should be made payable to MR. PETER ROE, *Printer and Publisher,* 42, MABBOT-STREET, DUBLIN.

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The Dublin Builder.

VOL. III.—No. 35.

HEALTH AND SEWERAGE CONSIDERATIONS.

MUCH more at this than at any other period of the year—though at all times to an extent—should attention be directed to such matters as affect the public health, and, if neglected, are fraught with fatal results. Our sanitary inspectors—but where are they?—however, those in authority—should look to the condition of certain portions of our city—the slums and purlieus of the Liberty and the Poddle, the open cesspools of Townsend, Patrick, Mecklenburgh, Purdon, and Bride Streets, &c., &c.—where filth and ashes, decomposed fish entrails and vegetables are heaped in the very roadway, and thousands revelling in uncleanliness dwell in cellars and garrets, tainting the atmosphere of the whole metropolis, which rich and poor alike must breathe. The Irish lower order are said to be proverbial for their dirty habits; but, though admitting the imputation, we by no means exempt therefrom either our English or Scotch neighbours, for in both their metropoli and principal cities is to be found, as ably illustrated by some of our cotemporaries, the most squalid filth and misery within a stone's throw of the lordly mansion of the millionaire. Such, however, is no justification for *our* falling into a similar error, but rather a forcible example for avoidance, and if not availed of, the greater the responsibility. Next to actual outward appearance of filth—which not unfrequently a thorough application of soap and water or whitewash might effectually remove—the main point for operations to be directed against is the sewage arrangement. We must intermediately note a surprise, that, independent of sanitary considerations altogether, such an inexhaustible source of wealth as is presented by the very offal and night soil from our habitations should not have been before now taken advantage of by our speculating economists, for in Dublin we must pay, and dearly too, for its removal, whereas in London and elsewhere the article is so eagerly sought for, that parties pay large sums for the privilege of removing it at their own expense. In another portion of this number we treat of the objectionable principle of making a river on which a city is built, the receptacle for its filth, and more especially so a tidal river, which with every flow brings back nearly to its original source that previously carried off by the ebb; but when we know that the avoidance of such a system will not only confer a local but a general benefit, at least the theory merits our consideration. A question naturally arises at the very onset as to the objects to be effected by proper drainage of any locality, and the primary one appears to be the removal of all refuse from a neighbourhood prejudical to the health of the inhabitants; the next as to how far such refuse may be employed to a useful purpose, or as a profitable article of commerce. In the former regard it is universally acknowledged that the accumulation of refuse matter is certain to *en*courage or generate various kinds of epidemic diseases, besides *dis*couraging habits of cleanliness, and as affecting the morals; and in the latter the substance so available is entitled to high claims for application to agricultural purposes as a manure. Nitrogen, in the form of ammonia, is the essential element of manure, being, as such, the promoter of vegetation; and of its successful application, in a liquid state especially, we have favourable evidence, from the practice adopted at Edinburgh, as also on the continent, in various parts of France and Germany, where pasture land has been made to produce crops considerably above the average. Practical objections are, however, occasionally urged: the first being the expense of distribution, the second the limited area to which such a manure could be advantageously applied; and again its deleteriousness to "public health" if allowed to remain on the surface, owing to its emission of offensive odours; these, or any of them, are, however, far from being insurmountable, and the advantageousness of the principle in its integrity encourages us to hope for its adoption. Our general object in alluding to these matters is to conduce to the sanitary welfare of the inhabitants of large cities and towns, by advocating an effective drainage system, which will both carry off all refuse speedily, and to such a distance as to save the inhalation of fœtid odours, at present emitted where rivers are converted into sewers; also, to reproduce and render valuable commercially the material comprised therein, but now valueless. The former consideration admits of being subdivided into house and surface drainage, or, in other words, the refuse of matters connected with the household, and that having reference to rainfall and storm waters; as the prudence of providing for both, the same system of drains would seem to be very questionable. We must, however, halt on the threshold of a subject admitting of much more comprehensive treatment than we are prepared to accord it at present, but we shall not fail to revert to it hereafter more in *extenso.*

ON PRODUCING ON GLASS, PHOTOGRAPHS OR OTHER PICTURES IN ENAMEL COLOURS.*

THE art of glass-making is certainly one of the most interesting and extraordinary inventions; at the same time it is doubtless one which has tended to increase our comforts and our enjoyments in a degree almost unequalled by any other discovery of modern civilization.

If we look back to the dark ages, and find that in those days even the rulers of the earth had no means of keeping rain and bad weather from their habitations, except by also shutting out the light; we shall be ready to acknowledge the astonishing results, as compared with the present state of things around us, which the persevering efforts of man have, under the guidance of an ever-merciful Providence, been able to accomplish.

We have no distinct evidence to show what nation first used glass, and we must therefore be satisfied with the various traditions transmitted to us, from age to age, on the subject. One fact, however, seems established beyond the possibility of a doubt, viz., that the greatest antiquity can be assigned to this invention, since the Egyptians and the Phœnicians had both vessels and ornaments made of glass, crude in form, but of a substance so perfect, by whatever means obtained, that it has stood the trial of several thousand years, and may be pronounced to have suffered no deterioration. Might we not, in consequence, assign to glass a place in the list of useful inventions far higher than that which it occupies? for in this we have a discovery, the first inventors of which seem to have attained at once the very condition—durability—which humankind is incessantly bent upon obtaining for any produce of its hands.

But still more remote is the mention of glass in the Holy Scripture; for, if the interpretation of the text be a correct one, in the 18th chapter of Job, as also in several other parts of the Bible, is found an allusion to a substance which we imagine must have been glass. Next to this, Alexander Aphrodisius amongst the ancient Greeks, Lucretius, Flavius Vopiscus, and other Latin authors, have left us a correct description of glass. Aristophanes also alludes to glass in one of his plays, and Aristotle brings out two problems on the subject; the first, why is it we see through glass? the second, why can we not bend glass?

Specimens of the potter's art in ancient times we have in plenty, and in a variety of forms and shapes, which for elegance have not been surpassed. We need only allude to the Etruscan vases in the collection of the British Museum.

Horn and skins were in use down to the third or fourth century of the Christian era, and oiled paper or mica was also used in lieu of window glass, nearly up to the time of the reign of Elizabeth. If we are to give credence to the narrative of Pliny, to accident alone, as in many other instances, are we indebted for the discovery of glass. Some traders, being weather-bound, landed on the banks of a river in Syria, and began to prepare a place in the sand for cooking their meals, after having gathered for fuel a great quantity of an herb known there by the name of *kali*, which plant must have contained a large proportion of carbonate of soda, and this being mixed with the sand yielded, through the agency of fire, a sort of vitreous substance. Such is one of the accredited versions of the origin of glass.

Glass has become with us an article so singularly cheap and common, that we are apt to lose sight of its immensely diversified qualities; but if only considered from a philosophical point of view, we shall find that few of the substances which we have in daily use, either in a simple or compound state, can be compared to glass in point of importance and of usefulnsss.

The applications of glass are now so numerous that it is difficult to imagine any one branch of industry or of manufacture which could be carried on for a single day without the use of glass in one shape or another. To some of the most important amongst the sciences, such as chemistry, physics, astronomy, the use of glass is a matter of absolute necessity; and, in proportion to the gradual and increasing requirements of these last-named sciences, especially astronomy, it will be found that the glass manufacturer has been obliged to perfect his mode of manipulation; and by the aid of chemistry, has of late years obtained such magnificent results that the field for astronomical observation has thereby been considerably enlarged.

It appears that, although vessels made of glass had been in use for a considerable time previously, it was only about the third century of our era that glass began to be used for glazing windows.

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* From a paper read at the Society of Arts on the 22nd ult., by Mr. F. Joubert.

These consisted of an infinite number of small panes of various shapes, which were arranged so as to form certain designs for the ornamenting of windows in places of worship; glass having, on account of its rarety then, been almost, if not entirely, confined to that use.

St Jerome, who wrote in the fourth century, speaks of glass in church windows; and Grégoire de Tours relates, two hundred years later, in the year 525, that a soldier of the army of the King of the Visigoths, who had invaded Auvergne, entered a church through a window, of which he broke the glass. Fortunatus, Bishop of Poictiers, towards the end of the seventh century, describes with admiration the painted windows of the Cathedral of Paris. St. Philibert, also in the seventh century, had the windows of the celebrated Abbey of Jumièges, on the banks of the Seine, near Rouen, decorated with glass.

At the beginning of the eighth century glass was unknown in England; and it was Wilfrid, bishop of York, who died in 709, who first introduced glass into England, by sending for some glass-makers from France, according to a record kept to this day. A few years later, St. Bennet, Abbot of Wearmouth, wishing to decorate the windows of his monastery, sent for some glass-makers—also from France; for it appears, from some authentic records, that the art of decorating windows with glass was practised in several parts of France, especially in Normandy, long before it was adopted in other countries.

It would seem that the art of staining glass was very easily discovered, although no date can be correctly assigned to the period when stained glass for church windows was first used. The practice generally adopted was to make a sort of mosaic design, by placing an infinite number of small pieces of coloured glass together. This was in use for several centuries before the art of painting on glass, properly speaking, was discovered, which seems soon to have extensively spread, and to have been cultivated by many excellent artists, to judge by the numerous specimens still in existence on the Continent. But for the sixteenth century, so rich already in artistic talent, was reserved the glory of carrying glass painting to a degree of excellence which has never been equalled since; and the names of Jean Cousin and Bernard de Pallissy will be honoured for ever, amongst the large phalanx of glass painters in all countries. The most remarkable painted windows, perhaps, in this country, are the windows of the various colleges at Oxford, which were executed during the seventeenth century by Bernard Van Linge and his pupils. William Price also repaired some of the glass paintings in Queen's College, Oxford; and in Christ Church painted a remarkable composition from the designs of Sir James Thornhill. Besides these may be mentioned the windows of Lichfield Cathedral, and several other very ancient windows in Christ Church, and especially in the residence of the Dean of Westminster, near the Abbey.

In order that the process I propose may be very distinctly understood, I shall now describe it by reading that part of my specification which relates to the placing the image on the glass, fixing it, and passing it through the fire.

This invention has for its object improvements in reproducing photographic and other pictures, engravings, prints, devices, and designs, on the surfaces of glass, ceramic, and other substances requiring to be fired to fix the same thereon.

A piece of glass, which may be crown or flatted glass, being selected, as free from defect as possible, is firstly well cleaned, and held horizontally while a certain liquid is poured on it. This liquid is composed of a saturated solution of bichromate of ammonia in the proportion of five parts, honey and albumen three parts of each, well mixed together, and thinned with from twenty to thirty parts of distilled water, the whole carefully filtered before using it. The preparation of the solution, and the mixing up with other ingredients, should be conducted in a room from which light is partially excluded, or under yellow light, the same as in photographic operating-rooms, so that the sensitiveness of the solution may not be diminished or destroyed.

In order to obtain a perfect transfer of the image to be reproduced, the piece of glass coated with the solution, which has been properly dried by means of a gas stove (this will only occupy a few minutes), is placed, face downwards, on the subject to be copied, in an ordinary pressure frame, such as is used for printing photographs.

The subject must be a positive picture on glass, or else on paper rendered transparent by waxing, or other mode; and an exposure to the light will, in a few seconds, according to the state of the weather, show. on removing the coated glass from the pressure frame, a faintly indicated picture in a negative condition. To bring it out, an enamel colour, in a very finely divided powder, is gently rubbed over with a very soft brush, until the whole composition or subject appears in a perfect positive form. It is then fixed by alcohol, in which a small quantity of acid, either nitric or acetic, has been mixed, being poured over the whole surface, and drained off at one corner.

When the alcohol has completely evaporated, which will generally be the case in a very short time, the glass is quietly immersed, horizontally, in a large pan of clean water, and left until the chromic solution has dissolved off, and nothing remains besides the enamel colour on the glass: it is then allowed to dry by itself near a heated stove, and, when dry, is ready to be placed in the kiln for firing.

It may be stated that enamel of any colour can be used, and that, by careful registering, a variety of colours can be printed one after the other, so as to afford a perfect imitation of a picture; also, that borders of any description can be subsequently added, without any liability to remove or even diminish the intensity of the colour in the first firing.

It will be easy to perceive that this mode of obtaining an image on glass, in an absolutely permanent substance, and of any description, colour, or size, may prove of considerable advantage and utility for the decoration of private houses, and also for public buildings. Now that, by means of the photographic art, the most correct views of any object or of any building or scene—even portraits—can be faithfully and easily obtained; when we see every day the results of the labours of photographers in all parts of the world, in the shape of beautiful prints; when we can be made acquainted, without leaving home, with the actual costume, habitations, scenery, manners almost, of all countries—for instance, China and Japan, which have but recently opened their doors to European civilization; when, through the same means, we are able to see, for the first time, and the learned are able to translate from, the graphic reproduction with which photography furnishes us of those early inscriptions engraved on the rocks in Asia, and by the Egyptians on their splendid monuments; I need only point out the usefulness of the mode of fixing those images in an indelible manner, for ornamental as well as for scientific purposes.

In large cities, like London, where houses are built so close to one another; in how many places may not the process become available, by enabling any one to introduce, for a very moderate expense, pleasing or instructive images where common plain ground glass is now used. to shut out the sight of a disagreeable object, a dead wall, or an unpleasant neighbour, without diminishing the amount of light more than is convenient.

In the library, fitting subjects might be introduced on the windows by a judicious selection of the portraits of favourite authors, or of famous scenery at home or abroad. In the dining room, also, appropriate pictures could be selected, such as flowers, fruit, or game subjects, so disposed as to harmonize with the decoration of the room. Even for domestic purposes, for lamps, or screens, or any object in glass, the process will be found useful, especially on account of its rapidity, which will enable the manufacturer to execute and to deliver an order at a very few days' notice.

FOXROCK.—It is confidently expected that the new station at Foxrock, on the Dublin and Wicklow line, will be opened in June. An important feature in connection with this opening will be the plying of a stage car and an omnibus between the Stillorgan station, this new station, and Kingstown, by a new road, at present forming, to be called the Westminster-road. To persons residing at Rathmines and in that direction, desirous of visiting Kingstown, these conveniences and this new station will be found convenient. A somewhat extensive range of stabling is also at present erecting close to the Foxrock station, for the purpose of carrying out this cross-country traffic. Several new roads are being formed in this good building locality, which, from its picturesqueness, and from the beauty of the mountain scenery around, has already induced several gentlemen to erect villa residences and elegant mansions; indeed, although but two years have elapsed since these grounds were laid out as building sites, some 100 acres have been let, it being stated that about £30,000 will be expended on the ground thus laid out. A site for a new church has been very liberally granted by the Messrs. Bently, the proprietors of the ground, rent free, for ever. Mr. G. Murphy and Messrs. Crowe are at present engaged in building some mansions of a very superior character on the ground here noticed.—*Express.*

NEW PATENT FOR PHOTOGRAPHIC PRINTING.—Letter patent have passed the great seal on the 24th May, 1861, to Francis Stewart Beatty, of 16, College-green, Dublin, in the county of Dublin, Ireland, lithographer and photographer, and Thomas Alexander, of Killester House, in the same county, doctor of medicine, for an invention of "Improvements in the production of photographic proofs and their application to printing purposes.

THE JACOB MEDAL.—The friends and admirers of the distinguished oculist, Dr. Jacob, have had a medal struck in his honour, and propose to present it to him at a public dinner on the 3rd inst.

RAILS AND SLEEPERS.—Tenders for 2,000 tons of the former and 30,000 of the latter articles of Baltic timber are, up to 14th inst., desired by the Bunbridge, Lisburn, and Belfast Railway Company.

THE REVIVAL OF STYLES.

THE Rev. J. L. Petit, whose name is familiar to most of our readers, delivered a lecture recently at the Architectural Exhibition on this subject, from which we quote as follows:—

The questions we have to consider are these—"Have we at present any style of our own?" "Are we likely to work out a new style from our own resources, and from the materials we can command?" "Ought we to endeavour rather to revive some ancient style; and if so, in which of those before us are we most likely to be successful?" I assume, of course, that we are desirous of establishing a style applicable to all our purposes, capable of combinations of the highest beauty and grandeur, and opening a sufficient field to the genius of the architect, as well as to that of the sculptor, painter, and other artists who may contribute to the perfection of his work. I am not sure whether we are not apt to draw too nice a distinction between building and architecture, and to take away from the province of the latter such works as our ordinary dwelling-houses, cottages, street fronts, and the like, unless they claim a title to it by adopting the most prominent features of some ancient or Mediæval style. But in truth every structure is architectural which shows that thought, care, and skill have been bestowed upon its appearance. A very small amount of ornamental detail, if it be well designed or well chosen, and well applied, will often be sufficient to represent, as it were, a more elaborate system, while a careful study of forms and proportions, even if there be no ornament whatever, according to the common acceptation of the word, may give a building a high place among architectural compositions. And, therefore, I said it was no truism to assume a good national style to be necessary if we would have good national architecture. For a building may be architecturally good and yet have no feature which marks it as decidedly belonging to some recognised style, or the adoption of which would originate a new style. But though a few examples of this description may be imagined, and some perhaps are actually to be found, it is not likely that the taste of architects, unguided by rules, should concur in the production of such buildings throughout the land.

With regard to the first of these questions, it strikes me that any essential incongruity between our vernacular and monumental styles would be productive of great inconvenience, and probably offer a serious obstacle to the advancement of either. For a large class of buildings, public and private, will necessarily occupy a place between the two, being neither merely vernacular nor yet altogether monumental; and it is on these that the character and aspect of our great towns will depend. In such buildings something more may be allowed to ornament than in those of the simplest and cheapest class, and yet considerations of economy must not be altogether thrown aside. If there be that congruity between the highest and lowest class which makes their difference to consist in degree rather than in principle, then the architect of the middle class has merely to apportion to circumstances his amount of expenditure in ornament. There is no actual line or barrier by which he must be decidedly controlled, or which he must decidedly overleap, so as to attach his work to one or other of two distinct classes, the vernacular and the monumental.

We must inquire, then, if there be any style, we may call our own, perfectly suited to the wants of the present day, expressive, or capable of being made expressive of the spirit of the age, and sufficiently comprehensive to embrace both vernacular and monumental works, and that large class which partakes of both characters. If we would view the matter in its proper light, we must go back somewhat more than a century. So many of our cheaper structures are of an ephemeral character, and so many of our more expensive ones are built according to the fancy of the architect or his employer, that they cannot be said to represent any national or permanent style whatever. But if we look at several domestic structures, whether insulated mansions, or forming parts of streets, of about the date of Queen Anne's reign, we may find something not at all unworthy to be taken as a national style, combining many artistic qualities of no mean order, with dignity, durability, and convenience. There is a house, of about the period of which I speak, at the entrance of Camberwell, which I never pass without being struck with the beauty of its composition. It owes little or none of this beauty to ornament, for nothing can be plainer or more simple in this respect. Owing, however, to its detached position, it admits of a ground plan more favourable to variety of outline and a play of light and shade than can usually be obtained in houses forming part of a street. But, both in the metropolis and in country towns, we see houses which may be referred to the same type or style of architecture, more or less enriched, which give no small degree of grandeur, and some picturesqueness, to many of our street views.

The style, it is true, became unpopular when a more formal imitation of the Greek models was effected, and still more so, when as a natural consequence of this depressing formality, Classic architecture became less in fashion, and the fancy for Mediæval architecture began to prevail. Many fine specimens were consequently pulled down to make way for structures of more pretension, but less real merit, as for instance, the school at Birmingham; but this is no proof that the style is unsuited to the spirit of the age or of the English nation, and that it might not with advantage again occupy the position of a national style. To go no further, it harmonises with the character of the houses we build when we work without reference to style, and are guided solely by the consideration of our own requirements, the state of society, climate, and material.

We know that two styles are asserting rival claims to the architecture of the future. At present they seem to assume a hostile attitude towards each other, and show but little tendency to coalesce, though it is certain that any style likely to grow and flourish, and mark the character of the age, must combine elements possessed by each. At the same time it is equally certain that to secure that unity which is necessary to the very life and existence of a national style, one of them must occupy the superior position, and the other take a subordinate one. These two styles are the Classic and the Gothic or Mediæval. We will give each the broadest definition; considering the Classic to comprehend the Grecian, which its scanty remains present to us under rather a severe, if not monotonous, aspect, though a careful study of them show its artists to have been gifted with powers of imagination as vivid and fertile as those which have been developed in any era of human history; the Roman, which combined the Greek, with other elements; and the revived Italian, which was introduced about the fifteenth century, and has more or less steadily held its ground ever since. The Mediæval style may be considered to have commenced on the decline of the Roman in the fifth or sixth century or earlier; and we trace its principles through the Byzantine, Romanesque, Saxon, and Norman, till it culminates in that pointed or Gothic style, which sheds a lustre on the thirteenth, fourteenth, and fifteenth centuries.

With which, then, of these two styles does our vernacular architecture best harmonise? From which of them does it with most propriety borrow its decorations?

Let us suppose a house front, forming part of a street, to have two stories above the ground floor, each with four windows. This seems as likely an arrangement as any to suit general convenience. In the first place, we may pay attention to the proportions between the length and width of the windows, and to the breadth of the spaces which divide them. The probability is that we may satisfy the eye in this respect, without the least sacrifice of comfort. As to the form of the window opening, there can be little doubt the rectangular is the most convenient when woodwork is required, as it must be in dwelling-houses; and when the ceiling is flat and the height of the room limited. the contraction of breadth at the top which an arched window involves may cause an inconvenient diminution of light. But if stone lintels are not to be obtained, and brick or small stones are principally employed in construction, then the head of the window must be an arch. This ought not to form a perfectly horizontal line, both as being apt to sink, which produces an unpleasant effect, and as disguising the construction by giving an arch the form of a lintel. A decided curve should therefore be given, but the less it deviates from the straight line the less will be the sacrifice of those advantages which belong to the rectangular form. A segmental arch, comprising a very small arc of a circle, is satisfactory to the eye, is easily fitted up with woodwork, and unites the qualities of convenience and constructive truth. It is, accordingly, very commonly adopted, and is equally applicable to the palace, the mansion, and the cottage.

We have now obtained a front not unpleasing to the eye, but altogether devoid of ornament; although the care bestowed upon its proportions and arrangement entitles it to be classed as an architectural composition. How are we to begin if we want to enrich it? There is probably nothing in the internal arrangement to suggest a division by vertical lines, for the partitions between the several rooms may be arbitrary and irregular. The real lines of the building must be horizontal, as it is evidently divided by ceilings and floors into several stages. If the position of these be marked by good and effective string-courses, and the whole crowned by a rich cornice, we are at once in possession of a meaning and telling system of ornament, which will give the front an air of considerable richness, even if we go no further. As the Classical style is that in which the horizontal line predominates, we shall naturally be led to look to it for examples of such cornices and string-courses as we require; and we shall find that it furnishes them abundantly, presenting us with specimens which for clearness, brilliancy of effect, and the suggestion of constructive truth, are altogether unrivalled. The Roman mouldings, as applied to horizontal lines, form a most valuable study, and have, perhaps, more of effectiveness and variety than the Greek, besides being more generally applicable in a style where the Greek element is so much modified by the introduction of others. But the vertical line, though subordinate, need not be left wholly unrepresented. The termination of the building, where it joins the adjacent houses, may be marked by some kind of pilaster, or coigning. The windows, ranged one immediately over the other, leave vertical strips, which may also be marked by pilasters of small projection, in one or more of the stages. The addition of these is right in a constructive point of view, for they give the wall some apparent and a little real additional strength where the superstructure is heaviest. And although the introduction of these pilasters may seem a step in the direction of Gothic, which exhibits the predominance of the vertical line so as to carry out the principle to the verge of exaggeration, yet it is not at variance with the spirit of Classic architecture, in which indeed the same principle has sometimes been expressed a little too prominently. The frequent use of the engaged column is perhaps one of the least defensible features in the Classic, both ancient and revived.

Undoubtedly it is possible to Gothicise in a manner such a street front as I have imagined. We may divide it into bays of one or more windows, and mark the division by buttresses, or strongly predominating lines. We may choke the windows up by mullions and tracery, and give them pointed heads, or we may retain the square-headed or slightly segmental window, without mullions, placing over it a Gothic arch and canopy against the blank wall, so as to cut the floor line of the apartment above; but neither these nor any other devices by which modern requirements are made to conform to Mediæval architecture are suggested by this simple primitive arrangement, nor do they show any congruity with it: indeed, it requires some exercise of skill and contrivance to prevent Gothic details from interfering with the comfort of an arrangement which is really Italian.

We have now to consider the question, whether we ought to have two distinct and dissimilar styles, one for secular the other for ecclesiastical purposes. And here I think the advocates of the Gothic revival have taken a more advantageous stand than those who oppose its application to secular purposes. For the latter seem not unwilling to relinquish the Classic style in church building, so long as they retain it for civil uses; while the former contend that the Gothic is the best, not only for churches, but for all structures whatever. In fact they evidently feel how necessary is unity in a national style. I must confess that if they can establish Gothic as the only legitimate church architecture of the present day, I do not see how their opponents can long resist their claim upon secular architecture also. Churches must be classed among what we have referred to as monumental buildings; and it is clearly adverse to the progress of art that the architect should have to give up his mind to two sorts of composition, both of them of a high order, grounded on principles that in many respects are antagonistic to each other. The dissonance between buildings of different styles, like the irregularities in the same building that I have just spoken of, if they are clearly the result of accident or necessity, as when they actually belong to different periods, is valuable both as conducive to picturesqueness, and as forming a sort of historical record; but when it is no other than the result of caprice, waywardness of fancy, or want of unity among artists, it becomes unpleasing to the eye and perplexing to the mind. Nor can it be said that it is necessary to have one style for houses or secular buildings, and another for churches, in order that we may know a church when we see it. Of the thousands of churches that have been built at different times, whatever may be their style or date, how few are there that would be confounded with secular buildings, and *vice versa*. The ecclesiastical character depends very little indeed upon style, and it would be possible to build a church, perfectly unexceptionable in composition, form, aspect, expression, and general arrangement, without introducing any one characteristic of any recognised style whatever.

If it were not for the existence of structures which we are not likely again to require or reproduce—I mean cathedrals of the largest class—I doubt whether the Gothic movement would have proceeded with much spirit, even if it had been commenced at all. It is only by such structures that we can be impressed with a full admiration of the style, and any argument in favour of its revival, which rests on the impressiveness of such buildings, falls to the ground if it can be shown that such impressiveness is what we shall probably never again obtain, at least by similar means. If this were a cathedral-building age, it might be an age in which Gothic architecture could be revived. But it is not a cathedral-building age. We may require and build large churches, we may not grudge handsome and expensive ones, we may increase the number and force of choral establishments; but that pile of building which constituted the great cathedral of the middle ages, whose exterior expressed dominion over the adjacent district, whose interior suggested the idea of infinity, this we are not likely again to call into existence; not because we are as a nation wanting in the spirit of liberality, for large sums are continually expended in the restoration of our old cathedrals, and if any one were to be utterly destroyed I believe it would be rebuilt upon the same scale of magnificence, but because we are a practical nation, and feel that cathedral building in these days is not the only way, nor the most effective way, of securing and spreading abroad the blessings of our religion—that an almost unlimited expenditure in mere externals (for cathedral building amounts to this), however it might have been justified in some epochs of the church, is not so in the present, when other necessities and exigencies call for a different application of our means. It is, I suspect, because this is not a cathedral-building age (for this practical spirit is not confined to our own country and our own persuasion) that our genius seems to flag and languish when we attempt what is specially the architecture of cathedrals, while, in our engineering works we display a power, and, I will add, a perception of architectural propriety not surpassed in the greatest works of the Romans.

But I must not dwell too long upon abstract points; we will take a more material view of the subject. The difference between the constructive principles of Classic and Gothic architecture is, that the former professedly uses the beam or lintel, employing the arch rather as an expedient than as a predominant feature, while the latter may be said to be purely the architecture of the arch, admitting the lintel at rare intervals and on a small scale. But the artistical principles of the styles may be enunciated in a still broader and more summary manner. The Classic gives expression to the solids—Gothic to the voids. Take a Greek colonnade. The columns, capitals, and entablatures are carefully elaborated in their form and proportion, while the opening between them is left to itself, or its breadth determined upon with a view to the columns themselves, not to its own shape. In Gothic work, on the contrary, it is the form of the opening that engages the attention of the architect, the spandrels being the parts that in point of shape are left to shift for themselves. Hence, the greater portion of Classic ornament finds its place on the surface of the wall, while the soffits and jambs, unless the depths of the arch is such as to give it the character of a vault, are comparatively plain. In Gothic work the decoration is mainly in the soffits, sometimes in the form of delicate and complicated mouldings, sometimes of flowers and foliage occupying the hollows, while the mouldings themselves branch out into foliation and tracery, filling the arch with beautiful patterns and figures. Even in the decoration of the surface the forms of the openings are repeated in blank arcades and panelling; and the enrichment of the piers themselves has reference rather to arches they support, than to their own importanca as solid masses, or to the actual wall above them. The tendency of the Gothic system, as carried out in its works of the highest order, that is, in its cathedrals, is to the construction, or at least the suggestion of a lantern of open-work, a vast frame of stone, in which the portions of flat wall are reduced to the smallest amount possible, such as the choir of Tournay Cathedral, which is so tender, that it has been found necessary to connect every part together by ties of iron. Now, in Roman work the pier or the wall itself is made to attract attention, while the arch or opening, whatever it may be, is a secondary and subordinate feature. Change all the arches of the Coliseum into square-headed openings, as those in the upper stage, as well as at Pola, actually are, and I suspect the change in its character would be much less than we are apt to imagine.

ORIGINALITY.*

THE word "originality" is generally used as a term of praise, and in selecting it for my present purpose I intend it to mean "the healthy exercise of invention in architecture." We are likely to misapprehend the nature of originality from a wrong idea of the terms, "change" and "permanence," and to imagine that it is natural for things to be fixed, and exceptional for them to vary; so far is this from being the fact, that one might almost say that change is the only fixed principle, and anything pretending to permanence is an innovation and an anomaly. It is not wonderful that the revival of Classical architecture should have led men to suppose they could extract out of it or compose from it certain perfect specimens, which, being acknowledged to be the best that could be contrived, should be received contentedly as precedents for the rest of time; that was, perhaps, the first false application of the principle of finality that was quite unconnected with superstitious motives. We are generally of opinion now that the results have been such as to make us thankful that the efforts which have been made to introduce it into the Gothic styles have not met with success.

There is no question more important than that of the constitution of our perceptions with reference to impressions from without. We should consider how much of antiquity and how much of novelty is good for us, and whether we are constituted for a system of torpor, or progress, or revolution. We have certain propensities towards change, and certain powers which enable us to produce it. The power of producing novelty is one of those which we most value, as distinguishing us from the lower orders of animals and bringing us nearer to the Producer of all things. Without inquiring how applicable the term "creative," and some others of like kind, which we don't understand, is to so short a step in such a long journey, it will be useful to take lower ground, and see the order of things amongst which we live, from which we receive our impressions, and of which we form a part. We are so little accustomed to anything fixed that our travellers are startled, and almost horrified, on entering the tombs of Egypt, which have stood during all these centuries that the world has been moving. The poetry of everything is in its motion; the charm of astronomy is in the orderly progression of the heavenly bodies and their intimate union and sympathy with each other; the charm of geology is in its gradual succession of events and evidence of life and action. There is a fine analogy in this science which we ought not to miss, because it shows how little of shock, comparatively, and how much of quiet progress have assisted at the building of this great work upon which we build our little works. Down in the foundations of the world we find a state of things that has been changing continually since the commencement of vegetable and animal life. The whole system of creation has been renewed again and again through long periods of progress and rare periods of catastrophe; there have been dark ages, and then renaissance, but it was renewing of life only, not of the lost style. New things arose under the new conditions, and we see in that history, as clearly as in any I know, the true type of our own originality.

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* From a paper read by Mr. T. Blashill at Architectural Association.

The idea of starting from a particular period of art is, I fear, no less fallacious, though more plausible. We have tried most honestly during many years to carry on the pure and beautiful style of the thirteenth century, with a result which nobody calls success. We are all now, perhaps, more or less pleased with many of the details which are being introduced into our own style from the early Gothic of France; it would have an effect upon our minds similar to that which would be produced by original conceptions, if we could forget that the store from which it is being drawn must soon be exhausted. There is no class of buildings which better deserves study than those of the Romanesque period; it is the Gothic architecture in youth, and although we are very apt to talk about the vigour and freshness of anything that happens to be comparatively new to us, I am much mistaken if we do not draw much that is valuable from study of works of that period; but it is easy to see, I think, that some of the more advanced Gothic school are running headlong into the same experiment that has failed so often before—this time under slightly different conditions. Satisfied of the hopelessness of the attempt to improve on the best period of the Gothic, the idea now is to take up a style confessedly inferior, in the hope of refining it into a better kind of Gothic. I fear very much that this is a new version of the short and slovenly formula for providing scope for improvement—viz., to begin badly.

This question of the starting point is really the most important of any that arises just now; it lies at the very foundation of originality. I hope that nothing I say can be taken as advocating the idea that we can hope to be entirely new. We may as well expect to see some day new a creation rise up around us. The contest now to be decided is one between principles which are of far more importance than Gothic or Classic. We know perfectly well that every attempt to twist an old style into our modern ways has failed entirely. The style is not elastic, and it is only owing to the accident that our forms of worship have changed less than we ourselves have, that the Gothic style succeeds so well in that exceptional case. I ought to make partial exception of the Italian style, which, while it answers very well the demands of a wide range of purposes, has been very far from successful in exciting that sympathy and warmth of feeling which is necessary to raise the work of utilitarianism to the rank of art. If the question were, shall we continue sacrificing real convenience and utility as we notoriously do daily in deference to the demands of style, or shall we take convenience of construction and arrangement as our basis, and sacrifice, at whatever cost, everything that cannot be modified so as to accord with it—we should be compelled to adopt the latter alternative. And, indeed, we must ultimately come to something as near to this as the ancients did, if we wish to equal them in the end. For the present we may be content to light the lamp of sacrifice more liberally than some of the extreme advocates of constructional reform seem to admit.

The extreme picturesque school can hardly be accused of this error. Originality in their language often means the introduction of as many features as possible of styles in which we feel interest, with no superfluity of care in arrangement into one design under the mistaken notion that we shall transfer our admiration for the old buildings to such as have surpassed them in irregularity. Amateurs who care for art at all are almost certainly of this school. We were advised in these rooms the other night to design each building in our streets as in itself, a unit standing by itself. I feel convinced we had better construct it designedly for the position in which it will really stand, not more to do it justice than to give its neighbours fair play. This is more courteous, and, I think, more artistic, if less picturesque. Time will bring those gaps, and additions, and patchings, and rebuildings which we admire so much in old buildings, quite as soon as we can give them historical interest, and after all is said, these things are in themselves blemishes, and we only take pleasure in them because they are the marks by which we have known old friends.

Whether these marked and unstudied irregularities appear in plan or details of old buildings, do not let us mistake them for beauties. Imperfections are always easiest to copy, and most liable to be taken as characteristic of style. It would be as reasonable to imitate the peculiarities of people we meet in order to catch the tone of good society. One may see any night for a shilling one or more of those performers who profess to mimic our well-known public characters; there are the familiar peculiarities of voice, gait, and manner, and more of them crowded into half a minute than the original would show in an hour; the effect is most comic and amusing. But all these points are really such as distinguish the man from the true central type of a gentleman; to attempt that type would deprive the performance of its personal and imitative character and its interest; but if he can do it he is a gentleman and no mimic.

We are seeking novelty in the direction of science also, and disregarding both old forms and beautiful forms in favour of forms which are intended to express very naked—indelicately naked—truth. All possible colours are introduced to give emphasis to important features, and destroy breadth and repose. The beauty of the exterior of a house is the gift of the owner to those whom he does not ask into his house, and the sensations these things excite are of the kindred of those felt at an entertainment where every bit of trouble taken to accommodate and please are exhibited and magnified, and one usually feels that a mild neglect would be more tolerable.

None of these things are necessary to true originality; there is abundance of variety possible in right ways: nobody ever exhausted all the manners of doing well. True originality I have endeavoured to exhibit to you as a thing of slow growth, and not a spasm. It was so small in all ages when art was flourishing, and will be so now. I feel confident that progress is to be made in this way, and not by waiting for a heaven-born genius. What we want is true vigour and life, and not the alternation of luxury and coarseness that used to lead men from drawing-rooms to the prize-ring and the cock-pit. In good times of Gothic art, men were given to be in earnest, for good or evil; they did not mince matters then. People are fond of voyaging and exploring and mountain climbing now, who a century since would have rather climbed the back-stairs of palaces — they are more manly, and not less loyal and true. A thin-blooded race may be minute and careful, but is not likely to be very original; so as constitution is an element in originality, it is well that in our summer tours we should get sky-ward sometimes, and take pleasure in looking down on the life of villagers, and the life of field and forest and winding river, with a dozen counties lying blue in the distance—a healthier blue at most times than that into which people pitch stones at Brighton.

It seems likely that the tendency will be to form a very liberal kind of what one must call Italian for want of another name, out of the Classical styles with a tendency towards the Gothic type, and in a similar way the various phases of Gothic art are being united into one style; every addition from the source of our own originality will bring these two classes nearer together; but if we are to make any progress towards the formation of a united style, the professor of architecture must not confine his studies to the works of any particular period. We may tolerate in the well-intentioned amateur ideas that are less the result of narrow-mindedness than of narrowness of information, but the architect who neglects to study any of the styles of his predecessors can hardly hope to produce designs worthy of the praise of posterity.

We may step any day from between English hedgerows into the wreck of a Roman city, and tread amongst the confused relics of a bygone time. We look with curiosity now on the ruined baths and the deeply worn steps at the door of the market. Will any age ever look with such interest on our works in ruin, waste good steel in shovel and pickaxe, and to give up to excavation their beans and barley? They will respect our classicality and antiquarianism, as we do all honest learning, but in those far-off times, when the world is older, and wiser, and busier, if they are to trouble their heads further about us, we must, besides being honest and learned, be original.

THE LIVERPOOL ARCHITECTURAL SOCIETY.—At a meeting on the 15th ult. of this body it was unanimously resolved—"That this society fully concurs in the views expressed in the resolutions adopted by the Architectural Association, and will be happy to co-operate in promoting the due representation of the art of architecture in the proposed Exhibition of 1862; and will gratefully accept the good offices of the Architectural Association as a medium of communication with the commissioners for the Exhibition." The following resolution was also carried, though after some discussion—"That this meeting cordially concurs in the general desirableness of forming an architectural alliance on the basis sketched in the proposals of the Northern Architectural Association."

THE GUINNESS PARK.

Such is the suggested title for the new park, popularly known as the Coburg Gardens, in proximity with Harcourt-street, and purchased by that public benefactor, Benjamin Lee Guinness, Esq., for presentation to the citizens of Dublin, and we heartily endorse it as a most suitable tribute of respect to the munificence of the donor. It may well be said of Mr. Guinness that he does not "hide his light under a bushel," that if Providence has bestowed on him a more than ordinary share of worldly goods, he does not grasp his brimful coffers with Jewish tenacity, but has learned to feel for his fellows less happily circumstanced, and moreover directs the distribution of his gifts with a gracefulness truly admirable. In private life we are informed that a worthy object never in vain sought for aid from this excellent man, and in public life the frequent records of his substantial acts of charity and donations to every project tending to the general good, are sufficiently patent to render further comment thereon superfluous. In a recent number we had occasion to note specially the particulars of the great work voluntarily undertaken at his own personal cost in the restoration of our ancient national cathedral of St. Patrick, and—though, perhaps, feebly, in comparison with the meritorious character of the enterprise—we sought to render to him all due honour, and to set at rest previously conflicting opinions; however now we experience a two-fold pleasure in chronicling this *second* boon so speedily granted in the wake of that alluded to, and have no doubt that that feeling is universally experienced. Pleasure grounds are amongst the many wants of our citizens, for, excepting the Phœnix Park and the Botanic Gardens—the latter with certain restrictions—Dublin has none in which the working classes may freely enjoy themselves, hence the compliment so bestowed by Mr. Guinness is more appropriate and the more to be appreciated. We believe we are correct in stating—though we do not speak authoritatively—that Mr. Guinness was also identified some time since in negociations with a similar object in view as regards a much neglected northern suburb, and rumour has again revived the project as probable of accomplishment.

THE AUTHORSHIP OF A BAS RELIEF ON THE WELLINGTON TESTIMONIAL.

A correspondence on this subject has taken place through one of our daily contemporaries, which, in an editorial paragraph, asserted that the bronze reliefs are by Kirk, Farrell, and Benzoni, to which statement exception is taken in the following terms:—"Now, there is *no* bas relief by Benzoni. The work you have attributed to him was done by the greatest sculptor Ireland ever produced, the late John Hogan. When he died his son took over the completed cast to Rome, and was assisted in arranging it for casting by a *scarpelline* of Benzoni's, that artist never having put his hand to it. It would be something like attributing Handel's Messiah to the organ-blower, or Sir C. Barry's Palace of Westminster to the builder, to assign the grand conception of 'Civil and Religious Liberty,' by Hogan, to the manipulator of the cast, even if Benzoni had had anything to do with it. When these bas reliefs are exposed to public view the noble work by Hogan will vindicate his fame, and will prove him to have been one of the greatest of modern sculptors." To this Dr. Wilde, who was, with Mr. Bianconi, a co-trustee for the carrying out of the work, thus replies:—"To the late John Hogan was allotted the task of representing in one of the bas reliefs a passage in the career of Wellington as a statesman, and he selected that of granting Catholic Emancipation. He completed and delivered to the government the sketch model of his subject before his death, and in his last moments I promised, so far as in me lay, to see that great work carried out. Signor Benzoni, a distinguished sculptor at Rome, and the intimate friend of Hogan, was employed to model the bas relief from the sketch model of our late eminent sculptor. The sketch was carried to Rome by young Hogan, now the pupil of Benzoni; and the plaster cast of the enlarged model was paid for by us on the part of Mrs. Hogan. What adds especial interest to this work of art is the fact, that all the figures thereon are likenesses modelled from either photographs, drawings, or busts forwarded to Rome for that purpose. As, however, the details of this special memento of one of the most remarkable incidents of modern Irish history—by undoubtedly the first Irish sculptor of his day—will, no doubt, come before your readers at another and most fitting occasion, I think it unnecessary to say more upon the subject."

NATIONAL GALLERY OF IRELAND.

Her Majesty the Queen has been graciously pleased to subscribe the sum of £100 to the fund for the purchase of works of art for our National Gallery, now erecting on Leinster lawn, and H.R.H. the Prince Consort has subscribed the sum of £50 for the same object.

AMELIORATION OF THE LABOURER'S CONDITION.

If "the labourer be worthy of his hire" he is also entitled to occupy a suitable position in the social scale, and to enjoy to a comparative extent with his fellow mortals the blessings which the Almighty has provided; but unfortunately, as a general rule, he who lives "by the sweat of his brow," who ministers by his toil to the luxury of the rich man, is regarded as a mere living thing—a sort of appendage to humanity—too insignificant for consideration. Wherever, therefore, a philanthropic exception is to be found, it merits special consideration; and foremost amongst those entitled to national gratitude for amelioration of the labourer's condition is the Royal Agricultural Society of Ireland, which independently of its energetic pursuit of a peculiar mission, viz., the improvement of agriculture, voluntarily extended its operations to the very home of the labourer, with the view of conducing to his health and comforts by securing for him properly constructed dwellings, where good ventilation, sewerage, and appropriate arrangements should supersede the confined, unhealthy, unclean, and heterogeneous structures hitherto inhabited by him. We need not now review all the encouragement that has been afforded by this society—all that actually has been done to this purpose, it being universally known that a certain sum is annually apportioned from its funds to promote the building of labourers' cottages throughout Ireland, after an approved model, sought after from the best professional authorities, but we invite the special attention of our readers to the inducements held out at present in the shape of prizes, for those who distinguish themselves in this regard during the year preceding the approaching show at Belfast next August. The society proposes to award the Leinster Challenge Cup, value £140, to the person who during the period above named shall have built *the greatest number of the most approved cottages for labourers in any part of Ireland;* again, one of the larger gold medals, or the value in money, is offered for each province, to the proprietor or landholder who shall have completed on his property in such province the *greatest number* (not less than four) *of the most approved cottages,* with *not less than half a statute rood of land,* or *more than half an acre, attached.* Without professing to be an authority as regards the restriction herein named, we must express a doubt as to its desirability. However, pursuing our subject we find that to encourage the improvement of *existing* dwellings a gold medal, value £10, is to be allotted to the *greatest number* (not less than ten) *in the occupation of farm labourers, and so improved,* and that some of the society's medals are likewise to be placed at the disposal of the local societies to award for similar purposes. A more than ordinarily notable feature is that upwards of *one hundred ladies* have associated themselves with the central society for the special object of improving the labourer's condition domestically. To stimulate the farming classes to the erection of suitable buildings for the carrying on of agricultural operations—an improvement on the present mud and thatch structures being very palpably and generally needed—the Talbot de Malahide Challenge Cup is this year set apart. We have great hopes that the future of Ireland will be materially and beneficially effected by such energetic operations, and we feel great pleasure in adding our humble voice in the chorus of praise to this estimable national benefactor.

PRESIDENCY OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

Mr. Tite, M.P., has been declared the victor for the Presidency of the Institute by a majority of fourteen votes above his rival candidate, Mr. Beresford Hope. At first Mr. Tite consented to be put in nomination for the office on condition that he should be elected without opposition, but subsequently he determined to contest the field with the gentleman above-named, who, though not a professional architect, is much distinguished as a votary of architecture and art generally. The proportion of the votes was as follows:—

For Mr. Tite, ...	65
For Mr. Hope, ...	51
Majority,...	14

MEMORIAL TO THE LATE SIR CHARLES BARRY, R.A.

A graceful tribute is about to be paid to the memory of the late distinguished architect to the Palace at Westminster by the erection of a marble statue in a suitable position in that building—the *chef-d'œuvre* of his professional career. We have no doubt that the high estimation in which all who were capable of appreciating pre-eminent artistic talents must have held the lamented deceased, will stimulate them to contribute their mites to the object in view; and we desire to note, as an example worthy of being followed specially by our friends at this side of the channel, that our much-respected Viceroy, in his usual devotion to the cause of art, is foremost among the subscribers.

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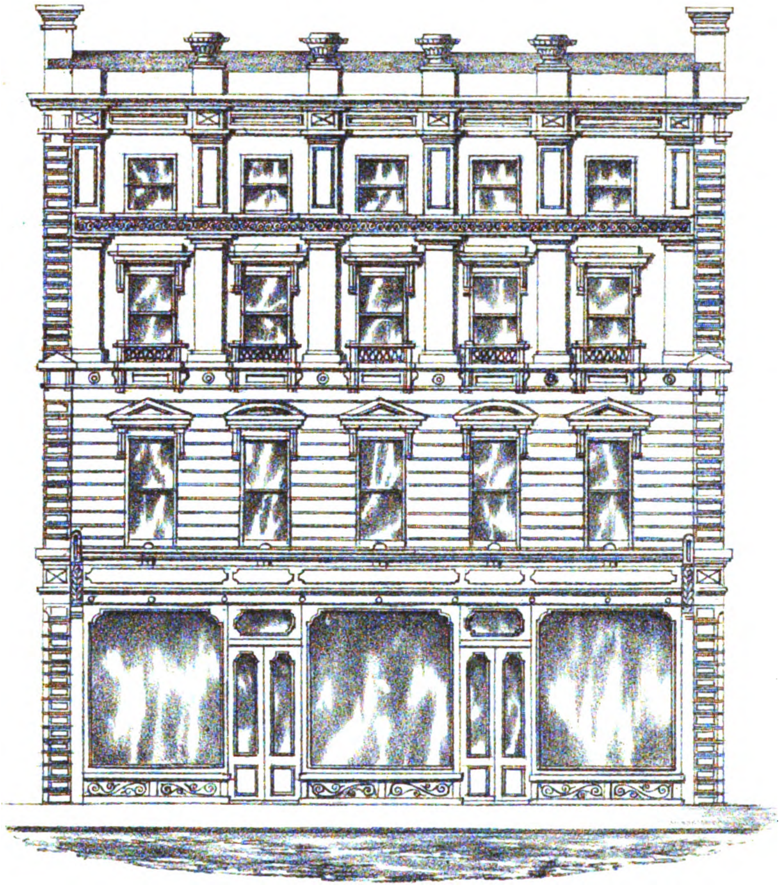
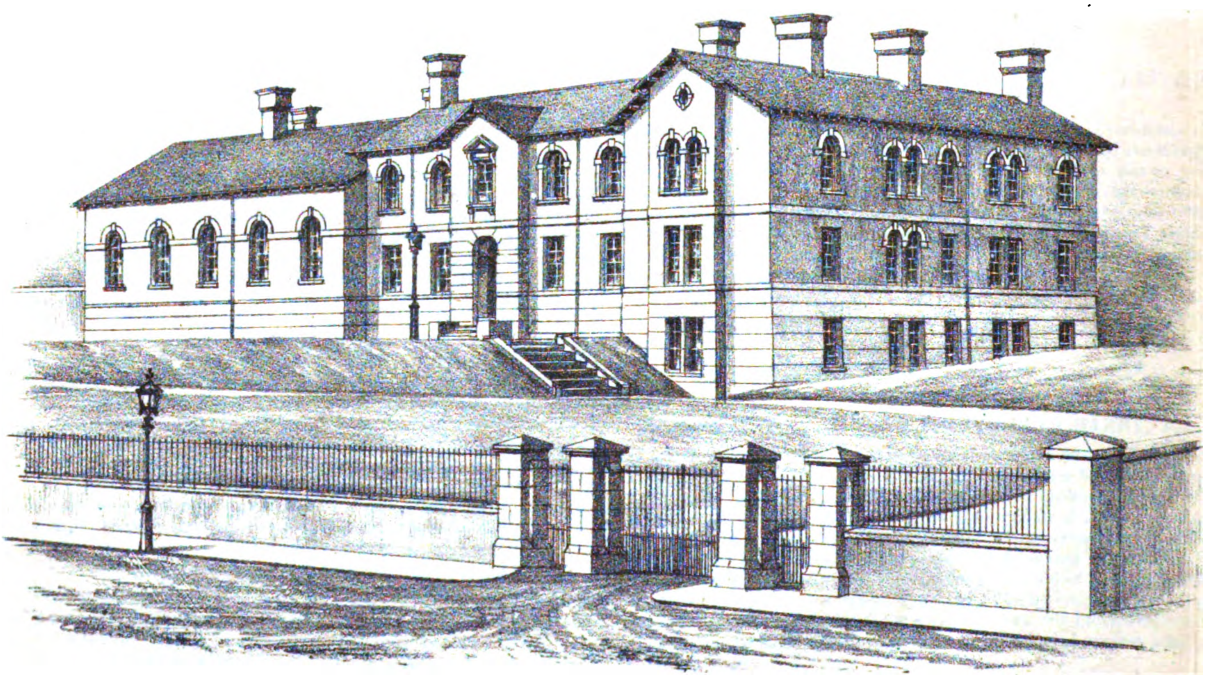


NEW MART IN DROGHEDA.

J. J. LYONS ARCHT



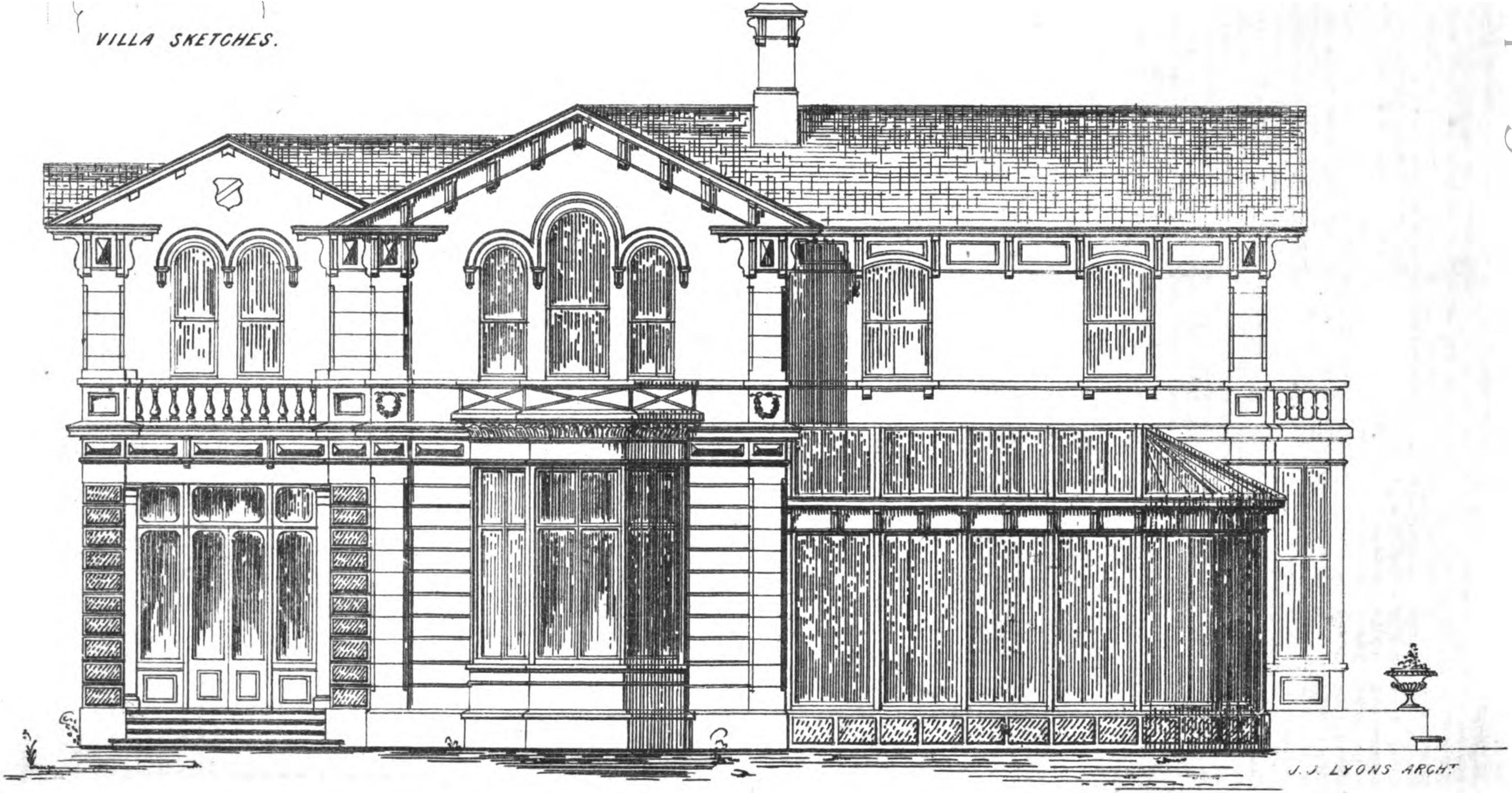
ENNISCORTHY NEW MODEL NATIONAL SCHOOL.

JAMES H OWEN ARCHT
(BOARD OF PUBLIC WORKS)

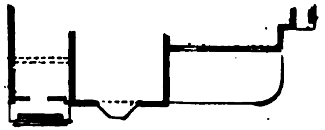
The Dublin Builder.

No. 35, Vol. 3.

VILLA SKETCHES.



VILLA RESIDENCE AT ARTANE FOR J. C. JOSEPHS, ESQR.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THE RIGHT TO MANUFACTURE BRICKS IN A POPULOUS LOCALITY.

THIS question came before the Master of the Rolls recently, on the application of Mr. Smith, to restrain by injunction a well-known enterprising gentleman and owner of considerable property, Mr. Alexander Edie, from erecting a brick kiln, and from burning bricks, on a piece of ground close to the town of Blackrock, near this city.

Counsel (Mr. Brewster, Q.C.), in opening the case for the petitioner, stated that last term his lordship granted an injunction to restrain same party from brick-burning near Monkstown, and notwithstanding that gentleman's appearance personally in court, and his assurance that the ammonia exhaled was beneficial to the people of the neighbourhood, the public generally were unscientific enough to dislike taking ammonia in this way, and the people of Blackrock were of opinion that if they were not speedily relieved from this brick-burning process in their town they would be poisoned. The respondent had men employed in burning tens of thousands of bricks, with his own coal, brought over for the purpose in his own ship. The ground in which the kiln was in course of erection was taken from another respondent, named Mooney, also in Mr. Edie's employment as a day labourer, and was almost in the town. It was close to the National School, and to the house of the petitioner, a member of whose family was sworn to be ill, and to be most injuriously affected by this most disagreeable process. Although the kiln was not completed, the respondents, J. and P. Hughes, as alleged by counsel, upon hearing that there was a movement against having it where it was, resolved to violate the order of the court by anticipation, and accordingly lighted the fire and put on some two hundred thousand bricks, which were then, to the great injury and annoyance of the neighbourhood, being burnt in the usual way. The town commissioners and a number of the inhabitants had presented to these respondents written protests, but to no purpose.

Mr. Purcell, on behalf of the respondents, asked till Monday following for them to state their case on affidavits, as notice of the application was served upon them only the day before.

The Master of the Rolls said he would grant until Monday, but it should be on the distinct understanding that no bricks would be put on the kiln. These parties might be assured that the law would be enforced, and proper steps taken to enforce the order of the court if it were not obeyed. With respect to the alleged impossibility of extinguishing at once the fire at present burning, a couple of fire engines brought down from Dublin would if necessary soon accomplish that purpose. The court had no wish to interfere with the enterprise of Mr. Edie if he carried on this brick-burning in a suitable place, instead of selecting sites close to thickly-inhabited localities.

Subsequently, the court granted an injunction.

[Without prejudicing the merits of the case, we must allow, that unless "a nuisance" be very clearly proved, the prevention of the manufacture would, after the respondent's considerable outlay, be a great hardship.—ED.]

AN OLD PROJECT REVIVED.

REFERRING to the desirability of altering Carlisle-bridge, to suit the increasing traffic of the city, the *Packet* has the following, which our readers will perceive is substantially similar to the original suggestion so long under discussion. We are, however, very much disposed to question the applicability of sculpture to the work, which is the only feature of novelty in the idea:—" It is proposed to construct iron gangways for foot passengers, on each side of the existing structure, formed to harmonise with its architectural character, supported in like manner with house balconies, by projecting stags, and firmly fixed, with adequate strength to sustain any weight by which their safety may be tested. The lowering of the present parapets and the application of the path flagstones to trams, for vehicles crossing the same length of line are the only further alterations required. Suitable pedestals should be erected at the four separate ends of the curves, terminating the space included in the design, and be reserved to receive the statues of 'illustrious Irishmen,' for which distribution a more eligible site could not be selected, and quite in accordance with the examples of antiquity—first Moore's, a reality (removed from College-street), Goldsmith's, Burke's, and Grattan's—memorials of native genius yet in embryo. This brief sketch is respectfully submitted for consideration, and in case the subject is favourably entertained, little difficulty will be experienced in its achievement on the score of expense. The inhabitants of Dublin have been always distinguished for liberality in providing ample funds to promote any undertaking calculated to prove useful, or conducive to the welfare of the city—a spirit creditably exhibited in the chaste beauty and striking grandeur of the magnificent squares, public buildings, and private edifices by which it is adorned—noble monuments of national taste and artistic skill, worthy of any age or country."

THE PROJECTS FOR EMBANKMENT OF THE THAMES.

OUR readers are aware, through other sources, that the commissioners appointed to inquire into the best mode of effecting this great desideratum have had several important plans laid before them, and amongst those which have occupied their attention was one by our respected and enterprising fellow-citizen, Mr. Richard Turner, of Hammersmith Works, who suggests an embankment with open wharves under a capacious roadway for the through traffic, and a low level street to communicate with the wharves; also, a low level sewer, streets, and a railway, at a total cost of £560,000.

MARY'S-ABBEY PRESBYTERIAN CONGREGATION.

THIS committee having for some time contemplated making extensive alterations, including new lecture-room, schools, &c., invited a report upon the buildings from Messrs. Lanyon, Lynn, and Lanyon, and from Mr. W. J. Barre, and having considered each as submitted, have determined upon carrying out the works recommended by the latter, and under his personal supervision, Working plans are now being prepared, and the outlay is estimated at about £4,000.

THE INAUGURATION OF THE DUBLIN EXHIBITION.

ON the 24th ult., after a previous adjournment, the Exhibition of Fine and Ornamental Art in connection with the Royal Dublin Society, was duly inaugurated by his Excellency the Lord Lieutenant, in presence of a crowded and fashionable assemblage, such a one indeed as has not been collected together in any building in this city since the occasion of her Majesty's and the Prince Consort's visit to the Great Exhibition of 1853. Like all ceremonials of this character, there was some attendant formality; and a musical display, at which some of the chief instrumental and vocal artistes assisted, was not the least interesting feature. We must confess to being somewhat agreeably disappointed at the general effect of the building and its arrangement, though we still adhere to the previously expressed opinion, that some additional height to the whole would have been a great desideratum, and that the form of girders —viz., the fish belly adopted for sustaining the galleries—is most objectionable in a perspective view. As we purpose noting the principal works in the several departments, and can scarcely do justice to them generally without the aid of a catalogue—which is a very great and unpardonable want—we defer entering upon a description until the latter is obtainable; but hereafter we reprint the address of the committee to the Lord Lieutenant on the occasion, and his Excellency's reply.

ADDRESS.

MAY IT PLEASE YOUR EXCELLENCY—We, the Vice-Presidents and Council of the Royal Dublin Society, and the Exhibition Committee, desire to express our thanks to your Excellency for consenting, as her Majesty's representative, and as President of the Society, to inaugurate the Exhibition of Fine Arts and Ornamental Art of 1861. Exhibitions of this kind, as tending to reform and enlighten the public judgment, and affording to the leisure hours of the people entertainment of a most rational and instructive description, may now be regarded as legitimate and established auxiliaries to the great cause of national education. The humanizing influence of the fine arts must be proportioned to our appreciation of the beautiful and the true; and this faculty, like all our other faculties, grows and improves by exercise and training. Having before our eyes some of the best examples of what the rarest genius can accomplish in the highest walks of art, we cannot fail to discern something of those fixed principles of taste, the knowledge of which so largely increases our sympathy with, and our enjoyment of, whatsoever is fair and glorious in art and nature. Believing, therefore, that familiarity with the fine arts cannot be otherwise than beneficial, the Royal Dublin Society readily entertained the proposal to hold an Exhibition in the present year, with which should be combined, so far as the limited space would permit, those branches of manufacture in which the fine arts become the willing handmaids of utility and convenience. Here, in this city of Dublin, where the National Gallery is still in its infancy, the people have no means of access to the works of the ancient masters; and the Royal Hibernian Academy's annual exposition of contemporary pictures, is the only available collection of modern artists. Were it not for occasional exhibitions like those of 1853 and 1858, and such as this present one, the citizens and the people of Ireland generally would have few opportunities of seeing meritorious works of art. The occasion was not to be neglected; a committee was appointed, a guarantee fund, which amounts to nearly double the sum originally named, was subscribed, and the result of our joint labours is now before your Excellency. Her Majesty the Queen has favoured our undertaking with her usual consideration for the well-being of her people, contributing many pictures from the palaces and other national collections, as well as from her Majesty's private cabinet. His Royal Highness the Prince

Consort and the King of the Belgians have also lent paintings from their private collections. And we take this opportunity also of thanking your Excellency for the valuable contributions you have so cheerfully made to our Exhibition. May we express the hope that the Exhibition will be honoured during the summer by a visit from his Royal Highness the Prince of Wales, whereby another opportunity may be afforded of testifying the warm feelings of loyalty and attachment which the people of this country entertain towards her Majesty's person and family. It only remains for us to offer our congratulations that while wars and rumours of wars resound from either hemisphere, this country, blessed with calm, and full of prosperous hopes for the future, under the mild constitutional rule of our gracious Sovereign, pursues its course of industry and peace, of which, we trust, our Exhibition may be deemed the fitting and significant emblem.

RKPLY.

I have found myself associated with your respected and spirited society in promoting the high interests of science and of agriculture. I will not seek to establish distinctive grades of usefulness between the different branches of mental and social attainments, but we shall surely seek in vain for more elevating and refining developments of them than in the domain of the fine arts. You have, therefore, done well to add to those important realities of life with which it is generally your province to deal, the grace and the charm which the fine arts generally, and, perhaps, the art of painting especially, are calculated to impart. Before I actually make the inspection by which I am about to be gratified, it would be premature to express an opinion upon the precise merits of the exhibition, I have little doubt, however, that a close inspection of the details will only confirm the effect of the rich and glowing spectacle, which, as I stand here, I see before and around me (applause). I congratulate the society on the gracious co-operation with which they have been honoured from the crowned heads, especially from our own beloved Queen (applause); and I think there is every reason to hope that we may be gratified by seeing among the spectators of this exhibition his Royal Highness the Prince of Wales, during his auspicious residence in Ireland (loud applause). The collection now about to be opened to the public gaze, besides its illustrations of ancient and modern art, will trace some of the manifold connections between art and manufacturing skill, and will thus add point to the pleasing contrast adverted to in your address—that while in other regions and communities, either the baleful blight of war is ravaging the fair face of nature, or discord is summoning brothers to more than warlike strife, we, the loyal subjects of our common Sovereign, the tranquil citizens of one united empire, the peaceful friends of the whole family of nations, are in new temples celebrating the high festivals of industry, art, and concord (loud and continued applause).

RELIEF OF THE THOROUGHFARES.

SIR,—As the advocate of every project tending either to municipal improvement or to public convenience, allow me to draw your attention to a suggestion which would surely considerably relieve one of the most crowded thoroughfares in this city, as also materially benefit in every respect one of the most important establishments therein. Judging from the present overcrowded state of Grafton-street at certain hours of the day, say from 1 to 5 o'clock p.m., we can easily fancy what it would be were it not that the *vis-a-vis* monster houses, Brown, Thomas, & Co., and Switzer, Ferguson, & Co., respectively, had adopted the very capital plan of partially diverting the stream of vehicles and pedestrians into Duke and Wicklow-streets by the provision of side entrances and exits therein. Now, Henry-street, although somewhat wider than that portion of Grafton-street alluded to, is at times almost as impassable, and it occurs to me that if Messrs. Cannock, White, & Co. adopted a similar arrangement, and extended their evergrowing concerns to Middle Abbey-street,* which is one of the most spacious and centrally situated in the city, a great public and private benefit would be effected. I can from personal knowledge testify that, owing to the crowded state of Henry-street, the narrowness of some of the pathway approaches, especially about Ball's Bank, and the necessity of passing the objectionable localities of Off-lane and Moore-street, where disreputable characters are usually congregated, several members of my family, and some of my friends, who would otherwise be purchasers at that establishment, direct their steps elsewhere. I noticed some time since your suggestion of "an extension of Lower Dominick-street to Henry-street," opening up a wide approach from the latter to the Midland Terminus, and this would exactly front Messrs. Cannock's establishment; but however desirous I might be to see that work accomplished, I confess that I think the public would have more reason to be indebted to you if you succeed in effecting the other now suggested. PEDESTRIAN.

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* We presume that our correspondent is aware that Prince's-street intervenes, and that unless that were bridged over—for which admittedly we have precedents even in this city—his suggestion would be impracticable.

PRIZES TO ARTIST WORKMEN.

As may be seen by reference to advertisement elsewhere in this journal, the council of the South Kensington Museum have just issued the programme of prizes proposed to be given to workmen for the year 1862; and to admit of the fullest publicity being given to particulars thereof, we reprint it *in extenso*, trusting that very many Irish competitors—whom, we believe, in any of the departments hereafter mentioned, are fully qualified to contest the palm with their fellows in the kingdom—may be induced to enter the list:—

The competitions are open to all workmen, whether members of the Architectural Museum or not. All competitors will be treated as members of the museum, and will as such be presented with cards of admission to the whole of the South Kensington Museum for the year 1862.

In addition to the prizes specified, the council of the Architectural Museum will, at its discretion, award the sum of £1 1s. to specimens showing particular merit, although it be not sufficient to secure a prize, and, through the liberality of Mr. S. C. Hall, F.S.A., ten illustrated books will be given, at the discretion of the council, to competitors who do not obtain prizes, but whose works are specially meritorious. These books relate chiefly to the practice of the fine arts, and are, independently of considerable pecuulary worth, highly valuable to artist workmen.

The prizes offered this year considerably exceed in value the sum of £100, and are, therefore, sufficient, as the council hope, to induce the artist workmen to compete more vigorously than in former years for such rewards. The council would, however, prefer to hold out as inducements the honourable distinction of gaining a prize and the accompanying certificate of merit.

The council request that employers will kindly make known to their workmen the encouragement offered by the Architectural Museum, and also give them every facility to compete for the prizes, and that workmen will themselves communicate the intelligence to each other, the more especially as the prize specimens will, it is hoped, form a worthy contribution towards the International Exhibition of 1862, in which it is very probable that the most meritorious may be exhibited.

Prizes for Stone Carving.—The council offer two prizes of £10 10s. and £5 5s. as first and second premiums to the competitors who shall most successfully design and execute in high relief a carved stone panel 2 feet by 2 feet (outside measurement), representing Queen Eleanor watching over Edward the First when wounded.

The council also offer two prizes of £5 5s. and £3 3s. as first and second premiums to the competitors who shall most successfully design and execute a carved and moulded stone capital, suitable for a column 9 in. in diameter, showing the best arrangement of hawthorn and ash foliage, which may be conventionally rendered.

Prizes for Modelling in Clay.—Two prizes of £3 3s. and £2 2s. as first and second premiums to the competitors who shall most successfully execute in the Architectural Museum a model from a cast, representing one of the "angelic choir" from the north transept of Westminster Abbey. The cast to be copied will be placed at the north end of the gallery of the Architectural Museum, and distinguished by a label and memorandum affixed thereto.

Competitors will be furnished with cards of admission to the museum for students' days or evenings on application to the honorary secretary.

Prizes for Wood Carving.—Two prizes of £10 10s. and £5 5s. as first and second premiums to the competitors who shall most successfully design and execute in lime or other soft wood, a door panel, with pierced tracery and foliage of not less than 2 ft. by 1 ft. 4 in. in extent.

Prizes for Metal Work.—Two prizes of £10 10s. and £6 6s. as first and second premiums for the competitors who shall most successfully execute in hammered iron a copy of a portion of the scroll work (about 2 ft. 6 in. high by 2 ft. broad), in St. Paul's Cathedral. The specimens must be of the size of the original, but in order to give more time for finish, need only be finished on one side, the remaining portion being beaten out, but left unfinished.*

The council also offer a prize of £10 10s., and Sir Francis Scott, Bart., a prize of £5 5s., as first and second premiums, for the competitors who shall most successfully design and execute a wrought-iron door-handle, either Gothic or Renaissance in style, and not less than 6 in. over.†

Prize for Painted Glass.—The council offer a prize of £5 5s. for the competitor who shall most successfully design and execute a glass roundel or disc 9 in. in diameter, painted with any floriated design which the artist workman may prefer.‡

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* Competitors may have the particular pattern pointed out to them, and receive permission to prepare drawings therefrom, by applying to F. C. Penrose, Esq., at the office of the cathedral surveyor, St. Paul's churchyard, who has kindly offered to render every assistance.

† The ornamental workmanship of any specimen must not interfere with its convenient use.

‡ The texture of the glass and the burning will be taken into especial consideration.

Prizes for Coloured Decoration.—The committee of the Ecclesiological Society offer through the council of the museum a prize of £5 5s. for the competitor who shall most successfully colour according to his own judgment a cast of one of the "angelic choir" in the north transept of Westminster Abbey.

Mr. Beresford Hope will give £8 8s. in one or more extra prizes, if any other works appear deserving of reward.

This being specially a colour prize, the same cast for competitive colouration is proposed to all the competitors. Each candidate may adopt that medium for applying his colours which he prefers, but he is expected to treat the panel as forming a portion of an architectural composition, and not as a cabinet piece. The original is in stone.[*]

Prizes for portions or the whole of Works.—The council of the museum will award prizes of £1 1s. and upwards, with certificates in cases specially deserving, for the whole or a portion of any actual work, whether finished or not, in stone, wood, metal, glass, or colour, or for specimens of tracery, flat surface work, or masonry for mouldings, without ornament of any kind, which may be tendered to them, and may appear deserving of the reward. For the sake of convenience in exhibiting, these specimens should not exceed a size of 2 or 3 square feet, and it must be distinctly understood that in this particular competition the artist workman must point out the part of the work which he has himself executed with his own hands, and state whether it be his own idea or not. Unsuccessful competitors under this head will not as such enjoy the privilege of members of the museum.

GENERAL CONDITIONS OF ALL THE COMPETITIONS.

All specimens sent in competition for the prizes must be deposited in the Architectural Museum free of cost by the 1st of January, 1862 (excepting in the colour competition, where the limit is December 2, 1861), with a mark or motto only attached, accompanied by a letter sealed with a blank seal, and having on the outside the same mark or motto as that attached to the specimen, with the title of the particular competition, thus, "Stone Carving Competition, Colour Competition," &c., and enclosing the name and address of the competitor in full, with those of his employer, if any. The letter to be addressed to "The Honorary Secretary of the Architectural Museum." The specimens will remain the property of the artist workmen or their employers, and will be exhibited in the Architectural Museum until after the day of the distribution of the prizes, and such specimens as may be thought especially deserving will be sent to the International Exhibition of 1862 also. The remaining specimens must, after their exhibition in the Architectural Museum be removed by and at the expense of the respective competitors. It must be distinctly understood that the prizes will not be awarded unless there appear sufficient merit in any of the specimens to entitle them to such distinction, and certificates of merit in addition to the prizes will be given in such cases as may be considered deserving.

TOWN SEWERAGE AND MANURES.[†]

THERE is presented for exertion the *present* general, almost total, loss—for the *future*, the almost total gain of town manures. In places where what I will call the waste of manure (such as is going on by the evaporation in nearly a thousand miles of sewers of deposit and cesspools in this great metropolis), where this waste has been prevented by the abolition of cesspools, there the sickness and death rates have been reduced one-third. But what has happened? though the atmospheres of houses have been purified, and men, women and children have been saved from premature and wasteful debility and mortality, rivers have been polluted, and fish it is feared have perished. I have been denounced in Parliament as an instigator of such doings as the pollution of rivers; but as to the pollution of the Thames, I bore with equanimity these reproaches and sufferings of hon. members (when subjected for a short time to stenches, which the poor in the worst districts have to bear always), for those sufferings may be proved to have been from their own default, in not consulting the evidence laid before them, and in not regarding the conclusions from that evidence, by which it was shown how the evil and the annoyance might have been prevented. In my report of 1842 I represented it as an enormity that manure which at that time was equivalent to the annual feed of 218,000 head of cattle, should be thrown into the river. To those whose concern is greater for the population of rivers than of towns, I will stay to offer this advice:—That they should direct their exertions to getting the sewerage discharged fresh by means of self-cleansing pipe, house, and street drains and water-closets, until it can be provided for agriculturally, rather than as in the common method by the putrid overflow of cesspools and sewers, and drains of deposit, like that discharged from most old town districts. I have to inform them, as also *engineers*, *chemists*, and others who have undertaken to advise on the sanitary improvements of towns, that there is a wide difference, of which they have as yet taken no practical account, between sewerage which is fresh (*i.e.*, which has not entered into advanced stages of decomposition), and sewage which has been kept to advanced stages of decomposition, and which is putrid; for it now appears that where, by means of self-cleansing pipe drains, the sewerage is discharged fresh, the fish are increased in quantity and improved in quality.

In France trial works were on my advice adopted by the Imperial Government for the application of sewerage; and whensoever other circumstances, such as the improvement of the water supply and the house drainage, allow of the application of the principle, data have there been gained for applying it confidently and correctly. We have the development of another principle, highly important for the future of agriculture—namely, the saving of roads, of fences, the saving of space, or rent, the reduction of the space requisite for food manufacture, or the principle of intensive and high cultivation on small areas, instead of diffused and low cultivation over wide areas. It may yet be doubted whether even they have laid down too much of pipage for an improved agriculture, which shall follow garden culture, and apply the machinery which enables them to distribute plain water equal to a thunder shower at a rate of from 6d. to 1s. per acre; which on the large scale enabled 100 tons to be put on in an hour at a working rate of 1s. 8d. per acre. I have been informed of a number of farms on which the principle is applied successfully; but unfortunately it is those who are known to be most successful who are the least disposed to give any account of their process or the particular means of their success. In one case an interruption occurred with the first occupier of a leading liquid manure farm; in another a merchant who set up an exemplary model farm, displaying unequalled rates of production in a small area, became a bankrupt from other speculations, and loud was the shout upon these occurrences as failures of the principle. That is to say, according to the notions of the objectors he had failed because he saved instead of wasting his liquid manure—had failed because he applied the manure of his farm with an economy of money and time, and a productive result beyond anything that had before been done, just as it might be shouted that the railway principle was ruinous in conveying goods at working expenses of pence instead of shillings—in hours instead of days!

ROYAL PALACES.

WITH the single exception of Windsor, none of our royal palaces are stamped with architectural magnificence; both in extent and style they are surpassed by several of the country seats of our nobility. Throughout the whole of Europe very few royal palaces, whatever may be their magnitude, are at all distinguished by superior architectural taste. In the French capital, it is only the eastern façade of the Louvre, the river-front, and the inner court, which can lay claim to beauty or richness—the Tulleries being only a mass of quaint grotesqueness. The Vatican at Rome is merely a huge irregular pile; and Versailles and the Escurial, notwithstanding the millions they cost, are both monuments of exceedingly bad taste. Though far from beautiful, the royal palace at Madrid, begun in 1737, from the designs of Giambattista Sachetti, an Italian architect, is a stately and regular pile, it being 470 feet square, and 100 in height, but the effect such a mass would otherwise produce is greatly impaired by the number of mezzanines. The same remark applies to the celebrated palace erected by the King of Naples, about the middle of the last century, at Caserta, of which Vanvitelli was the architect. This building is certainly characterized by magnitude, for it extends 731 feet from east to west, and 569 from north to south; yet of either grandeur of conception, or majesty of style, there is very little, certainly not enough, to reconcile us to the prodigal execution of so very indifferent a design. The royal palace at Stockholm is a stately edifice in the Italian style, although the original design, by Count Tessin, was considerably curtailed. The original imperial winter palace at St. Petersburgh was a vast pile erected by the Italian architect Rastrelli, in the reign of the empress Elizabeth, of most imposing aspect towards the quay of the Neva, but exceedingly heavy and grotesque as to style.

Enormous as have been the sums expended upon many of these edifices, every one of them falls very short of the ideal of a royal palace, in which, if anywhere, not only all the luxury and pomp of architecture, but a certain colossal dignity of aspect, should present itself. This can never be accomplished where storeys above storeys are allowed to display themselves externally. That is but a vulgar species of architectural grandeur which is produced by a numerical multiplication of little parts and features. All the rooms required for the accommodation of an extensive household should be turned towards inner courts, and the whole exterior, having only a single range of lofty windows above the ground floor, should be left for the unrestrained display of architecture and sculpture on a noble scale, without any intermixture of littleness. By such a disposition, too, convenience would perhaps be found far better consulted than at present, because, while all the apartments for official and state receptions and court entertainments could be connected together, the whole of the vast number of subordinate rooms required in such a habitation would be concentrated within the general plan, and at the same time might be kept entirely apart, by means of galleries between the outer and inner range, communicating at intervals with lesser vestibules and staircases attached to the suites of lesser rooms and private apartments of every description.

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[*] Casts from this panel will be supplied on application to the honorary secretary of the Architectural Museum at 5s. each at the museum, or by payment of 2s. extra for packing and case. Duplicate casts will be allowed. The committee of the Ecclesiological Society will themselves adjudicate.

All specimens for the colour prizes must be sent in by December 2, 1861. See general conditions.

[†] From a paper read by Mr. Chadwick at Royal Agricultural Society of England.

PALMYRA.

With respect to the ruins, they appear to be of two distinct periods; the oldest are so far decayed as not to admit of mensuration, and seem to have been reduced to that state by the hand of time; the others appear to have been broken into fragments by violence. Of the inscriptions none are earlier than the birth of Christ, nor are any later than the destruction of the city by Aurelian, except one, which mentions Dioclesian. It is scarcely less difficult to account for the situation of this city than for its magnificence; the most probable conjecture is, that as soon as the springs of Palmyra were discovered by those who first traversed the desert in which it is situated, a settlement was made there for the purpose of carrying on the trade to India, and preserving an intercourse between the Mediterranean and the Red Sea. This trade, which flourished long before the Christian era, accounts not only for its situation but also for its wealth. As it lay between Egypt, Persia, and Greece, it was natural to expect that traces of the manners and sciences of those nations should be discovered among the Palmyrenes; who accordingly appear to have imitated the Egyptians in their funeral rites, the Persians in their luxury, and the Greeks in their buildings; and therefore the buildings, which now lie in ruins, were probably neither the works of Solomon nor of the Seleucidæ, nor, few excepted, by the Roman Emperors, but of the Palmyrenes themselves.

Palmyra was formerly encompassed by palms and fig-trees, and covered an area, according to the Arabs, of nearly ten miles in circumference; and might probably have been reduced to its present confined and ruined state by the quantities of sand driven over it by whirlwinds. The walls of the city are flanked with square towers; and it is probable, from their general direction, that they included the great temple, and are three miles in circumference. But, of all the monuments of art and magnificence in this city, the most considerable is the temple of the sun. The whole space containing its ruins is a square of 220 yards, encompassed with a stately wall, and adorned with pilasters within and without, to the number of sixty-two on a side. Within the court are the remains of two rows of very noble marble pillars, thirty-seven feet high; the temple was encompassed with another row of pillars 50 feet high; but the temple itself was only 33 yards in length, and 13 or 14 in breadth. This is now converted into a mosque, and ornamented after the Turkish manner. North of this place is an obelisk, consisting of seven large stones, besides its capital and the wreathed work about it, about 50 feet high, and, just above the pedestal, 12 in circumference. Upon this there was probably a statue, which the Turks have destroyed. At a small distance there are two others, and a fragment of a third, which gives reason for concluding that they were once a continued row. There is also a piazza 40 feet broad, and more than half a mile in length, enclosed with two rows of marble pillars, 26 feet high, and 8 or 9 feet in compass; and the number of these, it is computed, could not have been less than 560. Near this piazza appear the ruins of a stately building, supposed to have been a banqueting house, elegantly finished with the best sort of marble. In the west side of the piazza there are several apertures for gates into the court of the palace, each adorned with four porphyry pillars, 30 feet long and 9 in circumference. There are several other marble pillars differently arranged, on the pedestals of which there appear to have been inscriptions both in the Greek and Palmyrene languages, which are now altogether illegible. Among these ruins there are also many sepulchres, which are square towers, four or five stories high, and varying in size and splendour.

Liebeg, the well-known chemist, has been elected a foreign member of the Academy of Sciences in Paris, in place of the late M. Tiedmann.

An equestrian statue of King Charles Albert, executed by Baron Marochetti, at London, has arrived at Turin.

ODE TO SACRED ART.

O beautiful, soul-lifting Angel of Art!
Thou hast strength for the *spirit* and grace for the *heart:*
So in heaven, when unclouded and balmy the weather,
Glow the sun and the moon in grand union together.

Thou dost look o'er creation, and straightway it glows
On the bosom of Mind as an opulent rose
That the Deity fashioned when leaning, of old,
O'er the dark sea of Chaos, His glory He rolled.

Thou art coronaled Priest for the fair of mankind
By thy mission in beauty immortal enshrined:
At thy touch, all of matter is ever our own,
And the Universe turns to Humanity's throne.

But a triumph still holier, grander is thine,
In whose light thou art clothed in a mantle divine,
When thou wav'st beyond planets thy heavenly rod,
And the soul walks on high in the temple of God.

This thy acolytes knew in the great olden time
When a Raphael, a Rubens illumined their clime
With the angelic forms and the sweet seraph looks
That are sung on the harp of the Book-of-all-books.

How immortal their canvas reflecting that zone!
Over centuries past it has deathlessly shone:
Over ages to come it will glow with the light
That the Merciful gives to Humanity's night.

On the grand page[*] before me their glories appear,
Twined with others that flame in the same sacred sphere.
Yea, beautiful, soul-lifting Angel of Art!
Thou hast strength for the *spirit* and grace for the *heart*.

Wm. R. Wallace.—*Household Journal.*

CHURCH BUILDING INTELLIGENCE.

Considerable progress has been made with the new church of Newtownmountkennedy, and the building, which promises to be a handsome one, will be completed within a very limited period.

The new Roman Catholic Church, for some time in course of erection at Arklow, is now nearly completed, and will be dedicated on the 18th of August. The plan is cruciform, comprising nave, transepts, portico, bell tower, collateral porches, &c., and is in length externally 140 feet, by 47 feet in width—which is of chiselled granite—except at the front, where it is 53 feet wide. The bell tower will be 100 feet in height.

St. Bridget's new church at Clogherinkoe, county Kildare, being erected under the direction of Mr. Butler, architect, and comprises on plan nave, chancel, south porch, and tower at western end, which will be surmounted by a spire. The style is early decorated, and external buttresses between crisped-headed oblong windows, and open timber roof, stained and varnished, are amongst the principal features in the design. The estimated cost is about £3,000.

A handsome marble altar has been fitted up in the parish church of Blarney by Mr. Scannell, of Cork.

A new church is to be built in the town of Dingle, and Miss Hussey has already contributed £8,000. The site is that of the old church.

A new church is to be built at Lower Falls, Belfast, according to plans by the architects to the Ecclesiastical Commissioners, and the same body are also about erecting a district church at Clanabogan, Co. Tyrone.

The new church of Clenor, Kilavullen, will be consecrated on the 1st Sunday in June, and was erected after the designs of Sir John Benson, C.E. and architect, whose services were gratuitous. It is thus described by the *Cork Examiner:*—It is Gothic, oblong in shape, with a high-pitched roof, the side walls flanked by strong buttresses, and having at the western end a gable surmounted by a handsome belfry. Its length in the clear is 100 feet, and it is 36 wide. Upon the northern side it has four windows, and a beautifully moulded porch; on the southern side it has five windows corresponding with those on the opposite side. Each window is 11 feet high by 5 broad, and has two lights, divided by a stone mullion and headed by tracery. The jambs and mullions are all of cut stone, executed in the yard of our fellow-citizen, Mr. Egan; they are each furnished with ventilators, around which, as around the whole windows, a ruby border has been disposed. In the western gable there is a noble stained glass window 24 feet by 12; and in the chancel at the opposite end there is a trefoil window, 8 feet in diameter, also of stained glass. At the chancel end there are two sacristy rooms, lit by three windows similar to those in the main building, and also distinguished by the ruby border. There are six buttresses at either side, which may be regarded as models of strength, combined with lightness. The effect of the interior is excellent. It has an open timber roof, the principals of which are supported on stone corbels, carried down considerably below the eaves. It is calculated to hold 2,000 persons at once. Mr. P. Coleman, of Mallow, the builder, has executed his work in a most creditable manner. The glazing has been done by the well-known house of Maurice Brooks, of Dublin. The cost has not, we believe, exceeded £2,000.

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[*] Of an Illustrated Family Bible.

Extensive improvements in connection with St. Mary's Catholic Church at Navan are projected. The building is 72 feet wide, and yet found inadequate for the requirements of the congregation. The *Freeman* gives the following particulars of the proposed works:—It is intended to divide the church interiorly into nave and aisles by lofty arcades, crowned with entablatures, and supporting a deeply panelled elliptic ceiling, rising into the vast expanse of the present roof. The design also includes a circular apse or chancel for the high altar, crowned by an elliptic semi-dome. These additions will make the interior second to scarcely any interior in this country. Externally it is intended to decorate the principal front with two campanili in the Italian style, each rising to a height of over 100 feet, and crowned with an open lantern and massive gilt cross. Between the campanili will be an open piazza, forming an extensive covered entrance to the staircases, nave, and aisles. The piazza will support a new front decorated with arcades of window openings, covered by a figure of the patron saint. The new front enclosed between the massive and lofty bell towers will present an imposing appearance. A commencement will be made by erecting one of the bell towers. The design and superintendence of the improvements have been intrusted to Mr. Bourke, the architect of the Mater Misericordiæ Hospital.

Cathedral of St. Mel, Longford.—This great church extends in exterior length over two hundred and fifty feet, its breadth across the transepts is over 130 feet, across the nave and aisles 87 feet, and 60 feet to the crown of the ceiling. Ionic columns, in native limestone, divide the nave from the aisles and the aisles from the transepts. The columns support a lofty arcade, which is ornamented with devotional figures of demi-colossal size, all crowned by a rich entablature, from which springs a deeply-coffered dome ceiling, pierced by lenette windows. The building was designed and the erection of the walls superintended by the late Mr. J. B. Kane The design and superintendence of the completion were entrusted to Mr. Bourke, who was permitted to modify the design so far as to considerably improve and beautify the interior. Over the great centre vestibule has been commenced the erection of a cupola, or campanile, which will consist of three stages, each stage forming a temple, and richly decorated with pilasters, cornices, and niches for statues. The centre stage will be decorated with coupled Ionic columns, pilasters, and pediments supporting inverted trusses. The entire will be surmounted by a dome, which will terminate in an open lantern, finishing with a rich scroll cross of gilt bronze, 166 feet from the surface. The campanile is being erected from an original design by Mr. Bourke, and after its completion nothing will remain wanting to the perfection of this splendid Christian temple but the great portico of six columns, extending across the front ninety-four feet, which has yet to be erected. The sum already expended on this building is between thirty and forty thousand pounds.

The foundation-stone of a new Catholic cathedral will be laid at Monaghan on the 18th inst.

The want of a second church for the neighbourhood of Clontarf, Dollymount, &c., has been long felt, but we learn that it will shortly be supplied by the erection of a suitable building, the funds for which will be subscribed for, and a gentleman is ready to undertake the immediate commencement of the work. A difficulty may arise as to the site, but we hope that too will be speedily surmounted.

The time for sending in tenders for the erection of St. Andrew's Church is extended to the 29th inst.

A new district church is to be built at Clanabogan, county Tyrone, according to plans by the architects to Ecclesiastical Commissioners.

The church of Carberry, county Kildare, is to be enlarged under similar directions.

Notes of New Works.

A new harbour, according to plans by the district county surveyor, Mr. Frith, is proposed to be constructed at Bray, and preliminary arrangements have been commenced.

A new infant school is proposed to be built, and tenders are being taken for same, at Loughgall, county Armagh. Mr. W. J. Barre, architect.

Plans have been prepared by the same architect for the superintendent's house of the Dublin and Belfast Junction Railway at Dundalk, to be immediately carried out. Outlay about £900.

A stand-house, principally constructed of stone, but the upper portion of timber, and in the Swiss style of architecture, has been built on the race course, about two miles from Loughrea.

The houses at the corner of Dame-street and Eustace-street, recently purchased by the proprietor of *Saunder's Newsletter*, are to be taken down and rebuilt; the shop, or wareroom façade, will be of a highly ornate character, from designs by Mr. Charles Papworth. Mr. William Hughes has been declared the contractor.

Additions and alterations are about to be made to New Brighton House, at Shankhill, for H. W. Smith, Esq., under the directions of Mr. J. J Lyons, architect. The present structure is a commodious cottage of neat but unpretensious architectural character, with about 47 feet frontage, and 36 feet depth, and it is proposed to convert it into a villa residence, by raising it an additional storey, for bed and bath-rooms, &c., forming a principal staircase, and remodelling the halls, which will be decorated with new Corinthian columns, &c., and entablature, and be floored with encaustic tiles. A conspicuous feature on principal front will be two handsome oriel windows, fitted with plate glass, and carried up two storeys in height, equidistant from centre about 12 ft. 6 in., but connected together on principal floor by a long glass passage, serving as an outer porch, and on the first floor by an open verandah, with curvilinear roof supported on handsome cast-iron brackets, ensuring during summer a pleasant lounge to enjoy the magnificent views of the bay and coast, which the position commands, and also serving as a receptacle for exotics and other plants, and in winter affording much additional protection from inclement weather. A cantilever roof projecting two feet or thereabouts, and having blocks and brackets underneath, will surmount the entire house, and contribute to the general architectural effect.

The Dundalk Steam Packet Company are about erecting a house and offices, two storeys high, and with about 40 feet frontage. Tenders to 5th inst.

The Dublin and Meath Railway is so far advanced that an engine can travel on portions of it. Overseers and plate layers are night and day engaged with the permanent way, and about 1,200 men are constantly at work. Messrs. Moore are the contractors.

It is confidently hoped that some nine miles of the Dublin, Wicklow, and Wexford extension line will be opened between the town of Wicklow and Rathdrum about the middle of July. The rails are laid down over a portion of the new line, over which the contractor's engine will pass in a day or two. The permanent way is solidly constructed, some eight or nine fine stone bridges spanning the various roads crossed in its way.

ROYAL IRISH ACADEMY.

At a meeting of this body on the 27th ult. a letter was read from Sir Thomas Larcom, stating that he was directed by his Excellency to inform the academy that the Lords Commissioners of her Majesty's treasury had sanctioned an expenditure of £100 per annum in the recovery of antiquities, to be carried out through the instrumentality of the constabulary of the various counties. The letter stated that his Excellency felt assured that he might count on the assistance of the academy in a measure so useful and so much calculated to add to the valuable collection in the museum of the academy.

The Chairman said the method adopted for the collection of the "treasure trove" was very simple and satisfactory. Notices had been issued and published to the effect that his Excellency the Lord Lieutenant having been informed by the Lords Commissioners of her Majesty's Treasury that they will purchase native coin or other antiquities on same being given up, intimation was thereby given to all who might find such articles that on delivering them up to the sub-inspector, or some other member of the constabulary of the district, they will receive, through that department, rewards equal in amount to the full value of the articles. This plan was already producing very considerable effects, for several articles of interest had been recently forwarded to the academy for valuation, and he had no doubt that by the means of this scheme the academy would receive a great number of articles which would otherwise be lost to it. He thought the warm thanks of the academy were due to the government for this additional act of prompt liberality.

Thanks were voted to the government accordingly.

The Rev. Dr. Todd communicated some interesting particulars relative to the battle of Clontarf, from a series of volumes entitled the "Wars of the Irish and Danes," with the editing of which he had been intrusted by the Master of the Rolls in England, and which were said to have been written by the poet of Brian Boroihme He referred to portions of the contents of the manuscript as proving that it must have been written by one who had been an eye-witness of the battle, and he then alluded, at some length, to the historical facts of the battle.

Dr. Petrie said it was a general opinion amongst the people of the country, that Brian Boroihme was a great man, but he thought he was quite the reverse—that he was a man with military power and skill, but had done the greatest injury to the country. He made use of the Danes, and broke through the legitimate succession of the kings of Ireland. The popular belief that he banished the Danes was quite a fallacy.

Professor Haughton read an interesting paper "On the true height of the tide at Ireland's Eye on the night of the murder of Mrs. Kirwan."

New Organ.—The Messrs. Telford have just completed a handsome and powerful instrument, for the new church of Ballybricken, Waterford.

COLUMN FOR CRAFTSMEN.

MASONRY AND BRICKLAYING.

Next to the crafts of carpentery and joinery, the mason and bricklayer, either conjointly or independently, occupy the most important position in building construction, though unless in extensive works their skill is hardly ever called into more than ordinary requisition. We need not go farther than our own island, in some instances our own metropolis, for most excellent specimens of the mason's handicraft, though it must be conceded that our English brethren are infinitely before us in brick construction, that material being chiefly indigenous to their soil, and stone to ours. It is sometimes a matter of surprise to English tourists to see our one-storey houses reared with stone walls from eighteen inches to two feet, and exceeding in thickness, while those in certain parts of London, Liverpool, Manchester, and elsewhere, are not unfrequently, for whole streets, but *nine inches*, single brick, in thickness even for outer walls three storeys in height, producing to the inmates intolerable cold in winter, and at all periods of the year being, as may be inferred, most insecure and weak in construction. The art of masonry admits of as many gradations in point of excellence as any of the others, though it is more frequently practised after amateur fashion by a class who rejoice in the title of "handy-men," and who undertake to build a wall "as well as the best," but whose work, sooner or later, convinces him who has to pay for it that after all the *real* best is the cheapest. Of masonry, that most ordinarily in vogue is known by the term "rubble," and this too is subdivided into other classes; for instance, ashlar, when the courses are regularly or irregularly laid, the joints horizontal and vertical, horizontal and *not* vertical, random, angular, &c., respectively. For a better class of work it is usual to carry up the walls in courses averaging from 12 to 14 inches in height, each stone laid horizontally on its quarry bed, and its sides vertical, or nearly so, thorough bond stones being introduced at every 4 or 5 feet in length, the hearting filled in with spalls and grouted, the quoins, tail bonds, and opens (where brickwork is not employed) squared and rough, punched or hammered. The best class, however, and next to stonecutters' work, is that in which the above system is adopted, but each stone is separately and neatly dressed on its face, and the joints accurately fitted and breaking irregularly, the interstices between the larger blocks being filled in with smaller ones of same class of workmanship. Among the best specimens of this character of masonry within view of our local readers are the Church of St. Laurence O'Toole, Seville-place, and the enclosure wall of the Jesuit's house in Upper Gardiner-street. It is not unusual for some workmen to build what appears to the eye a very excellent wall, but which on examination is found to consist of two faces, the space between being hollow, or nearly so, owing to the hearting not being properly filled in, which is so requisite to ensure a compact mass. In constructing foundation walls, on which it is intended to erect a heavy superstructure, a very important addition of strength is obtained by introducing inverted arches the full width of the wall, and varying in depth according to circumstances, thereby distributing the weight more uniformly over the surface, and lessening the probability of settlements, and in all cases it adds to the stability to lay therein the largest and flattest stones procurable. For excessive strength and massiveness the ancients generally excelled in masonry construction;—witness the stupendous Egyptian pyramids, the great Roman aqueducts, the cathedrals of the middle ages, &c., and their secret of composing a mortar or concrete of extraordinary adhesive properties, hardening more and more with each century of its age, still remains unrevealed, though we must note as an exception to a general rule that recently during the removal of a portion of the south transept original wall of St. Patrick's Cathedral, we happened to be present, and could scarcely have imagined to exist, even in our modern buildings, constructed on the most economical principles—the common order of the day—a more heterogeneous mass of rubbish, of paving-stones and clayey mortar. It is unjust to suppose that the mason's art is confined to mere construction, and does not admit of architectural treatment, for by judicious adaptation of mere stones much imposing effect may be obtained for almost every known class of structure, but more especially in that of a domestic character. In ordinary masonry, mortar composed of *two* parts of sharp pit or fresh water sand to *one* part of best slaked lime is employed, and where additional stability is desirable, a liquid composition called grout is poured over the work at certain stages. Oil putty cement is also sometimes used, and if properly composed, will stand longer than most stones. For masonry construction the materials found in Ireland are peculiarly favourable, granite being unquestionably the best and the *driest*, not requiring, where a good quality is obtainable, any brick lining to render dwellings or other buildings free from damp. The Boyne viaduct piers and abutments —a most stupendous work—are constructed of a very excellent limestone, which answers the purpose admirably; but where this class of stone, or the calp black stone found in the vicinity of Dublin, is used for habitable buildings, brick lining is indispensable.

EFFLUVIA FROM THE LIFFEY.

The summer heat invariably superinduces the exhalation of noxious effluvia from any river used as the sewerage medium for the inhabitants of a populous city, and we are very early reminded this year through our nasal organs of the innoxious atmosphere circulated from the bed of Anna Liffey. Poisonous gases, to an almost unlimited extent, are emitted at certain stages of the tide from flowing, as well as stagnant water, when fœtid deposits from main sewers and cesspools exist therein; and of course in the same ratio as the filth increases, so does the stench and the consequent deleterious effects. Compared with other rivers in the kingdom on which chief cities are built, ours is but "a mere ditch," yet, comparatively speaking, the inconvenience experienced from its exhalation has been trifling until recently; but we must remember that, as with each succeeding year, the city and its population are increasing in magnitude, so also are the numbers of sewers emptying themselves into the river, and therefore the effect is becoming more and more perceptible. What person who has ever stood on the ferry steps—where, through some very questionable wisdom, the main sewers from north and south sides respectively are made to discharge — but has not been nearly stifled by the emissions therefrom, and by the bubbling gases from the inky stream? On one of those many hot days which have recently prevailed, we were forcibly struck with the insufferable effluvia exhaled, and which is in proportion to the narrowness of the river, it being generally greatest along the line of quays from Carlisle to King's-bridge, and more especially so in proximity to the former, the most important thoroughfare and most densely populated. A forcible and practical argument is here presented for the adoption of a different principle of sewerage, and though heartily wishing for the application of a remedy, we might be accused of chimerical speculation to suggest one in the *present* state of corporate finances, and which, in short, would be the total annihilation of the present sewers and the construction of new, emptying themselves, as at Paris, into a reservoir many miles from the city. There seems to be no remedy, therefore, but for our citizens to take the consequences, and *if* they be as we have reason to apprehend they *will* be, the *sooner* those who can afford it seek the unadulterated air of the suburbs *the better*.

FREQUENCY OF FIRES.

The popular remark that "misfortunes never come alone," would seem equally to apply to the casualty of fire, which for lengthened periods is happily unknown, but as soon as one breaks out, a series is sure to follow, as if the demon of destruction had been aroused from his slumbers, and in revenge for the disturbance applied his flaming torch to every available object within his reach. Never, perhaps, has the coincidence—or fatality, or whatever we may term it—been more apparent, at least as regards this city, than during the past month, when no less than *six* fires of greater or lesser importance occurred, providentially, however, unattended with loss of life. The three most important were those at O'Neill's, Corn Market (a builder's premises); Fitzsimon's, Bridgefoot-street (an extensive timber yard); and Melmer's, Grafton-street (a silversmith's); but in the former instance both the amount of property consumed and misfortune inflicted was considerably in advance of the others, while *all* serve in some degree to illustrate the necessity for greater precautionary measures against the extension of the evil than at present. The "fatal half hour" is so hackneyed a concomitant to every casualty of the kind, that we need only allude to it, and express a hope that, sooner or later, means may be adopted to save that most precious period; but the disorganization of the body to apply an opposing power to the destructive element is so unpardonable as to demand the severest censure and the most speedy remedy. When a fire is announced, instead of each man hurrying systematically to his post under the direction of a conductor, all is scrambling and confusion, searching for the fire-plug, and fumbling with the hose, running to and fro, each in the other's way, and undoing what the other does to facilitate the suppression of the calamity, while in the interim the insidious demon is effectually doing his work, and more firmly ingratiating himself in the doomed premises. As a body, both the brigade men and the constables are earnest and efficient, but like an army fighting without a general, their capabilities are not fairly brought into play. The city ought to be divided into at least two districts—north and south—each under the charge of a "fire captain," who, on the alarm being given, should adopt prompt steps to bring the brigade to the spot, direct their operations, obtain a supply of water, &c., &c. Until this course is adopted, it is wasting speech to talk about "the fatal half hour," which is an indispensable attendant on the present want of system.

M. Joubert has perfected a process of transferring photographs to glass. The *Athenæum* speaks of the beauty and cheapness of the process. Portraits, views of localities, &c., are indelibly fixed on the glass, defying time and weather in the open air.

LAW NOTE.—COMMON PLEAS.

Kempston v. *Butler*.—A motion has been made in this well-known case to amend the postea. The arguments were altogether of a technical nature. The court refused the motion.

Sergeant Armstrong, Mr. Heron, Q.C., and Mr. O'Driscoll, appeared for the plaintiff. Mr. Exham for the defendant.

VILLA SKETCHES.

ONE of the illustrations accompanying the current number is the first of a series which we propose to give from time to time of designs for suburban villas, and which may probably be reproduced hereafter in another form, with the corresponding plans, sections, details, and specifications. Professional gentlemen practising in Ireland are invited to forward to the editor of this journal, for publication, drawings of their works, which may be comprehended under this head, and may present architectural features of an uncommon and meritorious character; such drawings to be—whether perspective or geometrical—of the suitable size for our page, and to be subject to approval.

Miscellaneous.

TIMBER.—At Messrs. John Martin and Son's periodical sale, on the 16th ult., the following goods were disposed of:—

14 hd., second quality Quebec deals, £15 5s. to £15 10s. per standard hundred.

57 hd. St. John's deals, £13 15s. to £16 10s., average £15 2s. 6d., per standard hundred.
2 hd. second quality pine deals, £21 5s. do.
3 hd. first quality do., £28 2s. 6d. do.
2 hd. first quality spruce deals, £19 2s. 6d. do.
3 hd. Memel plank, £21 5s. to £22 10s. do.
13 hd. red deals and battens, £22 to £27 2s. 6d.
131 pieces Memel timber, 70s. to 80s., average 75s. per ton.
54 do. red pine timber, 60s. to 70s. do., average 67s. 6d. do.
38 do. yellow pine timber, 55s. to 57s. 6d. do.
2 fathoms Dantzic lathwood, at 90s.

TRAMWAY TO THE PHŒNIX PARK.—This splendid regal domain, situated in the vicinity of a large town, presents advantages unequalled in any other part of the empire; but the benefits are almost exclusively confined to the affluent ranks of society, owing to its distance from the central point of the municipal boundaries. A tramway running from Carlisle-bridge, along the quays, to a spot near the great entrance, would remedy this defect, rendering the gifts bestowed by nature, and the privileges granted by the State available for all classes of the community. Extended opportunities will be afforded to the people for indulging innocent recreation and healthful enjoyment, by means of a cheap and regular species of conveyance, the value of which it is expedient should be generally known in order to become generally appreciated.—*Packet.*

THE HOUR PAYMENT SYSTEM.—The masters in the building trade who have adopted this system have nearly all their complement of men, and some who have their shops full are obliged to turn away numbers of good hands seeking employment under the new regulations. The opposition of the Trades' Union is becoming more outrageous. Men who might be in full employment at good wages, spend the day on picket, and in hooting and jeering the men who have accepted a system of payment which in many instances has raised their earnings to thirty-nine shillings per week.

HISTORY OF WATER COLOUR PAINTING.—An exhibition, illustrating the history of this art and of works by female students, opens this date at the Society of Arts, London.

INSECURE PALING AT KINGSTOWN PIER.—The inhabitants consider the paling along the side of the footway leading from the East Pier to the Victoria Baths as unsafe, particularly for children and restive horses. If (says the correspondent of the *Freeman)* the latter are startled by the railway whistle, there is nothing to prevent another lamentable affair, similar to the Portobello Lock, taking place. It is to be hoped the Board of Works will see to it ere it be too late.

THE WELLINGTON TESTIMONIAL, PHŒNIX PARK.—The *Freeman*, referring to the above, says:—The bronze bas reliefs by Kirk, Farrell, and Benzoni are now being erected on the base of this monument, and the public will soon have an opportunity of judging of their effect. They are admirable works of art, and will be a decided improvement to the huge obelisk, which was too long left in an unfinished state. The bas relief representing the Duke at Seringapatam, which was designed by W. Kirk, is the only one completed. At present, however, it is not visible, having been covered over by direction of his Excellency until the four sides have been filled in, when they will be simultaneously exposed to view, on which occasion we believe some public ceremonial will take place. We shall then enter into a detailed criticism of these works of art. The fourth side of the base contains an inscription both in Latin and in English, composed by the Marquis of Wellesley; and the panel is ornamented with a ducal crown and a wreath of oak leaves. The large pedestal in front, originally intended for an equestrian statue, has been removed. This we think most judicious, as in our opinion it has the effect of improving considerably the appearance of the testimonial.

BRAY COMMONS.—From the same source we learn that to-day (Tuesday) the Bray Commons Commissioners, John Ball Greene, Esq., and J. B. Orpen, Esq., visited the Common with the contractor, Mr. Byrne, of Dublin, with a view to inspecting the works so far as they are carried out, and also to arrange for having the pleasure ground portion of the Common laid out so as to be available during the present season. This portion will consist of the south-western section of the Common, lying between the new road and the river. A fine fountain will play in the centre, and well arranged grass plots will be exhibited, intersected with smooth gravel walks—the views of the leafy valley down which Bray river winds, and the mountains in the distance, giving an unrivalled brilliancy to the scene.

RAILWAY ARBITRATION.—Messrs. Watkin & Broughton, the referees of the Midland Great Western and Meath Companies respectively, met recently in Dublin to consider the arrangements proper to be made between the two companies. The period within which their award is to be made has been enlarged to the 1st prox.

THE SUNDAY OPENING OF THE BOTANIC GARDENS.—At a general meeting of the members of the Royal Dublin Society on the 27th ult., the proposal to open the Gardens to the working classes on Sundays was negatived by 207 votes to 40. Lord Talbot De Malahide voted in the minority.

GAS LIGHT AT PAKENHAM HALL.—The Right Hon. the Earl of Longford having a short time since employed Messrs. Edmundson & Co., of Capel-street, to erect one of their patent gas apparatus at Pakenham Hall, the work has been brought to a successful termination.

TENDERS

For new Wesleyan Chapel, Moy, County Tyrone. W. J. Barre, architect.

Horan,	... ...	£948	5	2
Hughes,	... ...	860	0	0
Connolly,	... ...	817	0	0
Murphy,	... ...	600	0	0

MUSGRAVE'S PATENT STOVE.

This Stove is the nearest approach to warming by hot water.

It will burn in churches from Saturday till Sunday evening, avoiding attention during the hours of worship. In halls will burn day and night for weeks, with little care.

Capable of warming a large apartment for 24 hours, at a cost of Threepence; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

MUSGRAVE'S PATENT STABLE FITTINGS.

MUSGRAVE'S PATENT IRON COW-HOUSE FITTINGS,

As approved by the Board of Works, adopted in the Ulster Model Farm, and by many of the most eminent Stock Breeders in the Kingdom, are made wholly of iron, very durable, cleanly, and attractive in appearance. The fodder is always fresh, being exposed to the air, removed from the breath of the animal, and separated from the roots or damp food. The range of troughs can be quickly filled with water for the use of the Cows, or for washing out in case of epidemic; and the cost is very moderate.

THESE INVENTIONS, BEING REAL IMPROVEMENTS, DISTINGUISHED FOR STRENGTH, SIMPLICITY, AND PRACTICAL USEFULNESS, WILL REPAY INQUIRY.

MUSGRAVE, BROTHERS, are also Makers of Wire Fencing, Hurdles, Field and Entrance Gates, Corn Rick Stands, Conservatories, Hot-water Apparatus, Verandahs, Rural Bridges, &c.; and their Works being favourably placed fo rcheap labour and materials, they can offer corresponding advantages in price.

MUSGRAVE'S PATENT FIELD GATES HAVE GAINED THE FIRST PRIZE FROM THE R. I. A. SOCIETY, FOR STRENGTH, DURABILITY, & CHEAPNESS.

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MUSGRAVE, BROTHERS, ANN-STREET IRON WORKS, BELFAST.

Mr. John J. Lyons, Architect, &c.,

17, LR. GARDINER-STREET,

PROPRIETOR AND EDITOR OF

"THE DUBLIN BUILDER."

OAK TIMBER.—500 Superior Oak Trees, of very ancient growth, ready marked, will be Sold standing in OAK PARK WOOD, either by measure, or in bulk, and either with or without bark; the Timber will be felled and drawn out of the Wood by the Proprietor. Oak Park is close to the town of Carlow, through which both Railway and Canal from Dublin to Waterford pass daily. Apply, by letter, to Geo W. Bolton, Coolbaun, Enniscorthy. Mr. John Healy, Forester, Oak Park, will show the Timber.—15th April, 1861.

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WHOLESALE & RETAIL FURNISHING AND BUILDERS' IRONMONGERS,

AND GENERAL HARDWARE MERCHANTS,

5, CHRIST CHURCH PLACE, and 15 and 16, KENNEDY'S--LANE,

BEG to call attention to their extensive, varied, and well-selected Stock of Ironmongery in all its different branches. It consists of Parlour, Drawing-room, and Bed-room Grates; Kitchen Ranges, Sash Weights; Iron Rim, Mortise, and Stock Locks; Hinges of all descriptions; Wrought and Cut Nails, O. G. Gutters, Down Pipes and Fittings, Metal Skylights, Ventilating Bricks; Cast-iron Chimney-pieces, with and without Grates; Rabbit Traps, Fox Traps, Galvanized Wire Netting, Sheet and Perforated Zinc, Sink Traps, Furnace Doors and Frames, Hot Air and Plain Stoves, Cast-steel Digging and Manure Forks, Slashing Hooks, Rakes, Spades, Shovels and Hoes.

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Kitchen Ranges, with high pressure Boilers for Steaming or Bath purposes; Galvanized Iron Roofing, and Fencing Wire, best quality.

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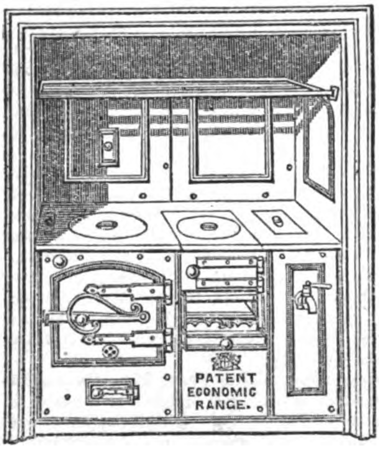

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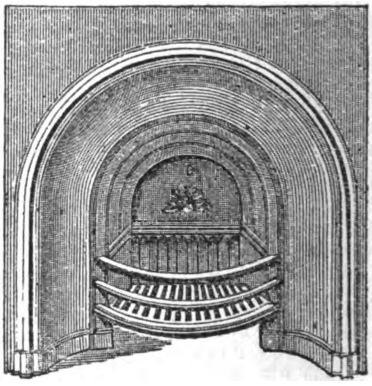
Also a great variety of Elliptic, Register, Cottage, and other Ranges, fitted, always in Stock.

Register Stoves, with Solid Bars, per inch, 4½d.
Improved New Pattern Circular Check Register, with strong Bars and Trivets, 5d. per inch.
Best Solar ditto, with Fire-brick Back, per inch, 10d.
Bright Stoves, with Two Fires, 40s. to 100s. each.
Best Cut Clasp and Rose Nails.
1½-inch—15s. 1¾-in.—15s 2-in.—14s. 2½ in.—13s. 3-in.—12s. per cwt.
Best Sheet Cut Floor Brads, 12s. Best Cut Lath Nails, 15s. per cwt.
Cast Rain-water Pipe, 2-inch—9d.; 2½-inch—11d.; 3-inch—1s. 1d. per yard.
Cast Gutters, 4-in.—8d. O G Gutters, clip on, 4-in.—11d. 4½-in.—1s. 1d. per yard.
Patent Line, Nos. 2—3s. 6d; 3—4s.; 4—5s.; 5—7s.; 6—9s. per gross.
6-inch Rd. Ward Mortise, with best Furniture and Patent Spindles, 2s. 9d. each.
Light Elliptic and Register Metal, 13s. per cwt.
Dr. Arnott's Ventilators, 4s. each.
Brick Moulds kept in stock. Any size made to order.
BLACK ANNEALED FENCING WIRE, 12s. per cwt.



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Best Self-acting, with Bright Wought Bars.

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36 "	56s.
38 "	58s.
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30 inches	24s.
32 "	26s.
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The Dublin Builder.

Vol. III.—No. 36.

LONDON.

VISIT as often as one may this vast metropolis, in which upwards of *two millions eight hundred thousand* of the human kind are congregated, there is always a something new to be learned, some additional subjects for reflection and conversation presented. Where will its extent terminate? when be clipped its ever-growing wings? are questions of universal and frequent submission; and indeed assuming *future* growth to be proportionate to the *past*, the most astute calculator would experience difficulty even in hazarding an approximate answer. Old London is gradually paling before the requirements of a progressive age, and its quaint timber and brick gabled structures, with storey over storey projecting, and other antiquated features, give place to palatial *commercial* and palatial *domestic* structures. Each succeeding year brings to this focus some forty-four thousand newly ushered beings into "this breathing world," to be housed, fed, and otherwise provided for; hence the ever increasing character of its suburbs. And yet withal, except for its vastness, London cannot, in the ordinary acceptation of the word, be styled *a great city*. Its thoroughfares are distributed without system, and inconveniently narrow where most required to be the reverse; its public buildings—some of which are rich in merit—apparently studiously placed to the greatest disadvantage, and architectural *morceaux* mingled in a heterogeneous medley with dilapidations and monstrosities. The Londoners, however—or rather the custodians of the public purse in their behalf—are gradually repairing their mistakes in the former regards at least, and the two most favourite projects at present on the *tapis* are "the embankment of the Thames and the metropolitan underground railway," which latter is at certain points already far advanced—and along the New Road and at King's Cross, where a large block of buildings has been raised, is truly a stupendous work. It is a matter of much surprise that the characteristic acumen of the Englishman should have so long remained in abeyance as not to have realized before this the long talked of "line of quays" for which their river Thames presents such a magnificent site. Wren originated the idea; its desirability never could be questioned; it would immensely relieve that densely crowded route from Charing Cross to the Bank, and contribute largely to the beautification of the city; yet still the embryo condition has not been exceeded. For instruction or amusement respectively, or for both combined, how endless are the sources presented in London; the Great Exhibition at Kensington Gore Gardens happening to be the chief event of the week in which we last visited it, we mingled in the streams of visitors that poured to that point where all the incomparable beauty, fashion, and wealth of the West End seemed to have been congregated. The Crystal Palace at Sydenham—excepting the repulsive feats thereat of the audacious Blondin, to view which a morbid curiosity attracts tens of thousands of visitors—the Floral Hall in Covent Garden, recently opened free to the public, and a host of other "lions" of the metropolis, are all subjects as familiar to our readers as "household words," so we need not stop to comment on them; but we must note an experience of much gratification at the Conduit-street exhibitions of "Architectural Designs" and "Building Inventions" respectively, to which we would suggest the desirability of an *immediate* visit by those who can spare time and the needful. Probably having imbibed some of the public distaste so unanimously felt towards the National Gallery as an architectural work, we invariably express a hope in passing by Trafalgar-square, that sooner or later that building may be demolished, and the area of the square extended and improved, so as to approximate to that of the Place de la Concorde, in Paris, of which it is now but a very paltry imitation. "Excursion trips" are, as usual at this season, the order of the day, and every available space is placarded with huge characters announcing "8 hours at Brighton and back for *half-a-crown*," "Liverpool, Manchester, &c., and back for 12s. 6d.," "to the Lakes of Killarney," &c.; and we may, perhaps, here appropriately remind our English readers that there *is* an exhibition of art and art manufactures at *present* open in this city, a visit to which, independent of the other local attractions—which are by no means few or insignificant—would "amply repay." We hope also that as a natural consequence of that enterprising spirit which distinguishes the arrangements of Mr. Marcus, the Excursion Manager of the London and North Western Railway, the principle will speedily be extended to Dublin. Out-door amusement is most palatable to the Londoner, especially to him who is compelled to live in town, and his usual routine is from his bed to his counting-house, and thence to his coffee-house, saloon, or tea gardens, and back again to *bon repos*. Some of the refreshment saloons so frequented are no mean architectural works as here and elsewhere, but are spacious and handsomely decorated, and, moreover, artists of considerable talent are engaged, the principal being Weston's, in Holborn, the Canterbury, at Lambeth, the Alhambra—formerly the Panopticon, in Leicester-square—Evans', Covent Garden, and the Oxford—a new establishment—in Oxford-street, near Tottenham Court Road. A loss is just now felt by the pleasure seekers in the magnificent hall of the Surrey Gardens, designed by Owen Jones, and destroyed last week by fire; however, we presume that this will be but temporary, as a grander and more spacious one is sure soon to be raised instead, verifying the proverb that it is "an ill wind that blows nobody good."

OUR EXHIBITION.

The public have become so much accustomed of late years to "great" exhibitions, that any new enterprise of that character, unless promising to be distinguished at once for its vastness and its excellence, is not likely to command general favour. There are, however, many degrees of merit, and it does not follow that if circumstances prevent the attainment of the superlative, the positive should be ungenerously criticised, and with that view we must regard the subject of our notice—viz., the Exhibition of Art and Art Manufactures, as already announced to be open at Kildare-street. Though pre-eminently excellent in the picture department, both of ancient and modern artists, it is, as regards the latter, almost purely a local affair, a fact greatly to be regretted; but as such, is to an extent creditable to the exhibitors, who comprise, in certain departments of trade, the leading firms in the city. We had recently, during a short visit to London, an opportunity of hearing at some of the first establishments there in the church ornament and building material manufacture line expressions of regret that greater publicity was not given to the project; in fact, many were not aware of its existence even since the inauguration, and this may account for the absence of contributions of the class alluded to, which would undoubtedly have been great acquisitions. To say the least, this seems to have been an oversight, and a serious one for more reasons than one, not the least important of which is, that numerous parties who would surely otherwise have been both visitors and exhibitors are precluded therefrom; and even in a financial point of view, the result must prove detrimental. The central hall is arranged with as much taste as the resources of the committee enabled them to bring into requisition, several handsome glass cases, containing the manufactures of Messrs. Elkington, Mason, & Co., Waterhouse, Acheson, Brunker, &c., and the collection from the South Kensington Museum, being amongst the most conspicuous objects in the middle of the passage, at either side of which are ranged some exquisite sculptural works from the chisels of John Hogan, J. E. Jones, Joseph Kirk, the Messrs. Farrell, H. Weekes, and other eminent artists; a great organ on a raised orchestra, and by Bevington & Sons, of London—built for the Paris Exposition of 1855—occuping an extremity of the nave opposite to the entrance porch, and a small, but well designed fountain, exhibited by Messrs. Edmundson & Co., immediately opposite the doorway leading to north saloon. Various banners, comprising the arms of Dublin, and those of the provinces of Ulster, Munster, Leinster, and Connaught, decorate this apartment, and to the right and left, under the galleries, are stalls in which Messrs. Edmundson & Co., ironmongers, &c., &c., John Maguire (ironmonger to Royal Dublin Society), Hodges & Sons, ironmongers, Gregg & Son, glass importers, &c., Austin & Co., dressing-case, &c., manufacturers, display goods of peculiar excellence in their respective lines. As usual on such occasions, the musical instrument depots are thronged with fair visitors, and in this branch of art Messrs. Gunn & Sons, & Scates have a goodly collection. Irish manufactures in the poplin department especially maintain their usual famed position at the stalls of Messrs. Fry & Co., and O'Reilly, Dunne, & Co, and some superbly executed cabinet furniture specimens are exhibited by the former firm, as also by Messrs. Young & Groves, and P. Browne, such indeed as may fairly compete with manufactures of a similar character in any part of Great Britain. Amongst the building materials are chimney pieces from the noted establishment of Maurice Brooks, and one of pure Carrara marble, in the Italian style, very admirably wrought by Mr. Hibson, together with a sleeping boy in statuary and pedestal, by same manufacturer. Mr. Lavender's collection comprises Sir Walter Scott's, and the Warwick vase, in Terra Cotta, &c. Limerick and other lace specimens are exhibited by Messrs. Allen & Co., & Forrest & Co.; and Mrs. Crawford, of Killashee, displays some Maltese and English lace, which, however, does not stand the comparative test. Passing hence to the south aisle—or "saloon," as it is termed—we find one of the choicest collections of the works of ancient artists perhaps ever brought together, and comprising the works of Rubens, Rembrandt, Hogarth, Paul Veronese, Salvator Rosa, Vandervelde, Sirs Joshua Reynolds, Thomas Lawrence, William Beechey, Peter Lely, Godfrey Kneller, Vandyke, the Caracci, Claude Lorraine, Poussin, Carlo Dolci, Domenichino Correggio, Wilkie, and a host of others, in all some 500 pictures, and in the corresponding or north wing are the modern artists' works, amongst which we have only to mention the names of P. Van Schendel, Mulready, Eastlake, Redgrave, Maclise, Landseer, Hasenpflug, &c., &c., to convey an idea of their excellence. Though we do not pretend to submit this as a critical disquisition on the merits of the several works exhibited, we cannot refrain from pausing, and, without prejudice to others, to note No. 82, the ruins of the cloisters of Walkenrind, "snow at the entrance, with gleam of winter sunset in the interior," by Hasenpflug, as a marvellously effective picture. But the chief attractions are a colossal picture, by Schlingeneer, contributed by the King of the Belgians, occupying one extremity of the south saloon, a battle piece being at the other, and "The Sisters of Mercy," by Miss Brown, a recent acquisition. The architectural contributions, though not as numerous as might be desired, are nevertheless, in many instances, highly meritorious, especially those by Mr. Goldie, for the interior of Phibsboro' Roman Catholic Church, St. Patrick's, Bandon, SS. Peter and Paul's, Berne, and a collection of architectural designs, all very beautifully designed and handled. Mr. Ashlin (Pugin & Ashlin) exhibits his designs for the proposed Augustinian Church and Monastery, Dublin (illustrated in our number for May 15), for the cathedral church of S. Thomas, Northampton, in which considerable professional talent and beauty of manipulation is displayed. Mr. Lynn's (Lanyon, Lynn, & Lanyon) design for St. Andrew's Parochial Church (two views of which have appeared in this journal) is seen in a photograph, the original drawings being in the Royal Hibernian Academy Exhibition, and of same building are designs by Mr. Atkins, Cork, and by Mr. M'Curdy. Amongst the other architectural contributors are Mr. Rawson Carroll, who has a beautifully executed card model of the Molyneux Church and Asylum; Mr. C. Geoghegan, a drawing of St. Mary's Institution for Catholic Blind Females (the subject of our present illustration); Mr. M. B. Moran of St. Augustine's, Drogheda; Mr. O. T. Healy, west front of a church, &c. Besides Mr. Bedford, a London gentleman of the highest eminence as a photographer, Prof. Glukman, Simonton & Millard, and other of our local photographers have several important cases of portraits, views of buildings, stereoscopic subjects, &c.; and in the lithographic art Mr. Harty and Messrs. Forster's productions claim special attention. The eminent firm of Hardman & Co., mediæval metal and brass manufacturers and sculptors, as usual sustain their well acquired reputation for beauty of design in ecclesiastical furniture, monumental structures, &c., and not less in the execution of the work, which is all that can be desired. Somewhat in the same style—and with merit too—is the old and respectable house of Messrs. Curtis & Co., and we should be much pleased to be able to add to the list of this important branch of art, which is every day coming into greater requisition, owing to the immense impetus given of late years to church building. Mr. Arrowsmith, of New Bond-street, London, manufacturer of Parquetrie for flooring, dados, &c., and in which patent material he is executing, or has done so, numerous important orders in Ireland, including those for Mr. Phineas Ryall's mansion at Old Connaught, the Marquis of Sligo's, &c., has sent some very handsome specimens, but in justice to the exhibitor we must remark that they are most disadvantageously placed on the *lobby* leading to the north gallery. Hereafter we must ramble again through and note more minutely the contents of the several departments, which, "take them for all in all," are worthy of more than a cursory inspection.

THE BOTANIC GARDENS QUESTION.

As already announced, the council of the Royal Dublin Society negatived by a large majority the proposed opening of the gardens at Glasnevin on Sundays, and since that decision the following circular has been issued by the hon. secs. to the Glasnevin Garden Committee, addressed to the representatives of the people of Ireland in Parliament:—

"SIR—We cannot regret the course taken by the government in placing the decision of the question of the freer opening of Glasnevin Gardens unreservedly in the hands of the House of Commons, as thereby our friends will be, not even in appearance, partizans only in a squabble between a department and the Dublin Society, but as the leading and chief parties in asserting the rights of the people of Dublin and of Ireland in the matter. The Royal Dublin Society appeal to you to sustain their 'independence.' It is our duty to point out what is meant by this high sounding term. This is pretty clearly indicated in their official letter of the 19th ult., taken in connexion with the circumstances under which it was written. This reply to the strongly expressed recommendation of the Lords of the Committee of Council on Education was written, we may remind you, in presence of the fact, that eight days previously, on the 10th, seventeen Irish members had presented a memorial to Lord Granville, signed by 49 (since increased to 58) representatives of Ireland, in favour of the course taken by the Committee of Education. In the letter of the 18th May, after asserting that in refusing to open the Botanic Garden on Sunday they are the exponents of Irish opinion, the Royal Dublin Society go on to claim, under a Council Minute of 1854, perfect freedom from supervision in their administration of public money—that is to say, they are to be 'independent' in this fashion:—1. The government is to be, as expressed by one of their organs (the *Packet* of the 14th ult.) 'clerks,' one of whose duties is to collect and pay over the quota or royalty of the Royal Dublin Society out of the public taxes. 2. The representatives of the people of Ireland are to have their deliberately expressed opinions ignored, and their legal character by implication denied, the Royal Dublin Society claiming to be the true exponent of our public opinion. 3. And as the Irish people cannot be made out as opponents to Sunday recreations by any other process than the one by which South Carolina is made to go for slavery, viz., by counting the nigger portion of the population as voting for their masters, we cannot for an instant doubt that the opinions prevailing at the Royal Dublin Society are quite as venerable as the institution itself. The necessity for placing all who administer public money, or perform public functions, under due and efficient control is obvious, when we consider that otherwise it is equally impossible to have the intentions of the government and legislature carried into effect, or prevent corporate monopoly being established. What we call upon parliament to do in the case of the Royal Dublin Society is no more than what is done in analagous cases: that is, by either parliamentary legislation or by departmental regulation, settle specifically the precise return the Royal Dublin Society is to afford the public for its grants and subsidies. Let parliament, not the society, dictate the terms, and when these terms are accepted by the society, let the department have ample powers to enforce their observance. If you concur with us in thinking that only by the present suspension of the Royal Dublin Society grant can a satisfactory solution of the question be arrived at, we hope you will not hesitate to vote for that suspension; requiring at the same time that assurance from the minister that in any future arrangements that may be made that our people shall not lose the sums annually granted for Museums and Botanic Gardens.—Your obedient servants,

JOHN M'EVOY,
NUGENT ROBINSON.

FINE ARTS COMMITTEE OF THE INTERNATIONAL EXHIBITION.

WE are informed that, in addition to the general committee in connexion with the fine art section of the international Exhibition of 1862, her Majesty's Commissioners have requested the following gentlemen to form committees of advice and selection for the several classes of that department.

Class 37.—Architecture.—William Tite, Esq., M.P., F.R.S., President of the Institute of British Architects; A. J. Beresford-Hope, Esq., Honorary Fellow, R.I.B.A., and President of the Architectural Museum; Thomas L. Donaldson, Esq., Professor of Architecture at the London University College, and Vice-President R.I.B.A.; G. G. Scott, Esq., Vice-President R.B.A.; M. Digby Wyatt, Esq., Vice-President R.I.B.A.; Sydney Smirke, Esq., R.A., F.R.I.B.A.; James Fergusson, Esq., F.R.I.B.A., Honorary Secretary to Architectural Exhibition; and Arthur Ashpitel, Esq., F.S.A., F.R I.B.A., Treasurer to Architectural Exhibition. Mr. J. B. Waring has been appointed superintendent of this class.

Class 38.—Paintings in Oil and Water Colours and Drawings.—Sir Charles Eastlake, President Royal Academy; Sir J. W. Gordon, President Royal Scottish Academy; Catterson Smith, Esq, President Royal Hibernian Academy; F. Y. Hurlstone, Esq., President Society of British Artists; F. Tayler, Esq., President Society of Painters in Water Colours; H. Warren, Esq., President New Society of Painters in Water Colours; and R. S. Lauder, R.S.A., President National Institute of Fine Arts. Mr. R. Redgrave, R.A., has been requested to act as professional assistant in respect to this class.

Class 39.—Sculpture, Models, Die-sinking, and Intaglios.—The Marquis of Lansdowne, K.G.; the Earl of Gifford, M.P.; A. H. Layard, Esq., M.P.; J. H. Foley, Esq., R.A.; and R. Westmacott, Esq., R.A.

Class 40.—Etchings and Engravings.—W. H. Carpenter, Esq., British Museum; D. Colnaghi, Esq.; G. T. Doo, Esq., R.A.; R. J. Lane, Esq., A.R.A., and W. Smith, Esq.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of this body was held on the evening of the 10th inst., Mr. Digby Wyatt, V.P., occupying the chair. The chairman announced that the first conversazione would be held on the 10th of July, and referred to a circular issued to architects by a certain gas-fitting firm, offering to share their profits, averaging 30 per cent., with such professional gentlemen as should favour them with orders, and which he denounced in very strong terms. Mr. J. P. Seddon read a paper "On the Dark Ages of Architecture," a portion of which we reprint elsewhere.

THE DARK AGES OF ARCHITECTURE.*

THE "dark ages" to which I am about to refer are quite other than mediæval, as far at any rate as architecture and the other arts are concerned. They are those, the central or midnight century of which, if we may credit the historian, Carlyle, lacked light in other senses besides the artistic; being as regards political and moral honesty also "bankrupt;" certainly in all matters of taste they were steeped in the deepest gloom.

The picture I cannot promise to make inviting, but it may, nevertheless, be in some degree instructive and show us what to avoid, a lesson not less valuable than that which teaches us what to study and adopt.

As the dark ages of architecture do not then date from the birth of the art, they do not include, nor do they necessitate any inquiry into the probable form of the wigwam of the "Pre-Adamite" man, if any such existed, and more fortunate than Mr. Wallis' stone-breaker, had such a shelter while chipping his flint hatchets; nor need I trouble you with any speculations as to the early efforts of *pre* or *post* Noahites, which, perhaps, some millions of years later, may have preceded or followed the fabled transition of the type of the timber hut into that of the stone temple; for such essays in building cannot claim a title to the name of architecture at all: or if any be inclined to concede it to them, it could be but as architecture in infancy, and, therefore, even if only babbling by the light of nature, not altogether dark nor dead; its glimmerings, if but the first of the dawn, are surely, though slowly perhaps, about to broaden into daylight; the men who wrought it were looking forwards and not backward; they were gaining step by step in advance, never pausing; one nation taking it up where its predecessor left it, each meanwhile giving it some individual impress and adding some new thoughts to the general stock, and fusing them into a consistent and intelligent whole.

Thus we may trace art from age to age until the "dark ages," and find that it was ever a language wherein men simply and naturally expressed what there was in them to tell, and which we may read with an assurance greater than even that we can give to their written records, seeing that there is less likelihood of their having been tampered with.

As from the bowels of the earth, our geologists are digging new fossil facts which explain or correct our misreadings of sacred writ; so our Layards and Newtons are excavating from more recent strata, actual fragments of buried Assyrian cities and Mausoli in Asia Minor, which in like manner throw new light upon profane history and convict half our cherished traditions of being mere fables, putting us, as it were, face with the kings, priests, and warriors of those ancient days, which had become to us almost as obscure as the "mornings and evenings" of the creation with their wondrous intervals. So it is with the kings of Egypt; their acts and all that they did are chronicled on the walls of granite and sarcophagi of basalt, lately visited and ably described by Professor Donaldson, and in these days of railways we can quickly re-unite in the mind at least the sculptures of the Parthenon, housed in our museum, to their empty sockets in the ruins of the temple on the Acropolis of Athens, and so gain a glimpse of that perfectly beautiful art in which the polished Greek sought to represent his ideal of the divine.

Then the Roman has left us his notions of architectural showiness in his versions of the five orders, which, whatever they may be worth, were his own, until eclectism in the "dark ages" confounded all nationality and propriety in such matters.

Even the Byzantine, in whose hands art seemed to stagnate for a season, wrought out in his unmistakable manner the types tradition handed down to him, and set the dome as his sign-manual over the crux and each arm of the churches, which he built on that plan of his, the "Greek Cross."

The Arab, again, had his slim minarets and fretted domes, with an array of pointed and stilted arches whose curves seem to have been fashioned after that of his own falchion.

The Barbarians, also, who overturned the Roman Empire and settled down upon its lees, gave sense and nerve to the effete nonsense which they found in the shape of decorative art in that classic land, and thought out for themselves a better (being the proper) way of using the archivolt, and wreathed the tame foliage of the Corinthian capital into something like the grace and freedom of nature, and told, in their sculptures without reserve, what they themselves believed in, loved, and were amused by.

Then followed, surpassing all previous efforts, the Gothic or mediæval development of art, the grandest, noblest, and most scientific which the world has seen; for even if in its restless strivings after conceptions of beauty, seemingly as infinite in their variety as in the number of its works and its schemes for realising them, it sometimes over-shot its powers, and making not sufficiently sure of its substructure in haste to soar upwards, prepared for itself such catastrophes as those recorded of the Towers of Winchester and Ely, by Professor Willis, and that just witnessed at Chichester, we have yet hundreds of other examples, equally fine, which have lasted for centuries and may last as many more. We may, therefore, still be more thankful for its lofty and noble aims, despite such occasional failures, than for the lower if safer aim of styles content to grovel near the ground, and whose superior science consists in poising huge stones upon columns, in ignorance of the principal arch, whereby the space could be well spanned, and in avoiding every chance of thrust, in order to escape a difficulty which they knew not how to deal with.

Throughout all these several styles not one link in the chain of art was lost—not one lying phase had yet appeared. We may approve one more than another, we may find errors and backslidings, but no systematic and deliberate falsehood and betrayal of the spirit of the age can be found in the whole history of art until we come to the "dark ages." The Greeks seem to have been gifted rather with consummate refinement than with much originality. We can well see that they admired and borrowed from the ornament of Persia and Egypt; but we have no proof of their having attempted to build Egyptian halls in the streets of Athens or sham caves of Ellora about its Acropolis. The Christians, when freed by Constantine from the persecution which had repressed all their previous efforts, boldly adopted the pagan basilicæ for their churches, and built others of the same type, yet we do not find that they attempted to compose them out of porticos copied from the antique or plied Grecian monuments one above another to serve for belfries or campanili.

It is a question of the greatest moment to us, but one which I have not time now to discuss, how it was that the Mediæval or Gothic phase of art should, after its brilliant and rapid growth, have rested so short a time at the height of development which it reached, and thence declined with almost equal rapidity, till it fizzed itself away in France in the luxury of "Flamboyant" tracery, and in England was strangled in its strait-jacket array of the rigid "Perpendicular." It suffices for our present purpose to know that it died from inherent decay, and not from any assault from without.

That this, as every other style that preceded it, should have gone the way of all things of earth, may be a matter of regret, yet not of surprise, and its having done so is not the question which I have proposed to consider on the present occasion, but rather how it happened that after it came "the deluge?" We have seen that all previous styles successively rose, caluminated, and fell, only to be followed by others still more comprehensive, and that each yielded up gracefully all that it had added to the general stock of ideas, to be grafted into the newer plant, to bud and flourish again with fresh vigour and increase of power under a different regime.

What, then, necessitated the artistic chaos which reigned when Mediæval art vanished? What was the Gorgon's head which turned into stone the natural love for and power to originate beauty, which mankind had hitherto shown in all ages and countries? These are the questions to which I am anxious to find a solution.

The complete quenching of the lamp of art, which sooner or later in the period of the dark ages ensued in every quarter of the globe—save where, among the less civilised Oriental nations, it has stagnated until now in considerable decorative purity—is one of the strangest phenomena I am acquainted with in the history of the world, and this I desire to invite you to consider, in the hope that we may be able to discover the rocks upon which it was shipwrecked, and that in our efforts to float it again we may be able to steer clear of them.

The "dark ages," however, or, at least, the gloom of them, did not come on all at once. The night, unlike that of the tropics, did not follow suddenly the light of the mediæval day. Nay, the sun of art set so gorgeously that men were dazzled by the glory thereof, and believed that it was a sunrise, heralding a new, better phase of art, instead of its being a sunset, preluding the loss of the best the world had seen.

It behoves me, therefore, to linger over this threshold of my subject (and not unwilling am I to do so, seeing that is by far the pleasantest part thereof), and to endeavour to trace the lines of it several changes as successively they grew fainter and fainter, together with the brightness of the evening stars of genius, which beamed like a galaxy through its twilight, and even occasionally long after the nightfall, until, clouded over at last, utter darkness ensued, enlivening only by the false will-o'-the-wisp phantoms of *rococo* which have been misleading men ever since.

(To be continued.)

An invention of some interest to all employment, in which an engine is used, has been tried in Liverpool. The novelty consists in applying gas to the generation of steam, and the experiment is said to have been successful. It is particularly recommended for "hoists" in warehouses.

On Wednesday, 13th inst., one thousand and sixty-three persons visited the Art Exhibition, the price of admission being one shilling.

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* From a Paper read by Mr. Seddon at Royal Institute of British Architects.

THE REVIVAL OF STYLES.

(Continued from page 524.)

Now, I am for pronouncing the Gothic system to be wrong; and it is undoubtedly productive of great elegance, force, and spirit. But I would maintain that the classic principle of giving expression to the walls themselves, rather than to the openings by which they are pierced, is architecturally sound. We build for the sake of what we get by the walls and the roofs they support—namely, seclusion and shelter—not for the sake of light and air, which we have in abundance without them. It is indeed necessary that we provide a sufficient supply of light and air, as well as means of access; but these are contingent necessities, not the main object of the building.

Again, the tendency of Classic is to breadth of effect; of Gothic to minute subdivisions, and an almost fantastic variety of outline. The traveller on the continent will probably be struck, as he proceeds southwards, with the increasing breadth which characterizes the towns, villages, and groups of buildings. He cannot fail to notice the preponderance, so to speak, of mass over outline. In a Mediæval town in the north of France, and in the greatest part of Germany, his attention will be caught by the number and variety of towers, spires, pinnacles, peaked gables, and the like; on which great powers of design, as well as care, in the execution of detail are bestowed, while the mass itself is as much broken up, as may be by openings and projections which cause a constant play of light and shadow. In the south he will have presented to him large and comparatively unbroken masses, marked by few openings or projections, with just a sufficient number of towers and spires to relieve the monotony of the outline, and these not displaying that architectural care, or elaborate variety, which would make it suppose they were intended to catch the eye, or form principal features in the group. In sketching an Italian village, or monastery with its church, we need not care about marking out all its windows or putting them in their right places, or even giving to a nicety the form and proportions of the belfry, still less its details; in fact, the more slightly we define these, the more truly we shall give the character of the scene. Now though these southern buildings and groups may be really in date just as Mediæval as the northern ones of which I have just spoken, they have more of the Classical character, which in Italy was retained in great measure through the whole of the Middle Ages: in fact, the composition of a large majority of Italian Gothic buildings is such as to suggest no definite reason why Gothic details should have been employed in preference to Classical ones, so much does the horizontal line predominate. We may therefore fairly speak of this character of breadth as belonging to the Classic, and that of variety of outline and intricacy, or minute subdivision, as appertaining to the Gothic.

But although the Classical style does not peremptorily demand that variety of outline which is so necessary a part of Gothic, it by no means discards it as incompatible with its principles. Many steeples of the revived Italian are as fine in proportion, and as elaborate in detail as any Gothic composition. I may instance the upper part of the tower of Seville cathedral, and many of Sir Christopher Wren's steeples, which show both the fertility of his imagination, and the comprehensive nature of the style he employed. I have, on a former occasion, adverted to the liability to decay incurred by the intricate and minute workmanship of Gothic ornament; and I understand that the condition of the ornamental details on the new houses of Parliament is not such as to induce me to retract what I then said. But I would further remark that, although the constructive principles of the style are sound and good, so that, in many cases, the greatest amount of strength is obtained by a given quantity of material, yet the tendency on the part of the architect to make a display of mechanical science has been the cause of much real, as well as apparent, weakness in important buildings. The lamentable fall of the Chichester steeple is probably to be attributed to the fault, not of construction, but of material. Yet, it is certain that the perilous boldness of many Gothic designs ensures more fearful results from the introduction of a defective piece of masonry, or unsound material, than are apt to occur in Classical buildings.

It may be said that the Gothic style can be worked in a broad and massive manner, as it was in castellated architecture; and to such an extent that in adapting a Gothic castle, or an imitation of one, to domestic purposes, the difficulty is to avoid making the walls too solid, and the windows too few and contracted, for comfort. But this mode of building was forced upon the architect by necessity, not adopted by choice. The requirements of military architecture rendered necessary this expansion of wall, and contraction of window, and the builder dealt with it as he best could. The harmony which exists between the dark heavy fortress and the light open cathedral is a proof that both were designed in the natural style of the day, while the difficulty we feel in preserving the expression of the style in our domestic buildings, which require larger. and consequently more truly Gothic windows than the Mediæval castles, is a proof that it is not the natural style of our own period. But the less display the Gothic makes of constructive science, and the less aid it borrows from such additions as pinnacles, tracery, and the like, and the greater the breadth and solidity of its masses, by so much the further does it recede from its own principles, and approach nearer to Classic architecture. An adaptation of the style to our own exigencies is not a development of it in its own proper direction, but an appropriation of some of the elements and characteristics of the rival style. We shall never develop Gothic further than it has already been developed, except by erecting buildings far less suited to our wants than Mediæval ones of the most exaggerated character. As it is, we seem to fancy that we can attain the life and vigour which constitutes the charm of the true Gothic, while we can only adapt it to our purposes by curtailing and cutting off the growth of many generations.

On the argument in favour of Gothic which rests on the superiority of decorated construction over constructed decoration, I cannot say much till I find myself better able than I am to comprehend the distinction. Is construction a term applied only to the more subtle contrivances of the architect, and not to a plain solid wall or pier, so that a mere wall enriched with surface ornaments is not a decorated construction? Are such pinnacles as those of Gloucester Cathedral and the Somersetshire churches, which are extremely beautiful in themselves, but in no way contribute to the strength or convenience of the building, decorated constructions, or constructed decorations? Which term should we apply to pinnacles engaged in the sides of towers, or to blank arcades and panelling? If a square-headed window in a classical front has over it a projecting ledge supported by brackets, and covered by a pediment forming a tympanum, I suppose this would be called a constructed decoration; at least, I should call it so. How, then, if a Gothic window has over it a label resting on heads or bosses, and crowned with an angular canopy, crocketed and terminated by a finial, a composition of constant occurrence in the finest work of the fourteenth century? Observe, the two compositions are perfectly analogous: it may be that the one is heavy and ugly, the other light and beautiful; but the principle is the same in both. I do not condemn surface ornament or constructed decoration in Gothic; only when it does occur, let it be called by its right name, and not ignored for the sake of a plausible, but somewhat fallacious argument.

We will now consider what ancient buildings are in existence, belonging to recognized styles, which suggest a mode of construction and arrangement applicable to our wants, and of decoration suitable to our best views of art.

If we look at the Parthenon of Athens, or the Temple of Neptune at Pæstum, we are impressed with its wonderful beauty, majesty, and sublimity; and as we acknowledge this to be the result of careful arrangement and adjustment of proportions, together with exquisite design shown in the simplest and smallest details, we cannot but treat with a certain degree of reverence the rules and principles which led to such a result; and, although we consider the plan of the building itself unsuitable to our purposes, yet we feel that it is well worth our while to study it diligently, and think how we may turn to account the lesson we cannot fail to learn.

If we look at the Coliseum at Rome, and endeavour to forget the purpose for which it was erected, and the scenes which were enacted within its area, we must regard it as a work of almost unexampled magnificence, and at the same time admit that it presents a type of arrangement and ornamentation applicable to all tabulated structures whatever.

If, again, we look at a large Gothic cathedral—say, for instance, Amiens, Chartres, or Rheims, or, in our own country, York, Lincoln, or Salisbury, we cannot but be astonished by the grandeur of its design, the mechanical skill displayed in its construction, the richness of ornament which is profusely spread over it, and the character of religious solemnity which pervades the whole. Yet we cannot help feeling that it is not a structure likely to be called for or produced in the present day. Its associations belong to an age more sharply and distinctly separated from our own than are even those of Pagan antiquity. Its principles of composition are not adapted, without some modification, even to the large churches we demand, and are rather opposed than otherwise to the conditions required by secular architecture. As records of one of the most interesting phases of art and social progress that it is possible to conceive, the Mediæval buildings of Europe are invaluable, independently of the practical lessons to be derived from them; and to preserve them we must keep them in repair, which we are not likely to do unless we make what use of them we can. Fortunately, most of them can be made available to our purposes to a certain extent, though in large towns it has often been found expedient to destroy the old church and build a new one of more commodious arrangement; while how to make the most of our cathedrals is a problem that has more than once puzzled their restorers.

The architects of the Classical revival, seeing that their style must necessarily prevail in secular buildings, wisely and rightly adapted it also to their ecclesiastical buildings, still without making any material alteration in their plan or structure. They cut off, indeed, some of their superfluous ornament, and reduced them to an aspect resembling the Romanesque, to which style, indeed, we might easily attribute many churches of the revival, if we see them at a distance, and with some we might fall into the mistake even on a closer inspection.

This leads us to enter a little more fully upon the subject of general outline. That the Greeks were keenly alive to the picturesque, and probably had a more refined notion of it than any race of men before or after, we have good reason to suppose. The instinct with which they selected the finest sites for their buildings, and the scrupulous care with which they avoided interfering witn the natural features of their scenery, as though hardly a rock could be cut away without offending some deity who presided over it, shows with how deep a feeling they were actuated on this point: a glance at the Acropolis of Athens, and the surrounding locality convinces us of this quality of the Greek mind, even if we did not infer it from their love of country, or had not learnt it from Homer, Æschylus, and Sophocles. It is most likely their buildings were designed not only to harmonize with, but to illustrate, as it were, the character of their scenery. Certainly the rock of the Acropolis and the Parthenon seem made for each other: we could not fancy the temple in any other spot; and the rock without the temple would be imperfect. But it is likely that their feeling of the picturesque was of too refined a nature to suggest that they should aim at what we call a striking outline: it may have taught them to prefer one that might have been chargeable with monotony but for some exquisite tact in its composition; and that such buildings as the Choragic monument, formerly known as the lantern of Demosthenes, ought to occupy some low and secluded spot, instead of contributing ostentatiously to the variety of the sky-line. Of course, I can only speak from conjecture, for we have not sufficient data on which to ground any theory on this subject. The massive forms, however, and long horizontal lines of their temples, indicate that they aimed at the expression of repose rather than violent action, and this is confirmed by the character of their sculpture.

Neither have we the means of judging what views, with regard to outline, influenced the Roman architect. The beautiful monument of St. Remy, in Provence, shows that the power of producing good form existed: the monuments at Vienne, on the Rhone, and Igel, near Treves, are less remarkable for their beauty, though the latter is not wholly destitute of grace. The triumphal arches of the Romans hardly, I think, show the elegance of which such structures might be capable; that, however, of Trajan, on the pier of Ancona, is an exception. The magnificent arch at Orange is more remarkable for the profusion and delicate execution of its ornament, than for any excellence in its architectural design. At Athens there is an arch of Roman construction, I believe of Hadrian's date, of a lighter and more elegant design that the triumphal arches of Rome, but still of no very great beauty. Some of the Roman circular temples may have had a good outline, if the assumed restorations are at all true; and one at least we know to occupy as fine a site as can be imagined, and in its present ruinous condition to be well worthy of it; I mean the Sibyl's temple at Tivoli. The Pantheon at Rome can never have been a picturesque building. As antiquaries, we may regret the addition of the modern turrets flanking the porch, but in an artistic point of view they could be ill spared. The temple of Minerva Medica forms a very picturesque ruin, and may have been no less so when perfect, but I cannot help looking at this as a transitional specimen. In its use of buttresses, it forestalls one of the great principles of Gothic construction. On the whole, if we were to assume that the general outline of ancient Rome was less varied and interesting than that of modern Rome, and that the effect produced on the spectator would depend rather on masses of building occupying sites of different elevation, than on prominent architectural features, no one could easily find grounds on which to contradict the assumption. But the revivers of the style have taught us that it is fitted for an outline of the greatest beauty and sublimity, and capable of a picturesqueness of composition not surpassed in the best Mediæval period. And this shows that their work was really a revival, and not a mere formal reproduction. In tracing the development and progress of taste in the composition of outline, we shall advert chiefly to ecclesiastical architecture, because it affords us examples in greater number and in better preservation than any other kind; and also because it has less restricted art by mere economical or utilitarian considerations.

I am inclined to think that the circular churches, derived from Roman temples of the same form, are the first which exhibit that kind of outline which is produced by the central tower or dome, and which has characterised churches of the highest class ever since. The Eastern form, however, of the Greek cross, with the dome or tower at the intersection, is evidently a very early one, perhaps the earliest original form of a church that exists; for it does not appear to have been derived, like the basilica and round church, from Pagan structures.

The solution of the problem, how to adapt a spherical dome to a square area must have introduced a new era in architectural composition. The value of the dome had long been recognized as a method of roofing at once firm, permanent, economical, and beautiful; but, so far as we have means of knowing, it had hitherto been used only to cover buildings of a corresponding form, as the Pantheon. The cruciform plan seems also to have been introduced, to a certain degree, for the sake of convenience, into the Roman basilica, and its symbolical meaning would give it an additional recommendation in the eyes of the early Christians; but the roof throughout being generally flat, the square of intersection would be treated in the same way as the arms or aisles of the building, and neither receive nor suggest any additional height, externally or internally. When, however, it was resolved to take advantage of the domical method in roofing the square of intersection, making the other roofs of the building cylindrical or semidomical, according as the limbs of the cross were rectangular or apsidal, then, since the base of the dome had to rest by means of pendentives on the crown of the four arches, its apex necessarily exceeded them in height, and consequently rose above the vaulting, supposing them to correspond with the arches of intersection. This is true not only when the dome is a complete hemisphere supported by pendentives, but also where it is a part of the same hemisphere to which the pendentives themselves belong, or any other segment of a sphere whatever. Hence the adaptation of a dome to the square of intersection in a cross church requires a superstructure raised higher than the arches, and consequently suggests one raised higher than the walls and roofs, both externally and internally.

Probably S. Sophia in Constantinople was not the first example of a dome resting on four arches; so bold an experiment could hardly have been tried on so large a scale for the first time. Many of the domical churches in the eastern parts of Europe are small in their dimensions, and have no architectural detail but what might be of considerable antiquity. If we cannot confidently pronounce any particular specimen to be of a date earlier than the reign of Justinian, we cannot positively deny the existence of such at the present day, and I think we may at least assume that those to which we now have access are fair representatives of some of the earliest original Christian structures ever designed.

S. Sophia is somewhat unique among Byzantine churches, and has rather the character of the mosques which surround it, and which were built after its pattern, than of the churches generally erected in the east at that time and for many succeeding centuries. S. Irene, now converted into an armoury, is the next in size to S. Sophia of those in Constantinople, but very much inferior in dimensions, the diameter of the dome being, if I remember right, less than one-third. I cannot tell how far the present outline is original; it is perhaps the more pleasing of the two. The outlines of some of the old Greek churches in Constantinople, and in and about Athens, are extremely graceful, I may say noble, as giving to structures small in actual scale an air of dignity and importance. The central dome assumes the form of a circular or polygonal tower, of some elevation, and there is a certain breadth about the composition which prevents any idea of meaness. The actual ground-plan is square, but the upper stage from which the dome or tower rises, is a Greek cross. To the westward is a narthex or porch, which is sometimes covered with another dome lower than the principal one. The pendentives supporting the dome required themselves the support, abutment, and protection of the walls above the springs and haunches of the arches on which they rested, and by raising these walls above the crown of the arches additional strength was given, and the whole fabric consolidated. Hence the round or polygonal drum of the dome mostly stands upon a square base, slightly raised above the level of the other walls; and when the central dome was adopted, as it soon was, in the western church, at the intersection of a Latin cross, the square base often became a square tower, enclosing within itself a circular or polygonal dome, which then formed only an internal feature. This is an arrangement which prevails through the whole of the south of France, and in parts of the central and more northern provinces. In Italy the central tower is generally a low octagon. As a satisfactory outline was thus obtained, the central tower was used even when no dome or lantern was shown internally.

If a campanile was required, this was provided, not by raising the central lantern to the requisite height, but by building an independent tower, as in the basilican churches. The combination of the central lantern with the belfry tower produces some of the finest and most picturesque effects of outline in ecclesiastical architecture. Such combinations are mostly to be found in the Romanesque period. I think we meet with them more often in Italy than in France, where the central tower first attained sufficient height to cover the lantern, and afterwards grew still higher, and became the highest and principal steeple in the church. Whether this was an improvement, is a matter of taste. For my own part, I am very partial to a fine central tower or spire, but I am not certain whether, on true architectural principles, we ought not to prefer the low massive lantern of the Italian Romanesque, combined with the taller and more slender campanile; the central lantern giving by its breadth dignity to the most important part of the building, namely, the the intersection of the cross,and the lofty tower giving the same feature value by its contrast, and breaking the monotony of outline. Add to which, the arrangement is evidently a good one as regards convenience, by detaching the belfry from the area of the church, and allowing walls of any degree of massiveness that may be required. The cathedrals of Piacenza and Parma, the cathedral and another church at Asti, many of the churches in and near Pavia and Milan, and the cathedral of Monza, present fine examples of the above arrangement: some of these are later than the Romanesque era, but retain in great measure the general character of the style. In England we have unfortunately so little unmixed and unaltered Romanesque, or as I would rather call it, Norman, that it is difficult even to imagine a typical example, and such buildings as Tewkesbury, Southwell, and Romsey show how grand must have been the outline of a perfect English church of the first class in that period. But Normandy furnishes us with better preserved examples of the style from which we may form an estimate of its general aspect and character. The well-known church of St. George, Bocherville is, I believe, as pure a specimen as can be found, and its outline, simple as it is, seems to admit of no improvement. It may be questioned whether the present wooden spire agrees with the original design; I am, however, speaking of the building so far as the actual masonry and the necessary roofs are concerned. I question whether the development of the Pointed Gothic really improved upon the best outlines exhibited in the Romanesque. We certainly gave greater height, and varied, perhaps confused, the general outline of the building by pinnacles and buttresses. Where the central tower was retained, it was frequently raised to a much greater height than its use as a lantern rendered necessary. The central tower of York, which is open nearly to the top, is an exceptional instance, rather than a type of Gothic central towers, and it is unquestionably one of the finest, if not the very finest, in existence. And it is certainly one of those that are least removed from the Romanesque model.

Again, on the continent, the central tower was altogether sacrificed to the attainment of height in the whole building itself, which, in consequence, often appeared rather a shapeless mass than a fine architectural composition. The profusion of pinnacles employed seems rather, intended to disguise the want of design than to mark, as they ought to do, important points and divisions. Some of the best outlines in Normandy, comprehending the low central tower, and loftier, but less massive western ones, though Gothic in detail, as that of Lisieux, are wholly Romanesque in character, and those which assume more of the Gothic are not improvements: the heightening of the English central steeple, though the effect resulting from it is sometimes extremely beautiful, as at Salisbury, is seldom carried out without some sacrifice as regards internal arrangement or actual security. I am quite aware that we find many ugly buildings, and many buildings of a fantastic outline, that belong to the Romanesque period. In Germany, and even in France, I could point out both one and the other; but it is certain that in that period a very beautiful type of composition appeared, the simplicity of which, and its independence of additional ornament, stamps it with a degree of refinement which is scarcely preserved in the more advanced stages of Mediæval architecture, when features of mere decoration became abundant. The best architects of the *renaissance* evidently felt this, and in their ecclesiastical structures, for which they found no available precedent in ancient classical architecture, they returned to this Romanesque type, and in a short space of time a large number of churches were erected, showing a full appreciation of those early models. Many would at a short distance be taken for buildings of a date anterior to the thirteenth century. The cathedral of Dax, south of Bordeaux, would at first sight be pronounced Romanesque: it is, in fact, Revived Italian, except an incomplete Gothic tower at the west end. At a village between Epernay and Reims I noticed a church at a distance, which I made sure of as a fine Romanesque specimen. On examining it I found it clearly post-Gothic. I may have been disappointed at the time, but it now proves valuable to me as an example.

When I had the honour of reading a paper at the South Kensington Museum, rather more than a year ago, I showed some drawings of Spanish churches in the Revived Italian style, whose general outline had altogher a Romanesque character. I am still of opinion that these churches might be studied to advantage in the present day, as securing really fine architectural features at little or no sacrifice of convenience, and at no exorbitant expense. In Italy the combination of the low lantern tower with the lofty campanile, was continually reproduced; and still further grandeur was obtained by expanding the central lantern into a spacious dome, which became the predominant feature both externally and internally. Such domes had indeed been more than suggested by the early Byzantine and circular churches, but the revivers of classic art worked them out with an elaborate care in regard to proportion, and often with a success which almost reminds us of the elaboration of the column in Greece. That of St. Peter's, as it is the largest, is, to my mind the finest example that can be brought forward. I have endeavoured to procure a tolerably true outline, comparing my own sketch with an engraving that appeared to me a very exact architectural elevation, and making corrections accordingly. Many prints and drawings make it too round and heavy, and most of the photographs I have seen are taken from a point that does not show it to the best advantage. But though St. Peter's is the finest example, it is but one out of vast number, which exhibit a great variety of forms and proportions, nearly all of them pleasing to the eye, and giving quite as much character to the Italian landscape as the Gothic tower or spire does to the English.

Had the dome been congenial to the Gothic, it would surely have been introduced in that style, a style which certainly is not chargeable with timidity in adopting new forms and combinations. The arrangement of the central part of Ely Cathedral offered opportunity for its adoption. Yet we find an octagon, with a Gothic vaulting adapted to it, in the best way the architect could devise, and that architect was one of more than ordinary fertility of resource.

Without for a moment depreciating the grandeur of a fine Gothic interior, I must observe that the Classic style contains elements of at least equal grandeur, if not greater. The churches of St. Andrea in Mantua, St. Justina, and the cathedral in Padua, are not inferior in solemnity of effect to any Gothic edifice whatever. Had St. Paul's been carried out according to the design preserved by the model, I can conceive no interior that would have been equal to it. An impression of vastness would have been produced by means totally opposite to those employed in Gothic; and, to judge from the model, even more effective, while the variety of perspective views, and the fine alternation of light and shade in broad masses, would have given a picturesqueness scarcely rivalled in the eminently picturesque Mediæval styles. If I am right in believing that there is a picturesqueness of repose as well as of action, a picturesqueness depending rather on breadth and mass than on intricacy and multiplicity of parts, then I cannot be wrong in asserting that the Classic may meet the Gothic even on its own ground, on at least equal terms.

Still, if constructive considerations should render a pointed arch desirable under any circumstances, its admission does not necessarily involve that of the whole Gothic system. The pointed arch was used before Gothic was developed, and in localities which were the last to receive the Gothic style. Saracenic architecture has the pointed arch, but it is not Gothic, neither are those domical buildings in Aquitania which employ the pointed arch, without an approach to Gothic mouldings, in the support of their pendentives. But even supposing the pointed arch to have belonged exclusively to the Gothic, we may borrow it if we really want it, without professing to revive the style. It is not an architecture to pass away without influencing any succeeding style; we are not obliged to choose between accepting all or none. There is one very important element of Gothic which we should be foolish to reject, and of which, if I mistake not, the Renaissance architects saw the value, and by its means considerably modified the rigidity which might have resulted from a strict imitation of the ancient Classic: I mean the oblique surface of decoration. The use of this much facilitates the enrichments of our buildings, while we exclude heavy and incongruous ornament, and enables us to retain such beauties of Gothic sculpture as are not inconsistent with a more severe and refined style.

As, in advocating the revived Classical style, I would not urge the rejection of everything which belongs to the Gothic, still less am I anxious to defend the glaring defects which characterise so many specimens of the Classic. I would not perpetuate the cold formality of most of our professed imitations of the Greek, nor the feeble, unmeaning, uninteresting character which prevails in so much of our work that claims a derivation from the Roman. But a discussion upon the defects that may be enumerated in Classical buildings, and upon the causes which, independently of Mediæval sentiment, have tended to bring the Classical style into disrepute, would occupy a great length of time, and I am not sufficiently master of the subject to enter fully into it. I believe, however, the greatest defects in the style are of a superficial character, and admit of removal. By clearing them away we shall give it a vitality and vigour which its evident congruity with the practical spirit of the age cannot fail to preserve; while the consistent stability of its nature, the very reverse of that restless tendency to change which is one of the essential elements of Gothic, will make it a permanently effective style, at least till the present conditions of society become altogether changed.

SUSPENSION BRIDGES.

THESE bridges were not constructed to any great extent until the commencement of the present century; up to that period they were of rather a primitive character. We hear, indeed, of one built in China about the year 65 A.D., and of several suspended bridges in South America and the Indies, in which the chains were formed of ropes and barks of trees, plaited or interwoven together, so that the roadway was in the form of a caternary curve; still, even in those countries, we have instances of the roadway or platform being placed horizontally, and suspended from the ropes or chains by intermediate rods. Among the first iron suspension bridges put up in this country was the Winch Bridge crossing the river Tees near Middleton. It was merely intended for foot passengers, being only 2 feet in width, although 70 feet long. In 1816, a wire suspension bridge was built over the Gala Water, of upwards of 100 feet span, at a cost of only £40; and another over the Tweed at Peebles in the following year, also of iron wire, and about the same span, for £160.

In 1820, Captain Sir Samuel Brown built a suspension bridge over the Tweed in an ingenious novel and manner, for which he had obtained a patent in 1817. Instead of making the main iron chains, intended for the support of the bridge, in the form of ropes, as had been hithtrto done, he constructed those chains by links of iron several feet in length, with holes formed at either end, through which he joined them together by means of bolts. This bridge, called the Union, is situate close to Berwick-on-Tweed, and has a span of 449 feet. It is supported upon 12 chains disposed in pairs, and placed one above the other 3 deep, formed by links of round iron 2 inches in diameter, and each 15 feet long, connected with one another by intermediate short links also of iron. The suspending rods are of an oval section, and are placed five feet apart, every one being attached to a joint of one of the three main chains, which are made to break joint, so as to admit of this arrangement. These suspension rods support the roadway, which is formed of timber. This bridge cost £50,000. In the following year this engineer built the Newhaven Pier, which is constructed on the same principle, having three openings, each 209 feet span; and afterwards the Chain Pier at Brighton, which runs out into the sea a distance of upwards of 1,000 feet, having four openings, 225 feet span. In the year 1823, a bridge of the kind was erected by Sir Isambert Brunel, with two spans, each 122 feet; and the year after (1824) Tierny Clarke constructed the much admired Suspension Bridge over the Thames, at Hammersmith, spanning the river by an opening of 422 feet, which has stood remarkably well.

Next in order of time is the far-famed suspension bridge erected by Telford over the Menai Straits, for the purpose of carrying the Holyhead road, and thus connecting the Island of Anglesea with the mainland. This splendid work of art was completed in the year 1825, having been about six years in the course of construction. It consists of one opening of 570 feet span. The roadway being 100 feet above the level of high water. The chains are formed of flat bars of iron 10 feet long, 3½ inches deep, and nearly an inch thick. There are four rows of chains, each consisting of four tiers of bars, ranged one above the other, so that in all there are 16 chains: to these, which are passed over the tops of two lofty towers placed at either side of the straits, and fastened at either shore into the solid rock, bars an inch square are attached, 5 feet apart, for the purpose of supporting the roadway, which has two carriage-ways, each 12 feet wide, and a central footway of 4 feet in width. The entire weight of this suspended platform, including the 16 chains, is about 2,186 tons. The Conway bridge, over the river Dee, is also a suspension bridge, and was built by Telford about the same time; it has a span of 327 feet, and likewise carries the great Holyhead road. Sir Samuel Brown then erected, in the year 1829, the Montrose Suspension Bridge over the Esk, in Scotland, with a span of 412 feet, and a roadway 12 feet wide. This bridge was all but destroyed during the great storm which took place in 1838; the platform not having sufficient rigidity to withstand the unequal force of the wind. The engineer, Rendel, however, has restored the bridge, and it is thought that such a disaster cannot again take place.

In the year 1829, M. Navier, an able French engineer, to whom we are indebted for a valuable work on suspension bridges, constructed the Pont des Invalides on the suspension principle, over the Seine at Paris, with a span of 236 feet, and a deflection in the catenary formed by its chains, of about 26 feet. The Fribourg Bridge, which spans the valley of the Sarine in Switzerland, is one of the most splendid wire bridges ever built. It was constructed by Mr. Challey between the years 1832 and '34. It has a span of 870 feet, and the platform is 167 feet above the surface of the water, which runs at the bottom of the valley. This platform is suspended from four iron-wire ropes, two on each side of the bridge. The ropes are composed of 80 wires, each one-twefth of an inch diameter, tied up by coils of wire at regular intervals; these chain ropes are made fast to the rock on either side, after passing over the tops of the towers. Suspension rods are then hung upon the chain-ropes, to which the joists forming the roadway are fixed; the cost of this magnificent and truly wonderful structure did not amount to more than £24,000.

CLIMATE IN RELATION TO HEALTH.

AT the school of medicine of the Catholic University, the first of a series of Lectures on this subject was delivered recently by Professor H. Hennessy, F.R.S.

The nature of the physical influences which act on the human system was briefly pointed out, and those conditions of the atmosphere called climate were defined as the special object of the lecture. After describing the physical and chemical constitution of the atmosphere in its normal state, the lecturer proceeded to refer to its variable conditions. He dwelt at considerable length upon the laws of distribution of temperature, and showed that a paramount influence was exercised by the water which covers three-fourths of the earth's surface. The conclusions to which he had been led in his scientific researches, whereby it appears that the water exercises upon the whole a warming influence compared to the land, had recently received fresh confirmation from the results of observation in the southern hemisphere. As an illustration of this influence during winter, he contrasted our climate with that of Central Asia under the same parallel of latitude, whereby it appears that Barnaul, which is situate nearly on the parallel of Dublin, has a colder winter temperature by 42½ degrees of Fahrenheit. The general laws of distribution of temperature over islands and continents were illustrated from the shapes of the isothermals in Ireland and on the west of Europe. The lecturer's *a priori* law of correlation of isothermals with the coast, and of transportation of their centres towards the pole, was shown to be in strict harmony with observations. The connection of the distribution of temperature in time with its distribution in space was noticed, and the general rule was shown to hold good, that wherever the mean temperature is raised by oceanic influences, the diurnal and annual ranges of the thermometer are diminished. Illustrations were adduced from tropical and temperate climates, and the lecture concluded by remarks relative to the moisture of the atmosphere and the circumstances which govern its existence.

THE GREAT POSTAL AND PASSENGER COMMUNICATION BETWEEN LONDON AND DUBLIN.—Of all the routes, that *via* Chester and Holyhead is the most important, as by it all the correspondence between the two countries is conveyed, and it has been specially organized with a view not only to postal requirements, but also to insure for passengers the utmost comfort and despatch that the present state of science and of railway experience can afford. The present service commenced October 1st, 1860, under a contract entered into by the Postmaster-General with the London and North-Western Railway Company and the City of Dublin Steam Packet Company. By the stipulations of this contract, the distance (330 miles, of which 66 are by sea) between London and Kingstown (the packet port for Dublin, with which it is connected by a railway 6½ miles long) must be accomplished in eleven hours, mean time. The trains leave Euston-square at 7.25 a.m. (except on Sundays) and 8.25 p.m., stopping only at Rugby, 83 miles from London, Stafford 133 miles, and Chester 177 miles; thence to Holyhead station, 86 miles, making the total distance 263 miles, which is performed in six hours and forty minutes. The time for conveying the passengers and mails from the station to the pier, and transferring them to the steamer, is about half an hour, which leaves three hours and three-quarters for the transit to Kingstown—equal to a speed of nearly nineteen miles an hour. The steamers which perform this service are the finest mail packets afloat. They are named after the four provinces of Ireland—Leinster, Ulster, Connaught, and Munster. The first-named vessel was built by Messrs. Samuda, Brothers, London; the others by Messrs. J. Laird & Sons, Birkenhead. The engines of the Leinster and Connaught were made by Messrs. Ravenhill, Salkeld, & Co., London; those for the other vessels by Messrs. James Watt & Co., of London, and Soho, near Birmingham. The nominal power of each pair of engines is 700 horses. The length of each vessel is 360 feet, and their measurement is 2,000 tons.—*Sir Cusack Roney's "Month in Ireland."*

INSTITUTIONS FOR INDUSTRIOUS FEMALE BLIND.

Amongst the many afflictions with which it pleases the Almighty in His mysterious wisdom to visit poor humanity, perhaps that which excites the liveliest sympathy is "the deprivation of sight"; and we learn that in Ireland alone are to be found some *six thousand* sufferers from total blindness, independent of the many partially afflicted. To provide a house for, to instruct in religion and industrial pursuits those in humble circumstances so afflicted have been the objects of a certain philanthropic few of the Roman Catholic and Protestant persuasions respectively, and our readers are already aware that the female section of the former have occupied for about the last two years the large building at Portobello-bridge, previously used as a hotel, and the latter the establishment in Peter-street, known as the Molyneux Asylum. Increasing demands for the reception of these poor creatures have, however, necessitated more suitable and extensive buildings for their accommodation, and in each case steps have been taken to secure that end. For the inmates of the Molyneux a handsome and spacious structure is now in course of erection at Leeson-street (as illustrated, together with the new church in connection therewith, in our number for April, 1860), and the committee of St. Mary's Catholic Asylum—the other institution alluded to—have commenced the preliminaries for a similar undertaking at Harold's Cross. Totally irrespective of sectarian considerations, which under all circumstances are quite outside our province, we have to express a hope that humanity will prompt a generous public of every creed to respond to the appeal made to achieve so desirable an object, and we are pleased to note that so far the financial department promises satisfactorily. The subject of our accompanying illustration is the design for the building so proposed, and which according to the particulars furnished by the architect, Mr. Charles Geoghegan, is thus described:—

"The entire range of new buildings presents a frontage to the south of 274 feet by 70 feet in depth, and comprises on the ground floor, which is 16 feet in height, a spacious entrance hall, having reception hall and porter's apartments on either side; class rooms for adults and children; ample space for trades, music, recreation, refectory, baths, and kitchen, offices, schools, and ambulatories. The dormitories, lavatories, infirmary, &c., are situate on the first and second floors, each storey being 15 feet in height. The central portion of the general composition affording accommodation for 300 inmates. The convent, which is connected with the main building by means of the chapel and central corridors on each floor, contains cells for twelve nuns, with community rooms, refectory, reception room, oratory, and sacristy adjoining the chapel, the choir of which has been arranged to form a private chapel to the convent, which can be shut off from the central building at pleasure. The tower and steeple forming a picturesque feature at the external angle of the chancel. Ample provision for heating and ventilation has been provided by means of heated chambers for the admission of warm air, and flues for conducting same into all the apartments and corridors, with numerous shafts for the extraction of foul air therefrom. The building has been designed in the Gothic style, of the plainest and most economical character, with due regard to pictorial effect in the selection of the various materials employed; the walls being built of rubble masonry coated with white pebble dashing, blue limestone dressings to all window and door openings, quoins, strings, bases, &c., contrasting forcibly with the colourless tone of the main body of the structure. The roofs are to be covered with tile slating, having alternate plain scalloped courses, surmounted by an ornamental crested ridge of fire-clay against the sky line."

Before quitting this subject we may perhaps appropriately submit the following paragraphs, quoted from a recently published report of the committee, and which will serve to show on what grounds claims for assistance in the undertaking are put forward:—

"The Institution commenced in Lower Dominick-street, in August, 1858, with two pupils: in October, 1860, it was removed hither, and then numbered 40; at present we maintain and instruct upwards of 100, many of whom would otherwise be languishing in the wards of a workhouse, a permanent burden alike to society and to themselves. Although possessing great capabilities for instruction, including a perception by the senses of hearing and touch, never attained by those enjoying the blessing of sight, the blind are, in regard to personal wants, almost helpless. Their wardrobe must be attended to, their food prepared, and, when out walking, they must be led; all which circumstances entail an outlay in the maintenance of servants unknown in other charitable institutions. In addition to this, our poor charge require a very generous diet, inasmuch as nearly all of them have lost their sight in consequence of various scrofulous diseases affecting the eye.

"You will naturally be anxious to know how we progress in the two important branches of the education and employment of our pupils. Many of them, you are aware, possess considerable talent for music, both vocal and instrumental; and for the cultivation of it every facility is afforded them. They perform very creditably several pieces of church music, and have given great satisfaction to those who have heard them. We encourage as much as possible the taste for music, as calculated to soothe and refine the mind, and perhaps enable those who possess it to earn their livelihood as organists. In the important branch of manual employment much progress has been made, so much in fact as to encourage us in the hope of being able to render numbers of our inmates capable of assisting in earning their bread. They are at present engaged in making plain and fancy baskets, cocoa-nut fibre mats, and every kind of knitting and netting. A loom also has been recently erected, and is now in active operation. In the commencement, owing to the expense of instruction, the unavoidable slowness of beginners, and the inevitable waste of material in first attempts, these works could not be expected to prove remunerative. A steady improvement, however, is manifesting itself in these respects; so much so, that we thought it advisable to establish a shop, six months since, on the premises, which is now most respectably stocked by the industry of the blind, and which is gradually but surely beginning to prove remunerative."

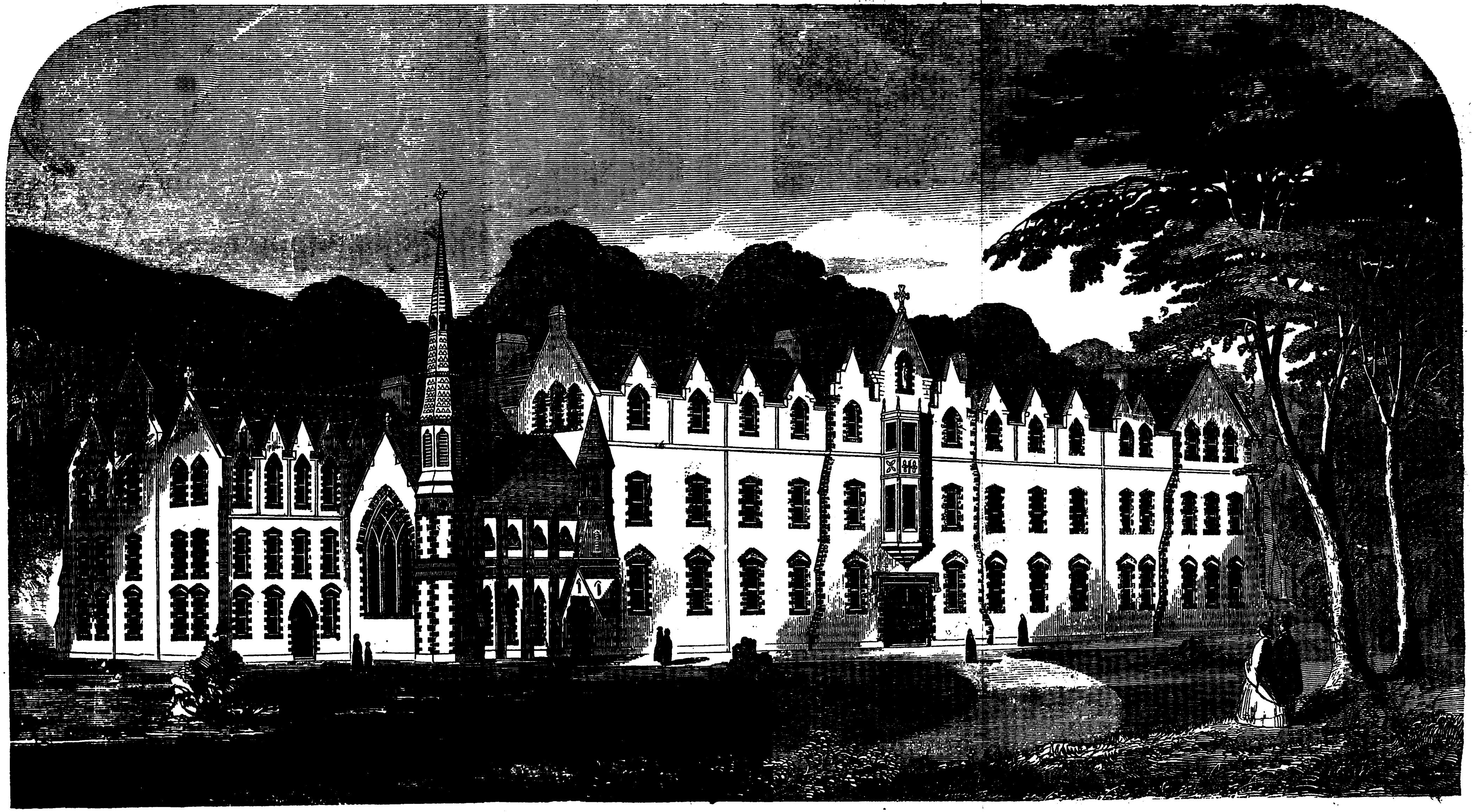
THE VISIT OF THE PRINCE OF WALES.

A Royal visit on the *tapis!* unhappily, as regards us "Irish," but few and far between; however, right welcome, and with that warmth too which the Irish alone can impart to a greeting, will be received the illustrious scion of our beloved Queen, the—according to the ordinary course of nature—future king of Great Britain and Ireland. Triumphal arches, banquets—in which the hospitality of the liberal and most worthy present occupier of the civic chair is sure to be foremost—addresses, memorials, and other complimentary distinctions will doubtless be the order of the day. In plain truth, however, we hope for more than *tinsel:* Ireland and her institutions merit more "Royal" consideration than a passing glance, a smile of approbation, an expression of pleasing reminiscences, &c. His Royal Highness is endowed by nature with an aptitude to appreciate her merits, despite invidious representations elsewhere disseminated; moreover his education, imparted under the auspices of his most excellent Queen mother, a pattern in all the relations of life, his experience of the world, too, furnishes him with an independence of judgment unfettered by prejudices, and his illustrious position enables him—or shortly will—to "suit the action to the word," and put good wishes into practical application. The exhibitions, viz., the Art and Art Manufactures in Kildare-street, and of the Royal Hibernian Academy; our institutions, viz., the Alma Mater, the Royal Irish Academy, the Royal Dublin Society, National Gallery and Museum, the Museum of Irish Industry, National Model Schools, Law Courts, and other public buildings, will be, *as usual to all strangers*, objects of temporary interest, but as a history of Ireland's past and future may be read in each and every of the foregoing, we court from a "Royal" eye—from the future ruler of the soil—more than *ordinary* study.

TURN OUT AGAINST A RAILWAY COMPANY.

The inhabitants of Kingstown and neighbouring localities have long complained of the illiberality of the Dublin and Wicklow Railway Company, the leaseholders of the line, and they are now taking practical steps to remedy their grievances by starting opposition steamers and omnibuses. The former will ply between the Custom-house Quay and Kingstown and Bray, and be capable of carrying 400 passengers each way, besides merchandize, parcels, &c., and are after the American fashion, with deck over deck. The cost of the steamer "Dublin" is about £4,400, and that of the "Kingstown" £3,600, for the purchase of which and the provision of other funds a company has been formed, in which the inhabitants of Kingstown are the principal shareholders. We admire the enterprising spirit of the promoters, which fully illustrates that there is some independent blood to be found in this country yet; and, irrespective of all considerations as regards the question in dispute, we wish the undertaking every success, a result which, for various reasons, would seem to be certain, at least when stormy or foggy weather does not cause a cessation, as no doubt must be at periods of the year. Thousands, possibly tens of thousands, are conveyed daily to and fro London and Kew, Richmond, Greenwich, Woolwich, &c., by steamers on the Thames, and the same principle of locomotion ought to be just as acceptable on the Liffey. The committee of management state their determination to go hand in hand with the omnibus promoters, and an amalgamation is proposed, so that either routes might be adopted according to choice. It is to be surmised that great local benefits will result to Kingstown.

According to the latest accounts, the railway company, at the eleventh hour, and possibly yielding to the pressure from without, have signified a desire for a conference with the inhabitants of the localities above-named.



ST. MARY'S INSTITUTE FOR CATHOLIC BLIND FEMALES, HAROLD'S CROSS, DUBLIN.

MR. CHARLES GEOGHEGAN, ARCHITECT.

THE LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

THE DUBLIN WATERWORKS BILL.

AT a recent meeting of the board of guardians of the South Dublin Union Mr. Austin gave notice that he would bring forward the following motion :—

"That having regard to the great increase which must take place in the taxation of the citizens of Dublin if the proposed water works bill should pass into law, this board do petition Parliament against the said bill, inasmuch as there is no necessity for immediate legislation on the subject, and as great doubts exist respecting the sufficiency of the proposed water supply from the river Vartry."

DEATH OF MR. B. WOODWARD, ARCHITECT.

WITH much regret we have to record the death of this highly accomplished and talented gentleman, so well known as one of the firm of Sir Thomas Deane, Son, & Woodward in this city, and the author of some of their most important works.

ON THE RESTORATION OF ANCIENT BUILDINGS.—ARCHITECTURAL EXHIBITION.

ON the 28th ult., a lecture on the "Restoration of Ancient Buildings" was delivered by Mr. Street, from which we collect the following :—

You have no more moral right to touch up or patch the work on which an ancient sculptor bestowed his art, than you have to touch up, finish, and repaint the work of a Giotto or a Fra Angelico. They are all works of individual artists ; and, because their names happen to be unknown, we are not relieved from the duty of preserving them exactly as they have been handed down to us.

The mason must be attentively watched in his mode of doing his work : he should (if the old work be good) attempt, as far as possible, to assimilate his own to it in every way—in the bond of the masonry, in the mode of dressing or working the stones, and in the general character of the works. He should be allowed to indulge in no such ingenious devices for spoiling masonry as black mortar or ruled joints ; and whether the work be new or restored, he should be compelled to do it at least as solidly and substantially in all respects as the old work.

Where old buildings are so decayed as to be capable of repair only by propping or by rebuilding, the former is generally the better of the two plans, as still leaving most of the old work intact. When rebuilding is decided upon, if the stone is not decayed, and the work very good in its character, every stone of the old work should be marked as it comes down, and should be reerected in its old place, and with as little disturbance as possible to the old work : this is the true conservative course ; but I am not sure that any good example can be given for the course (so often taken now) of rebuilding entirely new work in imitation of old work which has been completely destroyed.

In matters of detail conservative restoration is often possible when it is not practised. In stained glass, for instance, Mr. Ward gave an example some time ago in an old window which he restored for a church in Berkshire which I was restoring, of the best mode. A good deal of the glass had been destroyed : the leading still in the main remained ; and he releaded the whole of the glass, filling in the vacant places with plain glass opaquely painted ; and the result was that, at a small expense, we had the whole work, and nothing more, permanently preserved, with nothing conjectural, and with a good effect which I should, I confess, scarcely have anticipated. This work was done under Mr. Winston's supervision.

There are many other points on which a restorer should take epecial pains to conform to the old example. Wherever old levels of floors can be discovered, they should be most carefully copied. Old levels are generally well arranged, and not unfrequently with great peculiarities. As, for instance, the laying a floor on a gradual slope up from west to east. Then again the local fashion as to such seats, &c., in churches, is generally preferable to any other, especially where any example exists in the building under restoration which is at all worth repetition.

Painting on walls should, generally speaking, be carefully cleaned ; and, where it consists of figures and subjects, should not be restored. If the work be rude, it can hardly be restored in a rude fashion without being absurd : if its character be good, then it is, as I have said elsewhere in reference to sculpture, a pity to touch it, lest we destroy any of the characteristic touches and fire of the old artist. I have the authority of Mr. Layard—than whom no one has more zealously exerted himself in the cause of Early Italian art—for saying that the greater portion of the damage which is done to the old Italian frescoes is inflicted by their restorers, who recklessly paint and repair every damaged work for which they can induce any one to pay. And the fact is the more startling when we consider that the existing Government of Italy is engaged in putting down the religious orders, turning them out of their houses, and converting the convents and churches, which contain the most glorious works of art in the world, into stables, barracks, and schools ; so that the restorers must be actively vicious indeed who outdo such a Government in destructiveness !

There is one common reproach in the mouths of those who have no feeling for our national antiquities, to which a few words of answer are necessary. They assert that all this work of restoration is unreal and untrue, inasmuch as both our religious life and our civil life are quite unlike what they were : they say that the old buildings of each class are consequently quite unfitted for our use on religious and utilitarian grounds. In short, Lord Palmerston's "Civis Romanus sum" is interpreted literally by them, as it is by his lordship, to mean that Roman architecture is the only art fit for English citizens, and that we ought no longer to put up with any revival of English art. The charge is ingenious, but untrue. Take our churches, and in what respect is it necessary to alter them materially for modern use ? As far as the church is herself concerned, I may safely answer, hardly in any single respect need they be altered ; for, whilst Ely and Sherborne, and a host of smaller restored churches show the perfect liberty which she enjoys and allows in their restoration on the most gorgeous scale ; we hear now, week after week, of gatherings in our cathedral naves, either in Westminster or Exeter, to hear sermons ; or, as last week, at Ely and Peterborough, to join in choral practice ; so large, that even their spacious areas are not ample enough to hold the crowd that throng through their doors. And is it possible that this English nation, which prides itself so much upon its practical character, should be so unpractical as to go on year after year ever more and more actively at work, restoring and refitting old churches, if those old churches are not the most convenient and the most suitable buildings that could be devised for their sacred purposes ? . . . .

No work, perhaps, affords better training for an architect than the study which is involved in the attempt to become a thoroughly good restorer of ancient buildings. He cannot do his work even passably well without a hearty love and reverence for them : this love and reverence cannot be mere abstracting, but must be followed up by active work, active study, sketching, measuring, making notes, and thinking well upon and among them. This can never be done so well at any time as at first ; and yet I grieve to say that a large majority of young architects go on year after year without apparently even so much as thinking of the necessity of studying old buildings for themselves, or taking the slightest active interest in any work beyond that which is put before them in their office. Now what must be the fate of buildings restored by a class such as this ? Is it possible that they can be well, scientifically, or in any respect, properly done ? Obviously not. Yet I am within the facts in what I say : I have over and over again had applications from assistants in want of employment ; and it is a most painful fact that a very large majority of them have never studied or sketched any old building, or if they have once done so have done it once or twice only in their lives in a way so disgracefully careless as to make the hair stand on one's head at the idea of its being called study at all. Yet every one of them would undertake to restore a church with as much *sung froid* as it has been said one of our statesmen would display in taking the command of the Channel fleet. We want, also, educated clerks of the works and educated builders ; and let me say, without any lack of respect for the class, that, generally speaking, it is much safer to entrust works of restoration to local builders in only a moderate way of business than to large contractors, who seldom themselves see the work which is being executed, and who do not find it worth their while to enter carefully into those minutiæ which every restorer of an old building is bound to attend to. Our educated architects must educate themselves, not in continental examples or from continental books, but from English examples and English books. Whatever may be the value of foreign study to the architect (and from some points of view it cannot be overrated), nothing is more certain than it will be of no help whatever in finding out the meaning or intention of ninety-nine out of every hundred of our old English churches and houses. They are thoroughly national, and all their peculiarities are national peculiarities. They have also provincial peculiarities, so that none can expect to understand them thoroughly, without mastering all their provincial as well as all their broader national peculiarities.

The Pugin travelling fund will, I hope, soon be in existence to encourage men in this branch of their studies ; though, if the entire truth must be told, our art will not prosper as long as our students require a premium to induce them to study it. For myself, I should be ashamed of any young student of architecture who is content to waste his time and his holidays in indolent and selfish amusements, when he might, knapsack on back, be at work from day to day, for a month or two in every year at least, walking from one spot to another of this glorious country; gathering as he goes the information which will enable him in time to distinguish himself in his art; whilst the act of obtaining it is as full of real pleasure as deer-stalking, climbing Alps, or any other athletic work.

This, then is the sum of what I have to urge; that only after diligent study of our old buildings should we ever venture upon undertaking the charge of their restoration; and that the great end and object of all our restorations should be to preserve the old fabrics in all their old beauty of colour and design for our children's enjoyment. In our new works we have plenty of scope for the most ample originality, if we are capable of it. But we don't want to see Venetian Gothic windows introduced into our cathedrals or our castles, where they would be out of all harmony with everything that surrounds them, and standing evidences, not of our knowledge and our skill, but of our childish conceit and affectation of superiority to the men whose work we so obviously despise though we pretend to restore it.

A SKETCH OF THE SCIENCE OF CARPENTRY.*

THE art of carpentry is defined by Robison Tredgold and others as the art of framing timber for the purposes of architecture, machinery, &c., and in general for all considerable structures. Considered as a branch of the art of building, it embraces the construction of the framing of partitions, floors, roofs, &c.

It is needless here to enter into a description of the various kinds of timber used for building purposes, the red and yellow fir from the north of Europe being that most generally used in this country. It is easily worked, and very stiff for its comparative lightness, and for durability some authors consider it under certain circumstances to last as long sound as oak.

With this slight introduction, I will endeavour to condense the very extensive science of carpentry into as small a space as is consistent with clearness, confining myself to practical remarks only, and observing some sort of connection in the arrangement of the several contrivances. I will commence with the ordinary wood lintel. It is a horizontal piece of timber over a door, window, or any other opening built in the wall so as to discharge the superincumbent weight. If the wall is very thick more than one piece of timber will be required in the thickness of the wall. The general dimension is 3 inches thick for an opening of 3 feet, increasing 1 inch in thickness for every foot or part of a foot over the 3 feet opening. When the opening extends to about 12 feet or more, the same beam is more commonly called a bres-summer, and brings at once into operation the skill of the carpenter by strengthening the piece of timber by mechanical means, so that it will be able to sustain not only its own weight, but the superstructure it has to carry. All horizontal beams supported at their ends have a tendency, more or less, to what carpenters technically term "sag," that is, to drop in the middle by the force of their own weight. To counteract this influence, and also to gain the greatest effect with the smallest amount of material, recourse is had to several expedients, all tending more or less to strengthen the beams. The simplest form I know of is to cut down a timber, say a foot square, in the centre, reverse the grain or fibres of the wood, and screw-bolt them together. The additional strength gained by this is certainly not much. The next in order would be inserting between the pieces so cut a piece of oak or wrought iron, which certainly strengthens the beam considerably, and is frequently resorted to, but the most scientific manner of strengthening a beam is by trussing it, an operation which at once introduces us to two very important mechanical influences, namely, compression and tension, which may be readily seen by the following illustration:—If two inflexible bars be inclined to an angle, and the other extremities secured to another bar, in an horizontal position, and a weight be placed on the angle (or a screw will answer the same purpose), the inclined bars will be in a state of compression while the horizontal bar exhibits a state of tension.

The simplest form of trussing a girder is to divide it into two halves, in the direction of its depth and length, and insert between them bolts, having properly formed skew-backs to receive the ends of the struts, which may be of oak or any other material harder than the beam, and when fitted the centre bolt or bolts are screwed tight.

An extra force, you will perceive, is now added to the beam, which must be overcome ere the strength of the same, untrussed, can be acted upon.

For scantling of girders of various spans, see girders for floors hereafter, which are copied from "Gwilt's Encyclopædia," as are many of the scantlings for other timbers here mentioned.

Floors.—The assemblage of timbers used in the formation of a floor may be classed under three heads—first, single flooring; second, double flooring; and thirdly, double framed flooring. Before proceeding further, a few words as to plates. A wall-plate is a horizontal piece of timber laid on the walls of a building to receive the timbers of a floor or roof. Templates are short pieces of timber, sometimes laid under the ends of girders or other timbers, when no wall-plate is required; it should never be less than three feet long. Wall-plates and templates must be proportionately larger as the length and weight of the floor increases; their scantlings will in this respect vary from 4½ by 3 to 7½ by 5.

1st. Single Flooring.—Is formed with joists reaching from wall to wall, where they rest on the plates, in common work they are simply spiked to the plate, in better work, they are notched to the plate and spiked.

The intervention of flues, &c., will frequently prevent the ends of joists resting on the wall-plate. In such cases a piece of timber called a *trimmer* is framed and secured with a wedge into the nearest joist, which is then called a trimming joist. The other end of the trimmer frequently rests on the wall only, but it should be properly notched or secured to an iron corbel, and not go in the wall (this corbelling would also serve very well, for corbelling of wall-plates but a brick corbelling more equally distributes the bearing.) All trimmers and trimming joists, on account of being weakened by mortices, should be half an inch thicker than the other joists. Herring-bone strutting is introduced in single floors when the bearing is over ten feet, and when well fitted and secured, it stiffens the floor considerably. Single floors should not be used for floors beyond a bearing of 15 feet.

The following table of scantlings for joist will be found useful:

Length	6 feet	... ...	6 by 2
„	8 „	... ...	2½ „ 7
„	10 „	... ...	2½ „ 7½
„	12 „	... ...	2½ „ 8
„	14 „	... ...	2½ „ 9
„	18 „	... ...	2½ „ 12
„	20 „	... ...	3 „ 12

2nd. A Double Floor.—This floor is formed of three bearing timbers, a binding joist (which is in reality a girder); a bridging joist notched to the binder, and a ceiling joist also notched to the binder. (The manner of notching was shown in a sketch.) There are two or three ways of notching the ceiling joists. They are plainly notched and spiked to the under side of the binder, or they are notched to a fillet nailed on the binder, and they may be what is called "pulley morticed" into them; that is, there is a chase cut in the binder long enough to allow of the tenons of the ceiling joists being obliquely introduced into them and driven up to their places.

The scantling for timbers of this kind of floor will be the same as given for double framed flooring, of which it is a species.

Double Framed Flooring.—In double framed flooring the binders instead of resting on the walls are generally framed into girders reaching from wall to wall. Bridging joists are the same as described for single flooring.

In a single joisted floor, the whole weight of the floor being equally distributed along the whole line of the wall, it certainly has the advantage of a girder framed floor where the weight is transmitted by the girder on a portion of the wall only, and it is also usually considered that a single joisted floor is, in proportion to the cubical quantity of wood it contains, stronger than a framed floor. But, as Tredgold observes, when the bearings of the joists become considerable, the ceilings of the single joisted floors are liable to be affected by the natural movements of the timber, and at all times it is easier to execute the works required to prevent the transmission of sound in a framed than in a single joisted floor.

Practically the limit for the bearings of a single joisted floor seems to be fixed at from 20 to 24 feet; for although it is possible to obtain timbers deep enough to carry the loads of floors of larger spans; yet the depth becomes so considerable as to render the use of framed floors preferable, even without reference to the danger and inconvenience from the shrinking and warping of the joists.

A span of more than 24 feet can rarely be accomplished with ordinary timber girders, and it therefore becomes necessary to resort to the use of trussed cast-iron or wrought-iron girders. Of these the wrought-iron girder, from its lightness and elasticity, is very much used.

Partitions.—The framework of timber used for dividing the internal parts of a house into rooms is called a partition or quartered partition, so named from the use of small timbers called quarterings; and when having a solid basis throughout its whole length, it requires little skill in the formation, and is generally constructed of quartering which rarely exceeds 4½ inches by 3 inches, unless required for very large partitions. A piece of timber is fixed upon the wall which is denominated a cill, and a corresponding piece above called a head, into which the ends of the quartering are framed; occasionally an oblique timber is inserted in the form of a strutt, which gives additional strength to the partition. When the partition is to be lathed and plastered only, the door and end posts for an ordinary dwelling-house are generally made 4 inches by 3 inches, the heads and cills the same, the filling-in timbers being 4 inches by 2 inches, and about 1 foot apart. When the partition is to be what is termed brick-nogged, that is the interspaces of timbers filled in with brickwork, the thickness of the partition will require to be half-brick thick, and the interspaces of timbers arranged so as to take two or three bricks.

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* From a paper read by Mr. R. O. Harris at the Architectural Association.

When a partition has to be formed where it is not desirable to support it from below, it must not be allowed to give any of its weight to the floor, but assist in supporting and carrying the floor above if required. To do this the partition is formed into a truss, the ends of which are supported upon the main walls of the building.

The principal objects to be remembered in the construction of framed partitions are to throw the whole weight of the partition and what it has to carry upon some principal wall or part of the building. The simplest form of accomplishing this is where the head and cill is secured with iron straps to the angle posts, a king post is framed in the centre to receive the ends of the braces; the bottom ends being well secured to the cill, the quartering is then filled in, and materially tends to stiffen the framing.

The use of iron rods with king and queen heads is much used now, and has the same advantage here as in the roof of screwing the joints of trusses firmly into their position. With these few remarks, which are necessarily incomplete, I will pass on to the next division, which is roofs, where I will more particularly describe the several ways of connecting the ends of timbers together.

I have not given any scantling of timbers for trussed partitions on account of the variety of circumstances that influence their construction, for what would answer in one case would not in another.

Roofs.—There is nothing in the whole system of carpentry requiring more careful consideration than the construction of the roof, for upon its proper formation depends the stability of the building and the safety of those for whose shelter it is designed. The first thing I would call your attention to will be "the pitch" required, and that most consistent with the covering employed and the vicissitudes of this climate. It should never be hidden from view like an unworthy object not fit to be looked upon, nor ornamented with useless decoration that cannot be seen. A very lively writer of the day observes—"It seems, therefore, a gross violation of the principles of taste in architecture to take away or hide the roof of a house; and it must be ascribed to that rage for novelty which is so powerful in the minds of the rich. Our ancestors seemed to be of a very different opinion, and turned their attention to the ornamenting of their roofs as much as any other part of the building. They showed them in the most conspicuous manner, running them up to a great height, broke them into a thousand fanciful shapes, and stuck them full of highly-dressed windows. We laugh at this, and call it Gothic and clumsy; and our great architects conceal the roofs altogether by parapets, balustrades, and other contrivances. Our forefathers certainly did offend against the maxims of true taste when they enriched a part of a house with marks of elegant habitation which every spectator must know to be a cumbersome garret; but their successors no less offend who take off the cover of the house altogether, and make it impossible to know whether it is not a mere screen or colonnade we are looking at." He further says—"A house without a visible roof is like a man abroad without his hat; and we may add that the whim of concealing the chimneys, once so fashionable, changes a house to a barn or storehouse. A house should not be a copy of anything. It has a title to be an original; and a screen-like house and a pillar-like candlestick are alike solecisms of taste." Referring again to the inclination of a roof. I will here mention the angle of inclination with the horizon adopted in different countries:—In Greece it was from 12 degrees to 16 degrees; in Rome usually 23 degrees or 24 degrees. In England high-pitched Gothic roofs are seldom more than 6 degrees, or equilateral; a very good inclination, and one very commonly used, is to make the height of the roof two-thirds the span. A high-pitched roof will undoubtedly shoot off the rains and snows better than one of a lower pitch. The wind will not so easily blow the rain in between the slates, nor will it have so much power to strip them off. Taking roofs generally we may divide them into three kinds—1. The gable-ended roof; 2. The truncated roof; 3. The curb or Mansard roof. Each of these may have their ends cut off. If the same inclination as their sides, which in a square building would form a pyramid, in an oblong roof, the angle formed at the top is called the ridge, and that formed by the meeting of the sides the hips.

1st. *The Gable-ended Roof.*—This is the simplest form of roof for buildings of small span. They are formed of wall-plates, bedded upon the wall, to which the common rafters are notched and spiked. In Gothic roofs they are mostly continued to the exterior of the wall, to which a trough gutter is fixed; the upper end is cut so as to abut to the ridge piece to which it is spiked. There is generally a space of 1 foot between each rafter, and to every fourth or fifth rafter is attached a tie generally termed a collar; it is halved and dovetailed to the rafters, and secured with oak pins or screws. If it were required to hip this roof, the wall-plate would be continued round the wall, and secured where they lap over each other at their ends by being halved and firmly screwed together. They are further secured by the angle-tie, which is also halved and dovetailed to the wall-plate, and a small timber called a dragon-beam receive the foot of the hip rafters. The angle-tie and dragon-piece are not used in Gothic roofs; being seldom or never hipped, there is no occasion for it. When the ceiling is required, say half way up the roof, the ceiling joists may perform the office of collars, and be attached to each pair of common rafters; and when the rafters are plastered to the whole height, the collars or ties may be about 5 feet apart. It is not advisable to use this roof for spans exceeding 18 feet or 20 feet at most. The bearings of the rafters may be further shortened by using a purlin notched to the top of the collars.

When the span of the roof exceeds 20 feet, it should be formed of trusses, quite independent of the rafters. The simplest form of truss is that with a single king-post, tie-beam, a pair of principal rafters, a pair of strutts, purlins, common rafters, &c.

The tie-beam extends from wall-plate to wall-plate, to which it is cogged, so it ties the wall in at the top, and receives the outward thrust of the principal rafters, and so converts it into a vertical pressure. There are many ways of connecting the principal rafters with the tie-beam. I will give but one, which is called in carpentry the *true joint* for a rafter foot, and is used by the best London carpenters for all oblique thrusts. It is secured by a wrought-iron strap with wedges, or by a screw-bolt going through the two timbers. It becomes necessary to provide for what is termed the sag or sinking of the beam in the centre, and for this purpose the king-post is introduced, which is suspended, as shown from the apex of the P rafters, and from this is suspended the tie-beam; it is further secured with a wrought-iron strap and wedges at the lower end, which is framed into the tie-beam. The head and foot of the king-post, you will observe, has abutments for securing the ends of the principals, and for strutts which divide the bearing of the principals; these projections are termed joggels, into which the rafters and strutts are firmly framed and bound with an iron strap, having three branches to secure the rafters and king-post. Sometimes the king-post is exchanged for two queen-posts, when the span of the roof is increased, and the tie-beam requires suspension from more than one point, this introduces the collar-beam to retain the queen-posts in their position, and another timber at the bottom, called a straining-cill. The auxiliary, or cushion-rafters, to which the purlins are fixed, have been used by some architects for additional strength.

This mode of trussing answers well for a truncated roof, where the collars may be cambered to a fall for the lead covering.

The next form of roof I will draw your attention to is the curb roof—that invented by Mansard, sometimes called the Mansard roof, after the name of its inventor—essentially a French roof, and a very good one it is. When sleeping apartments are required in the roof it certainly affords more space than any other form: its construction in every way meets the requirements of science. It forms ample means by its dormer, windows, &c., for appropriate decoration, and well contrived to bear the vicissitudes of this climate, and deserves to be more generally used.

It is formed of two pair of inclined planes, not unsimilar to four sides of a regular octagon. The upper rafters are called curb rafters, and a plate receives their ends, and is called the curb plate. When the bearing of the top inclines are long, they may be formed into a king-post truss, the space between the two ties being the height of the storey, and in large roofs would form the partition dividing the rooms. And the system of trussing explained, described for partitions, can be well practised in this form of roof. I will conclude these very incomplete remarks on this class of roof by calling your attention to one or two specimens of the finest roof carpentry in this country.

One is the roof of the Birmingham Theatre, constructed by Mr. George Saunders. The span is 80 feet and the trusses are 10 feet apart. It is one of the boldest and lightest roofs in Europe. The contrivance for taking double hold of the wall, which is very thin, is excellent.

Similar this in span, and probably a finer specimen of carpentry and appropriation of the roof space, is that of Drury Lane Theatre—80 feet 3 inches span, and the trusses 15 feet apart, constructed by Mr. E. G. Saunders. "It is probable," says Tredgold, "that this roof has not its equal in the world for lightness, stiffness, and strength. (The scantlings of the timbers, &c., are given in Tredgold and Gwilt.) The main is so judiciously framed that each of them will safely bearly a load of nearly 300 tons.

In Gothic roofs the general principles of framing are somewhat different to what I have described; in those the timbers are generally unwrought and hidden from view. In the Gothic roof it is different; the timbers are carefully wrought, sometimes beautifully moulded and carved. They exhibit also a system of trussing of the highest order; and the roofs of Westminster Hall, Hampton Court Palace, and Eltham Palace, Kent, are among the finest opened timbered roofs in Europe.

Taking Gothic open roofs generally, they have a tendency—from their construction—to exert an outward thrust on the wall, to counteract which the walls require to be made thicker, and further strengthened by buttresses where the trusses rest upon the wall; hence the roof with a tie-beam and a medium pitch has the advantage of a high-pitched Gothic roof, in having greater strength with a smaller quantity of material.

I will here introduce one or two of the principles of Gothic roof as executed at the present day. The simplest form is putting a collar about half up about every fifth pair of rafters, or to each pair if the cush will admit. It is a common form for old chancel roofs in small parish churches. It may be considerably improved by using a pair of strutts, which brings the tie of the roof nearer the wall-plate. These may also form trusses upon which to bridge the purlins, and they receive the common rafters as in other roofs. The first of these examples may be further strengthened by the introduction of a circular brace, which takes the form of a Gothic arch, and is firmly screwed to the collar and principal rafter, and frequently has a bearing much below the wall-plate. Hence the wall above acts as a dead weight to counteract the thrust common to its construction. It will be readily seen what an important part this circular brace performs. Upon their stiffness depends the proper tying-in of the walls of the top. This bracing may be used in many forms, but the result must be the same, or it does not fulfil its office. It affords ample scope also for ornamentation, which our ancestors appear to have well appreciated.

To give you anything like an account of the complicated ingenuity displayed in the different ages of Gothic carpentry, is far beyond the limits of this introduction to the science generally; in fact, a large volume, and a very popular one too, on Gothic carpentry, as worked at the present day, I think is much needed.

Before quitting this subject I will mention the hammer-beam roof and the low pitched roofs common to late work. These were often formed (I may say generally) without any truss, an assemblage of girders, purlins, and rafters of sufficient scantling to bear their own weight and what they had to carry. Frequently the ceiling of these roofs are beautifully panelled and very effective.

The hammer-beam truss consists in its simplest form of a pair of principal rafters and collar, with two beams projecting from the wall at right angles to the wall-plate, and from which the truss is braced, as before described. With these passing notes I must conclude my brief sketch. I could have written much more on the subject had space permitted; and in endeavouring to simplify my subject I fear I have been tedious to our senior friends. However, I trust it may elicit some discussion for our mutual benefit.

I have purposely omitted a very beautiful system of carpentry practised by the French engineers, De Lorme and Eny, &c., thinking it a subject worthy of a separate paper.

LAW NOTES.

Kempston v. *Butler*.—In this case, the particulars of which have been so repeatedly before the public that it is unnecessary to recapitulate them here,

The Chief Justice delivered the judgment of the court. His Lordship having gone very fully into the facts and the law, said that, so far as the court could see, upon the present count at common law, there was no liability upon the owner of the party wall, which, in the event of taking down the adjoining house, threw upon him solely and exclusively the expense of maintaining, propping up, and supporting that party wall. The question was, notwithstanding that the custom which had been set up, and which had existed in the city of Dublin, was the court at liberty to hold that the custom, as laid in the declaration, was a reasonable one. There was no doubt that the reasonableness of the custom was a matter of law. There was no allegation whatever in the present pleading that this was a custom in Dublin binding the owners of property. It was alleged to be a custom binding on the builder only, and, if it was valid, it should be one as far as the court had any means of seeing on the present pleading, confined to the care of a builder taking down a house for the purpose of erecting another. Assuming, then, as he was bound to assume, that no obligation existed at common law on the owner, no statement had been made of the custom in terms binding the owner. Was it therefore a reasonable custom that a builder, who was merely employed for the purpose of taking down a house to build another, had thrown upon him the onus which did not exist at common law, and which the owner of that house must have had in himself? The court had come to the conclusion that such a custom was not a reasonable one, and could not find any sufficient reason that would justify them in holding that it was so. Upon the whole of the case they were of opinion that that custom was contrary to the rights of property and to the common law of the land, and, therefore, notwithstanding the finding of the jury, they should act upon that opinion, and, the second count being good, order a trial "de novo."

Judge Christian delivered an able judgment, and concurred, as did the rest of the court, in the decision of the Chief Justice.

COURT OF BANKRUPTCY AND INSOLVENCY.

In re J. A. Bergin.—The court passed the final examination, and granted an immediate certificate.

In re Noble Talbot.—The insolvent was a carpenter and builder in Clanbrassil-street. His discharge was opposed on behalf of a Mr. Johnston and of John Ouseley Bonsall, who applied for possession of the house and premises in Clanbrassil-street. The insolvent alleged that Mr. Bonsall had made an illegal seizure on his chattles, and that an action was pending against him.

His Lordship adjourned the case till November next, in order that the insolvent, in the mean time, might make any arrangement he could.

Notes of New Works.

A new church is to be erected in the town of Augher according to plans and specifications furnished by the architects to the Ecclesiastical Commissioners.

A new building for the Christian Brothers' schools has been recently completed at Tuam.

A new model national school is to be erected at Lurgan by the Board of Public Works, and the same body are also receiving tenders for extensive gas works at the College of Maynooth, and for an infirmary at same establishment.

The first stone of a new Wesleyan Methodist Chapel has been laid at Salt-hill, Galway. Style geometric decorated Gothic. Mr. Tarleton architect; Mr. Geo. Glanville, of Ballinasloe, the builder.

A new Wesleyan Chapel is also to be built at Rathdowney, Queen's County. Style Tudor Gothic. Same architect and builder.

Sundry works are to be executed at the churches of Larne, Layde, and Portglenone county Antrim; Moyntaghs, county Armagh; Ballyhalbert, county Down; Clifden and Killeroran, county Galway; Omeath and Termonfeckin, county Louth; Ballyoive, county Mayo; and Achonry, county Sligo, under the directions of the architects to the Ecclesiastical Commissioners, and tenders will be received till 22nd inst.

Additions are to be made to the women's dining hall of the North Dublin Union Workhouse. Tenders to 19th inst.

The new Catholic church of St. Mary, at Granard, is progressing under the direction of the architect, Mr. John Bourke. The site, which is said to be most advantageously circumstanced, was presented gratuitously by the uncle of Col. Greville, M.P. The style is transitional—between the first and second periods of pointed architecture; the plan cruciform, containing nave, aisles, transepts, side chapels, chancel, baptistry, sacristy, tower and spire, porches, &c. The internal length is 120 feet, and 82 feet across transepts; breadth across nave and aisles 54 feet; height to apex of roof about 58 feet; the tower and spire will stand at the angle of one of the transepts facing the main street of Granard, and will rise to a height of 170 feet from the surface, crowned by a rich mediæval cross, and decorated with spire lights, niches, &c. Rich traceried windows will light the chancel and side chapels, triple lancet windows will light the aisles, and double lancet winwill light the aisles and clerestory. Cylindrical stone columns, supporting lofty, pointed arches, will divide the nave from the aisles. The roof will be of open timber work.

The foundation-stone of the new cathedral church of Clogher will be laid on Tuesday next.

A handsome organ has been erected by Messrs. White, of Bishop-street, in the chapel of the convent of St. Mary, Kingstown.

Messrs. Moore, Brothers, have been declared contractors for the Finn Valley Railway, a distance of fourteen miles, connecting the village of Finn, in the county of Donegal, with the Derry line at Strabane. The same contractors are at present engaged laying the line from Navan to Clonsilla, and the Liffey branch from Midland Great Western Railway. In the latter case we can bear personal testimony to the spirit with which the work is being pushed forward.

The works connected with the new hotel at Bray, on several occasions noticed in this journal, are progressing rapidly, upwards of 100 artizans and labourers being employed thereon. The third storey is already far advanced.

Very extensive additions are about to be commenced at Messrs. Berry's, Arran-quay. The adjoining houses will be taken down and rebuilt uniform with their present frontage, and a long range of stores will be erected in the rere, extending into Church-street. Mr J. S. Butler, architect; Mr. Wm. Hughes, builder.

Estimates will be received up to the 22nd inst. for works to be executed at the church of Holy Cross, Tramore. Mr. M'Carthy, architect.

Mr. Richard Allen, the extensive merchant tailor and draper, is having the front of his establishment in Sackville-street attractively decorated, under the direction of Mr. Gibson, of Mary-street, painter, &c. Imitations of various marbles—in which Connemara green forms an important proportion — are introduced, and the Caryatic figures over the Corinthian columns, which flank the great window on the first floor, are being highly bronzed. As yet we cannot speak with confidence of the effect, as the scaffolding is not yet removed, but may probably do so by-and-bye.

It is expected that the second line of rails now being laid on the Dublin and Wicklow line, between the metropolis and Bray, will be ready for traffic on the 1st prox.; also that the portion of the line to Rathdrum will be opened likewise.

The preliminaries for constructing a line of railway between Killyleagh and Crossgar are progressing satisfactorily. The former town is said to be becoming a prosperous place.

The preamble of the Cork and Macroom Railway Bill has been declared proved. The Cork, Blarney, and Macroom Railway Bill was thrown out.

LIGHTNING CONDUCTORS FOR HOUSE-TOP TELEGRAPHS.

It is stated that, yielding to the earnest representations of the occupiers of houses in this city upon which rest telegraphic poles connecting the various railway termini, the Castle, &c., the company have consented in each case to place lightning conductors. A writer in a recent number of the *Daily Express* says, "That in a very heavy storm the lightning played with picturesque, but alarming fitfulness along the wires, darting from house to house and street to street, to the consternation not only of the occupiers, but the passengers." The *Building News*, however, points out the danger of the improper application of such supposed precautions in the following terms:—

"The lightning-conductors supposed to be so great a source of safety will prove only the means of increasing the danger, unless they are composed of ½-inch copper rod carried down 60 or 70 feet into the earth to insure constant moisture. If that precaution be not taken, human life and household property in the neighbourhood of inefficient conductors will be in more danger than before, owing to the severity with which the 'lateral discharge' always takes place. In considering this matter, so serious to the public generally, it should be recollected that the ordinary telegraph wires at the regular stations are always connected with the earth, and yet they fail to carry off more than an insignificant portion of a flash of lightning. The public must, therefore, be on its guard against any make-believe conductors, because telegraph companies will be ready enough to escape the necessary expense, if they find that any sham will prove satisfactory, until the 'avenging fluid'—as Mr. Wreed, in his letter, more profanely than logically termed the dangerous flash—causes not only consternation, but actual destruction.

"In the provinces a telegraph wire passed near a gas-pipe, and a few feet further on was connected to the earth. The lightning struck the wire, the lateral discharge entered the leaden gas-pipe, made a hole through it and lighted the gas, fortunately, it was immediately extinguished by those present, or the pipe must have been melted and the house probably burned to the ground. This, we understand, is not a solitary instance of the past, and it is just as likely to happen again in the future, for if the lightning strike a pole on the top of a house it would to a certainty make for the gas-pipes, and should they be of lead, as we have already suggested, the most destructive consequences may ensue.

"As this is a question possessing great and general interest, and as 'everybody's business is nobody's,' under these circumstances, perhaps, we may be excused in asking Dr. Faraday to favor us with his opinion on the subject for publication, in order to set the public mind at rest by explaining the nature of 'lateral discharge' in this respect, and enabling householders to test the assurances of telegraph agents and the experience of engineers employed by telegraph companies."

Mr. E. P. Gribbon, architect, has removed his offices from 57, Lower Gardiner-street, to his residence, 72, Stephen's-green.

COLUMN FOR CRAFTSMEN.

MASONRY AND BRICKLAYING.

(Continued from page 532.)

The antiquity of bricks seems to be coeval with the first edifices after the deluge—the tower and city of Babel, and most of the early structures of Egypt, being built of them. The sizes varied in a greater proportion than those of modern manufacture, but according to Pliny, those most in use were a foot and a half long and a foot broad. There are also evidences of bricks being shaped in circular and other moulds for the formation of columns, &c. The bricklayer's art has attained great perfection, and his work in regard to permanency, and not unfrequently architectural beauty, may compete with that of the stonecutter and the mason. In laying bricks there are four kinds of bond—viz., English, Flemish, herring, and garden wall—the first consisting of a row laid lengthwise, called *stretchers*, crossed transversely and alternately by other rows called *headers*, the second where header and stretcher are placed alternately in the *same* course. The standard thickness of a brick wall is in reality 13½ inches, or a brick and a half, but is most commonly assumed to be 14 inches, being on the surface 16½ feet square, and producing, according to the practice in England, a rod of 272¼ square feet, or 306 cubic feet. To construct a rod of brickwork about 4,500 bricks (varying, however, with the sizes manufactured in different localities), and mortar composed of 1 cwt. of stone lime and 2½ loads of sand will be necessary. Throughout Ireland, the ordinary measure adopted is a perch of 21 feet in length, 1 foot in height, and 9 inches in thickness; the custom also is—as in several provincial places throughout the kingdom—to include the openings as solids. A 4-inch wall is reckoned two-thirds of a 9-inch wall, and a 3-inch half a 9-inch wall. In the centering of sewer vaulting half the arch is allowed, and in groin vaulting the whole arches are usually done at so much per, according to their class, splayed jambs, cant quoins, &c., by the running foot. In some parts of Ireland a very superior material of brick is produced, about the best being that manufactured in the county Dublin, the next that of Athy—the sizes of the moulds, however, are smaller—Tullamore, &c., &c., all of which are of a grayish colour. Belfast yields bricks of an excellent quality, and of reddish colour chiefly, which contributes an appearance of warmth to the buildings erected therewith, also, when judiciously disposed with those of other colours, admirable architectural effect. Terra Cotta may be regarded as a species of "brick" material, and has been adapted as a substitute for brick dressings in many public buildings in England; but we are only aware of a single instance in or near this metropolis—viz., a church at Kingstown, designed by Messrs. Barry & Brown (Raffles Brown)—in which it has been employed. We may perhaps appropriately remark here that the manufacture of this article has been brought to a high state of excellence by some English and Scotch firms, and we were greatly pleased both with the character of the designs and the quality of various articles in that line during a recent visit to the establishment of Mr. Blashfield, at Great Marlborough-street, London, a fact with which we desire to acquaint our professional readers specially. About the most stupendous and at the same time the most admirably executed piece of brickwork in the three kingdoms is the metropolitan terminus, of the Great Northern Railway, at King's Cross, which comprises a lofty central tower, with two great semicircular arches of, we believe, 70 feet span, each abutting against smaller side towers projecting beyond the face of the building, and producing a whole, which for suitability of character and meritorious combination of architectural arrangement to an engineering requirement is unsurpassed. The system of building brick walls either by leaving spaces between the external and internal faces, or perforating each brick separately, has of late years come greatly into favour; the advantages it would seem to present being much saving of material, and though rendering the mass lighter, adding greatly to its stability, as has been proved by experiment; moreover, as a preventive against damp, the principle is considered to be effectual. The prices of bricks, like every other article employed in building construction, vary—the best county Dublin stocks being sometimes as high as 30s. per thousand and as low as 26s., the *place*, or worst burned portions of the kiln being, however, much cheaper, but these latter are unsuitable, except for inside linings, partitions, &c., &c., and even then are of a very perishable character.

THE GEOLOGICAL SOCIETY.

A general meeting of the above society was held in the Museum Building, Trinity College, on the evening of the 12th inst.

The chair was occupied by the President.

Mr. Bateman read a paper, by himself and Messrs. Barton and Dopping "On the Chair of Kildare."

The Chairman observed that Mr. Bateman and his colleagues were deserving of great credit for the valuable information they had afforded on this interesting subject.

The President read a communication "On the occurrence of Oligoclase in the Gneissose Granite of Castle-Caldwell, in Fermanagh."

Mr. J. B. Jukes, M.A., read "Notes on some points in the Geology of the County Antrim."

A vote of thanks was passed to the learned professor for his interesting paper.

"THE BUILDING NEWS."

It seems somewhat like a formal introduction by a *third* party of two *old* friends, for us to draw public attention to a periodical thoroughly established, and the excellence of which has placed it beyond the reach of critical disquisition; however, adhering to the maxim that "a good thing cannot be done too often," we claim permission to endorse an approving sentiment universally and unexceptionally felt of the ability and spirit with which this professional organ has been and is being conducted. Perhaps we were amongst the first in this city, or country either, to whom the earliest numbers of the *Land and Building News* found their way, but since then the proprietors, changing their tactics with "the spirit of the times"—and wisely too, as circumstances have proved—determined on the pursuit of a course less divided, and omitting the former department, launched *The Building News* in its integrity. With *hand, head*, and *heart* all combined, they have skilfully, energetically, and honestly pushed the undertaking, relying for public approval on genuine merit alone, and disdaining the courting of popularity by pandering to the tastes of a section, or sacrificing independence of principle at the shrines of other objects. The path presenting itself to be trodden by this journal *ab initio*, was by no means a smooth one, and was disputed at every step in its course by that host of opponents which prejudice—as *we* know well—continually raises up; however, spurred on by extraordinary energy of purpose, and determining never to cry "hold, enough," *The Building News* was pushed from one degree of excellence to a higher and a higher, until it reached "the goal of success" most triumphantly. Whether we regard it in the editorial or illustrative departments, the award of merit is perhaps equally applicable, it being evident from the character of its contents—original, independent, and racy as they are—that a galaxy of talent must be present on the staff, and in the latter we may without invidiousness chronicle a *fact* which *must* be conceded, that under the auspices of its conductors the art of wood engraving has been brought to a degree of perfection as yet unattained by any other journal *in the world*. As a general rule, too, it may be assumed that wherever first-class ability and enterprising spirit are to be found, so also is the nobility of nature—"generosity of purpose"—usually present; and this characteristic we have personally experienced to be one of the distinguishing *traits* of our cotemporary in question. Creeping in our own infancy, and before we attained our *second* age, a helping hand from an adult friend was most acceptable; and this we desire specially to record was on *more than one occasion*, in the shape of friendly notice and quotations, cordially extended by *The Building News*. When kind spirit is manifested, it would be ungracious not to openly acknowledge and reciprocate it, and the opportunity is in this instance doubly gratifying, as it can be done without an error of judgment. We shall always regard *The Building News* as an esteemed friend—a senior in every respect—in whose well-being we experience a lively interest.

Miscellaneous.

The following brief account of Ernest Slingeneyer's picture has been received from the architect of his Majesty King Leopold:—"This grand historical painting, by one of the most eminent artists of Belgium, represents the heroic death of Jean Jacobson, of Ostend, at the siege of that city in 1622. Jean Jacobson, a celebrated mariner, sprung from an ancient and noble Belgian family, was captain of a Spanish vessel, in which alone for sixteen hours he maintained a fight with nine Dutch ships. He sinks three of them, then, seeing his deck in possession of the Dutch boarders, he sets fire to the magazine and blows up his ship rather than surrender."

The whole of the masons in London, and a large number of the bricklayers, plasterers, painters, and carpenters, struck work on Monday morning last, the masons' committee withdrawing their men from every firm within the postal district who refused to pay on the terms of the compromise offered by them, viz., 6s. per day for five days, with 3s. for the half day on Saturday.

Monument to the Earl of Glengall.—A massive monument, sarcophagus-shaped, and composed of Aberdeen granite, has been placed in Caher church-yard, close to the vault where repose the ashes of the three members of the Glengall family there interred. The mausoleum stands opposite the old castle of the Barons of Caher, a title that afterwards lapsed into the higher distinction, the earldom of Glengall.—*Clonmel Chronicle.*

Exhibition of 1862.—This building progresses with rapidity, the question raised by Mr. Donaldson, district surveyor, having been satisfactorily settled. The bills of quantities include 5,000 tons of concrete, 60,000 tons of bricks, 22,000 tons of mortar, 10,000 tons of iron-work, and 600 miles length of painting, 500 tons of sheet glass, and 600 tons of plain glass.

Art Union of Great Britain.—The drawing of prizes, numbering upwards of one thousand, and comprising several purchases at the Royal Hibernian Academy Exhibition, is announced to take place in the Free Trade Hall, Manchester, on the 29th inst.

William Dargan.—The name of an Irishman of whom his country may well be proud, cannot be more appropriately introduced than in connection with the locality of Bray. Although the works of William Dargan may be seen in almost every part of Ireland, it is here that he has of late years concentrated all his energies, now removed almost entirely from the active pursuits in which he was engaged for upwards of thirty years. Under his guiding eye, and by the judicious investment of his abundant capital, a small and comparatively obscure village has been rapidly converted into a charming marine outskirt of Dublin. Although Mr. Dargan's operations only commenced in 1856, Bray already abounds with well built villas and terraces, and possesses a population which promises to increase as rapidly as that which flowed into Kingstown after the completion of Mr. Dargan's first great work in Ireland—the Dublin and Kingstown Railway. Mr. Dargan, now in his sixtieth year, is in the enjoyment of vigorous health, and we are sure that all who know him, whether personally or only by fame, unite in the earnest hope that he may, with his clear head and warm heart, for many years to come, co-operate in advancing the material development, as well as the intellectual improvement, of his country.—*Sir Cusack Roney's "Month in Ireland."*

The Private Telegraph.—Recently in Edinburgh Mr. Bartholomew, telegraphic engineer, exhibited Wheatestone's private telegraph in the police board-room, before the Lord Provost, magistrates, and several other gentlemen, with a view to the adaptation of the system to the police stations. Its advantages lie in the facts that anyone who can spell may send or receive a message; that the source of the electric power is permanent; and that the operation is certain. The apparatus is divided into three parts—the communicator, the indicator, and the alarum. The communicator, generating the current by magneto-electric induction, exhibits a series of keys representing each letter of the alphabet, with the numerals. By depressing those keys the signals are communicated to the distant station. The indicator, or "receiving apparatus," is a handle like that of a clock, pointing to any letter which may be represented, whilst the alarum is an ingenious arrangement for calling attention. The experiments gave great satisfaction, the superintendent of police having found that even on the first trial he could telegraph with unerring accuracy.

New Main Sewers.—Various works of sewerage improvement in this city are at present in progress, or in contemplation, some of the most recently authorized being in connection with Chancery Place, Mountrath, and neighbouring streets, Great Britain, Marlborough, Cumberland, Wicklow, Duke, Dawson, and Dominick-streets, Bayview Avenue, &c., &c.

Curragh of Kildare.—Return of all expenses connected with the erection of permanent and temporary barracks, huts, stabling, &c., on the Curragh of Kildare, and for all other works and services in the formation of the camp there, including cost of draining, paving, and supply of water, to the 31st March, 1861:—Barracks, £5,829 9s. 6d.; huts, £152,428 3s. 8d.; schools and churches, £5,427 1s. 9d.; supply of water, £12,303 9s. 10d.; drains, &c, £8,555 7s. 9d.; forming roads, &c., £5,856 4s. 8d.; rifle ranges, £2,121 17s. 5d. Total, £192,821 14s. 2d.

Excavations in Derry Cathedral—Relics of the Siege.—In the course of the excavations which have been going forward in the cathedral of Derry for the purpose of effecting architectural repairs, a great variety of remains connected with the siege of 1688-89 were discovered by the workmen employed. In addition to some coins of James II. and William III., a large quantity of human bones were turned out, evidently those of parties who had been buried inside the edifice during and after the siege. The graves of Baker and Browning were uncovered, but closed up again, and several other coffins were found, particularly one, bearing on its centre the letters "M. S." and beneath this inscription a representation of a human heart, with four darts striking out from it in a diagonal position. Below this point were the figures 1729, formed of round topped brass nails, and the whole quite distinct. Numerous other remains were disinterred, and carried out into the churchyard, to the place known as the stranger's burying ground, where they have been lying ever since, exposed to public view, and are, it is said, to be reinterred in this undistinguished locality. Other reports, which we forbear to notice, are in circulation, and the public feeling has been a good deal excited by the more than unceremonious manner in which these memorials of the defenders of Derry have been treated by the parties in temporary charge of the cathedral, of course under the superintendence of the ecclesiastical "powers that be."

A glass steam engine is on exhibition by the Bohemian troupe of glass blowers at the Cooper Institute, New York. It is a complete transparent, low pressure, working engine, with all the inner parts, valves, &c., of course, visible.—*Scientific American.*

The Dublin Builder.

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DEATH IN THE BARRACKS.

REVELATIONS startling and of considerable moment, as simultaneously affecting the existence of an important section of the community, and the vital element of our national strength, have just issued from that instructive oracle, the "Blue Book." Great Britain glorifies her soldiers who bleed and die in the cause of loyal devotion; she perpetuates their memories by marble monuments, and decks with laurels the brows of the survivors. Yet she compels these brave defenders of Queen and country to endure at home, during their period of comparative rest, that which is of more constitutional detriment than the snow-filled trenches of Sebastopol or the burning plains of India. "Grim-visaged death" hovers in the homes of the stalwart, and, laying his fatal hand on his victims, prematurely hurries them one by one into eternity, and this too under the—assumed to be—improved *regime* which modern science has secured in the construction of barracks. It needed no great exploration of the buildings so appropriated, in the salubrious localities of Ship-street and Linenhall-street, respectively, in this city, to become convinced of the fact that in every respect are they unsuitable as human habitations, and more especially so for those who, more than others, require the invigorating influence of good air and plenty of it. Of the former, the commissioners appointed to make a thorough inspection of all the barracks say in their report, "They overlook a street of filthy houses, behind which pigs are kept, and nuisance is experienced when the sties are cleaned;" and of the latter, that they are "enclosed among civil buildings in one of the worst districts of Dublin, and consist of a number of small closed courts, obstructing the external ventilation. It can only excite surprise that such a building was *selected* for such a purpose." Even irrespective of sanitary considerations altogether, what conclusions as to demoralizing tendencies may be drawn from the recorded sentence "*in one of the worst districts of Dublin?*"—a fact too notorious to require further comment. The same strictures might not seem to a casual visitor to apply to other barracks, for instance the "Royal," which are far more happily circumstanced as regards site, yet a peep into the interior seems to justify the commissioners in reporting that "the buildings are crowded together, and are inferior in sanitary arrangement. There are narrow dark lanes between lofty three and four storey buildings, without any outlet sufficient to prevent *stagnation of air.* Tho men's rooms on three sides of the cavalry square are *over the stables.* The barrack rooms in the Royal and Palatine squares have windows *only at the back.* There are rooms in the corners and lower flats of the squares, *dark and incapable of ventilation*, and which are hardly *fit for human habitation.*" In the case, however, of the Linenhall and Aldboro' Barracks it is but fair to remove from professional officials the stigma which so justly applies in the other cases, by reminding the public that they were designed for totally different purposes—one for commerce, and the other a baronial mansion—their adaptation for homes for the soldier being a matter of temporary necessity consequent on an increase in the garrison during troublesome times. We have no desire, however, to exonerate the higher officials from censure for not —after those troublesome times had passed away—adopting measures for the removal of defects, if practicable, and if not, for not either abandoning the buildings altogether or reconstructing them on orthodox principles. The latter alternative would seem not quite altogether to harmonize with the opinion of the commissioners as to to the skill of our modern architects, for they say that "the best barracks are *not* those of *recent* construction, but they are to be found among the Irish barracks built in the *end of the last century*, or in the beginning of the present one." But again they admit that "some of the plans, especially those of certain Irish barracks, are *good*, *convenient*, and well-adapted for securing the *healthiness* of the buildings." Considerable additions have been recently made to Beggar's-bush Barracks, which are situated in a decidedly healthy locality—almost a suburb; and in alluding to them the commissioners remark, that "they afford an excellent example of a good arrangement of ablution accommodation, but that the distance between the opposite windows, 32 feet, is too great for the height of the room."

A local contemporary, treating of this subject, makes a sweeping assertion as to the source of blame for the causes above enumerated, and, evidently misinformed, puts the saddle on the *wrong* horse; we quote the following paragraphs:—

> "Every page proves either that *Government architects* of modern times know nothing of *sanitary laws*, however glibly they might lecture on them, or that Government inspectors were singularly careless in the performance of their duty.
>
> The *unwholesome* barracks are those erected in modern times, since the *Irish Board of Works has been made subordinate to a London Department.*"

Neither Government *architects* nor the Board of Works officials have had anything to do with the construction of the buildings in question, which is exclusively provided for by the *Engineers* of Her Majesty's War Department, and for the defects therein the latter is, therefore, wholly responsible; but now that attention has been aroused, we hope to see the most energetic measures adopted for the expulsion of the evil demon that has been so long invisibly, but surely, completing his destructive work.

We shall have much more to say on this and kindred subjects anon.

THE CENTRAL HALL OF THE EXHIBITION.

NO. I.

OUR previous notice of the Exhibition of Art and Art Manufactures, now open at Kildare-street, in this city, being—as intended —only a *resumé* of its principal features, we propose to detail the contents of each department more minutely in a series of articles commencing herewith, but previously a few particulars relative to the history of the project and the building itself may prove desirable. The yard—in which were formerly held, under "the open canopy of heaven," the Royal Dublin Society's periodical shows of cattle, and situated to the right of the entrance to their premises in Kildare-street—having been recently covered in, it became the Agricultural Hall, and with certain restrictions as regards height, already expressed, is a suitable apartment for the purpose. When, however, the question of holding an exhibition of art manufacture was first suggested, about this time twelve-months, after the arrangements of preliminaries as to a minimum guarantee fund of £5,000—but which subsequently exceeded £9,000—it became necessary to add galleries and refreshment rooms to the original building, and this has been accordingly done under the direction of the architect, Mr. Clarendon. The Royal Dublin Society are trustees of the funds connected with this exhibition, and reserve to themselves the right of disposing as they may think proper of the surplus receipts over all expenditure; but their committee of manufactures was authorised to vote a sum of £300 towards the project. It will be seen that the society's position was clearly defined, and judging from the success so far attendant, there can be no reasonable doubt but that a large increase to their coffers will be acquired at the conclusion. On Friday, the 24th of May last,—her Majesty's birth-day—the exhibition was inaugurated by his Excellency the Lord Lieutenant, and has since been open every day—except Tuesdays and Fridays, when the charge is *half-a-crown*, and a musical performance is given—and occasionally in the evening, by gas light, at *one shilling* admission. The building occupies an area of about 236 feet by 107, and comprises nave and aisles, with spaces between in which the galleries are formed above, and underneath are afforded stalls for exhibitors, the roofs having semicircular ribs springing from corbels cast on the metal columns, and all the timber work in connexion therewith is decorated in gay and appropriate colouring. The systems adopted for lighting by through lanterns at the top of nave and aisles, though the lowness of the galleries causes some darkness, and for ventilation by a series of louvres above, are effective. We now proceed first to examine

THE CENTRAL HALL.

This apartment is in point of size the principal, and is the first attained from entrance doorways. All the heavier class of goods are arranged therein; numerous glass-cases occupy the centre, together with a fountain of tasteful design, exhibited by Messrs. Edmundson and Co. (manufactured by Messrs. George Smith and Co., of Glasgow, and illustrated in this journal for March and May, 1860), perpetually playing its jets, which are received below in a basin containing some fancy-coloured fish, and a variety of charming specimens of sculpture are introduced at regular distances at the sides of each passage or aisle so formed, the spaces to right and left respectively under galleries being amply filled with a very choice collection of miscellaneous articles. On entering, the first object presenting a subject for critical examination is the South Kensington Museum collection, comprising works in metal, Damascene, and niello, watches, jewellery, coins, and gems (amongst which is a Queen Anne's farthing), medallions, goldsmith's and electro work, exquisitely wrought, a variety of magnificent pottery, Wedgwood ware, old Sevres porcelain (amongst which is a vase valued at £1,000, and lent by her Majesty), glass, sculptures in ivory and wood, leather work and bookbinding, lacquered work, textile fabrics, &c., &c., in fact constituting an interesting exhibition in itself. The goods displayed by Messrs. Edmundson and Co. (No. 54) occupy a most prominent position to the left of the hall, and are distinguished for great excellence both in design and manufacture, the bronzed furniture especially, which we believe to be from the eminent Colebrook Dale Company. In the corresponding stall at opposite side Messrs. Gunn and Sons, of Westland-row, have a large collection of musical instruments, including a grand square pianoforte, by a New York manufacturer, and several by Kerkman and Son, Hopkinson, &c.; and adjoining the latter is also an extensive variety of ironmongery goods from the establishment of Mr. J. Maguire of Dawson-street. The superiority of Irish hosiery manufacture is well illustrated in the specimens contributed by Mr. Appleyard, and a very beautiful selection of Irish poplins, together with lace, embroidery, fancy needlework, &c., is to be seen in the case of the Commercial Hall Company. Passing again to the right of the Hall we notice a crowd of eager admirers congregated round stall 81, where Mr. Brunker, in addition to a collection of electro and silver plate, modern and antique jewellery, &c., exhibits some highly ingenious mechanical clocks; in one case several birds of beautiful plumage, warbling sweet notes, and hopping dexterously from bough to bough, and in another a violoncellist of the monkey tribe performing, as may be judged from his grimaces, evidently to his own intense delight, both remarkable for their fidelity to nature. In the furniture department, Messrs. P. Brown (59) and Fry (72) are respectively preeminent, the collection of the former in marquetrie, buhl, ebony, satin and tulip woods, carved oak, antique beaufets, &c., being such as we have never seen surpassed, and of the latter, especially the carved oak cabinet, for Sir C. W. Domville, Bart., and the chimney-piece for Sir John Carden, Bart., displaying high artistic taste and delicacy of design combined with great manipulatory skill. The public are invited to witness the progress of the manufacture at Messrs. Fry's factory at Kevin-street, and we shall pay an early visit. Messrs. Young and Groves are also highly creditable exhibitors in this line. A beautiful assortment of ironmongery goods, Roman and Grecian marbled baths, &c., is on view at the stall of Messrs. Hodges and Son—a very old and respectable establishment; and in the next compartment Mr. Scates exhibits a variety of musical instruments, including "a family of concertinas." Messrs. Austin have an important display of dressing and travelling cases and various works, both in wood, leather, and bog oak, bijouterie, &c.. executed in the characteristic style of that eminent firm, perhaps, without prejudice, *the first* in their peculiar line in the city. In building materials the exhibition is by no means as important as we should have wished, but we notice that the extensive importer, Maurice Brooks, contributes a goodly stock of marble chimney-pieces, as also do Mr. Colles, of Kilkenny, and Mr. Hibson, similar articles of very choice manufacture; and Mr. Lavender (although admittedly in a very disadvantageous position) has some terra cotta vases and pedestals, which are well worthy of inspection. In the manufacture of glass, the well-known Worcester and Dublin house of Kerr and Co., has a magnificent collection; and Messrs. Gregg and Son, both here and in the gallery, display on their stands the manufactures of France, Bohemia, Dresden, England, &c., and which attract much admiration. The electro-plate of Messrs. Elkington, and Co., and the jewellery and silver articles from the establishment of Mr. Wm. Acheson, T.C.—an active member of the committee—are remarkable for their excellence. Except to note that lace in all its beauty and unapproachable in excellence by any other country but poor Ireland, that from Limerick especially is seen to perfection in Messrs. Forrest and Co's case, and that the specimens from the Ladies' Industrial Depository are highly commendable, we shall not tarry further at present in this apartment, but will resume with consideration of the sculpture and other features in next number.

WHERE TO BUY A WATCH.—"The practical utility of a good watch—the habits of regularity it generates, and the advantages of the punctuality it assists in securing—are facts proved beyond a doubt. The establishment, then, where, at a reasonable charge, these advantages can be obtained, must be worthy of attention. At Mr. Benson's, 33 and 34, Ludgate Hill, and 46 and 47, Cornhill, E.C., may be purchased the chronometer for sixty guineas, the mechanic's watch for two guineas, and the various other kinds of watches (duplex. lever, horizontal, or vertical) at various prices—all displaying the utmost finish and superiority of manufacture."—*Daily Telegraph*.

Benson's Illustrated Pamphlet, post free for two stamps, is descriptive of every construction of watch now made. Watches safe by post to all parts of the globe.

CLONTARF.

THE retrogradation of this suburb, whether comprehended under the Howth or the Vernon estates, becomes more apparent with each succeeding season, as numerous structures—for years tottering and nodding obeisance to "mother earth"—at length become wholly uninhabitable for man or beast. Glancing along the main road, which is flanked by a vast expanse of sea, and commands magnificent views of the coast and Dublin and Wicklow mountains, Killiney, Sandymount, &c., what a series of wrecks is presented to view? the first of importance being the block of cabins between M'Knight's, the grocers, and St. Edmund's, the residence of Mr. Graham Lemon (who, by the way, we learn is desirous of extending his enterprise to this locality); again, between Beachfield and the chapel-house square, in many instances roofless, and all more or less in ruins; again, between the latter and the police barrack, *ditto repeated;* and again, between Rutland-terrace and Mr. Gaussen's houses, all in the very perfection of dilapidation, and not to be equalled by the most wretched hovels in the Liberties. We have no desire generally to question the right of estate owners to act as they please, and as may appear most conducive to their interests; but in this instance interference on the part the press is justifiable, as there is a strong public feeling in favour of improving this suburb, and even since we first called attention to certain "restrictions," overtures have been made, but ineffectually, to build on and improve the very ruinous sites above alluded to. For the misguided principle prevailing we are at a loss to account, as it requires no force of logic to prove that the annual value of the estate would be doubled—nay, trebled or quadrupled—within a very short time, if an opposite course to that now adopted were pursued; and as long as the same state of things exists we shall not fail to recur to the subject again and again. Some years ago it was contemplated to build a boat slip, which is very much wanting, but it never was executed; and along the entire shore, up to the Bull-bridge, some two miles in length, there is not a single landing place for the purpose, except opposite Fort-view-avenue, where a narrow platform for bathers is fixed after a rough and ready fashion. How strangers stare when they see the hangers-on about Dollymount plunge up to their middle in the tide on the arrival of each row boat from Ringsend! How characteristic of Irish customs say they! And that within three miles of the metropolis! The bathing boxes and *their appointments*, at the Crescent, are an outrage on common decency, and ought to be suppressed by the police, or new ones of more suitable character substituted; and the general accommodation in that regard for *both* sexes is notoriously defective, and presenting a marked contrast to that at the south side. Other portions—viz., "Bachelor's-walk," and what we understand is ostentatiously styled "the flower of the property" (the *blighted* flower interpose we), beyond the moat field; and again, the rookeries termed "Snugboro"—happy appellation that—off Vernon-avenue—are almost reprehensible in their sanitary *dis*-arrangements, the human kind living promiscuously in cabins with pigs and horses, and all revelling, as it were, in squalid filth. Experience has shown that where encouragement is afforded to the Irish to be cleanly in their habits and dwellings they can be and are so; but here, indeed, is a palpable pretext for indulgence in their besetting sin. We have not yet completed our survey of this outlet, and, acting on the suggestion of a correspondent, it is quite possible we may accompany our next chapter with *illustrations* of *its antiquities*.

LAW NOTE.—COMMON PLEAS.

Bentley v. O'Rorke.—Messrs. Bentley, the proprietors of extensive property at Foxrock, and the well-known house and land agents, auctioneers, &c., of Grafton-street, in this city, sought to recover from Mr. O'Rorke—a gentleman who had recently completed a dwelling-house at Dalkey, for the erection of which he had contracted with Mr. Robinson, a builder, since become a bankrupt. A sum of £78 5s. 3d., the value of bricks manufactured on the land and supplied by plaintiffs to the bankrupt, and for which, as alleged by them, defendant had undertaken to pay out of the moneys of the bankrupt, held in defendant's hand during the progress of the work. Defendant denied any undertaking whatever, which was the main point at issue, and had paid the bankrupt in full for the amount of his contract.

On behalf of the defendant, Mr. Rawson Carroll, architect, and Mr. Patterson, building surveyor, together with other witnesses were called to prove the value of the work executed by the bankrupt for the defendant. The jury found a verdict for the plaintiffs.

Benson. v Craig.—This case, which was an action for slander against Mr. John Craig, of Cork, against Sir John Benson has been amicably settled, Mr. Craig having expressed his regret that in the heat of the moment he should have used any expressions reflecting on the plaintiff, of whose conduct and honour he always had the highest respect.

THE DARK AGES OF ARCHITECTURE.*

(Continued from page 537.)

THIS period, then, upon which I would now dwell, this twilight of the "dark ages" which I have taken for my subject, is that generally known as the Renaissance or the revival of Classic art. It is true that in Italy, the whole surface of which was strewn with fragments of Roman work, Classic tradition seems always to have sat like a nightmare upon its architecture. The mighty flood of life which seems to have throbbed through the arteries of Northern Europe appears to have been checked in its passage through the gorges of the Alps, and to have exercised but slight effect below them, and never entirely to have succeeded in supplanting the influence of the antique; it succeeded in doing so to the greatest extent in the thirteenth century, and with much grace for a time fused the two styles, but soon it began to hanker again after its old love, and we begin to find the mouldings of its Gothic buildings becoming poor and weak, and its parts and proportions betraying more of the Classic elements. In Venice, which, from its position, was not so strongly exposed to this influence, and which was greatly under that of both the Gothic and the Byzantine, we find in the Doge's Palace a most valuable and nervous example of mediæval building, unsurpassed in the boldness of its mouldings and detail; yet, if we consider the general aspect of the domestic architecture of that city, we shall find little of the variety which was so marked a characteristic of Northern Gothic, it being similar detail to that of the Doge's Palace that we find repeated everywhere, while that of the churches of the Frari and those of the same date are strikingly inferior. In Verona we find another most valuable local development of Gothic, particularly artistic in its treatment of coloured material and sculpture, still an under-current of Classicism, is evident throughout Italian work. In the Cathedral of Milan it has debased it so far as to render it only worthy of being a model for confectionary.

In Florence and in Pisa we are so entranced by the wealth displayed in their buildings, of painting, and sculpture, and precious coloured materials, that we are consoled for the want of pure mediæval feeling and boldness in the handling of the architectural detail in such works that pretend to be Gothic, and in the host of false façades to the churches in the other towns, such as we see figured in the plates of the works of Hope, Gally Knight, and Street, we see foreshadowed the childish shamelessness of sham which mainly characterises the later works of the Renaissance, and those of the "dark ages," which ignores the certainty of being found out the instant the spectator turns the corner of the building. In the Loggin de Lanzi, by Orcagna, we find distant traces of the Roman impost between the columns of the arches; while his San Michele, in the tabernacle and the tracery of the windows, presents us with work we might almost mistake for that of Batty Langley.

In the pulpit by Andrew Pisano, in the cathedral of Pisa, we see in the figures and draperies of the bas-reliefs, evidences of an already too absorbing study of the antique, in contrast with the vigour shown in the beasts upon which the alternate columns rest, where the sculptor has evidently treated them *con amore*, and rather with the traditional mediæval feeling, while the capitals of the columns are almost as bad as the Roman composite, and the weedy apologies for cusped trefoil arches are the only and fading traces of Gothic forms.

About the middle of the fourteenth century there arose a furor for the study of classic literature (which, indeed, had been more studied during the middle ages than we generally credit, but then in a healthy way as food to be digested, and not so insanely bolted after the manner of bookworms as afterwards), antique manuscripts became eagerly searched for and pored over by the literati; fragments of sarcophagi and every productions of Rome's New-road masons' shops were studied by sculptors, and voted to be admirable precedents; the ruins of the Coliseum, of the temples of the Forum, and of the triumphal arches, were diligently examined, and their proportions measured, and admired out of all proportion with their merits, and, as ill-luck would have it, a somewhat dogmatical treatise upon architecture, by an old gentleman who lived during the unpropitious days when Augustus had just strangled the Roman Republic, and who was, doubtless, a highly respectable member of a very worthy professional body at that time, was just then brought into fashion, and a number of suggestions that he had made for the guidance of his pupils and professional brethren, whom he had the sense to see (for he was a very sensible man) were not to be trusted to think for themselves, were propounded as a code of laws to regulate architectural practice, and to serve as canons of taste. The works of Vitruvius have since passed through many, perhaps too highly valued, editions, while a cotemporary architectural romance, "The Dream of Polypholus," which is replete with artistic suggestions, has passed through too few. Most fortunately the painters were not so successful as the sculptors and architects in their researches after the antique, and thoroughly can we sympathize with Rio, who, in his "Poetry of Christian Art," rejoices that no picture by one of the celebrated masters of antiquity was brought to light. "For," says he, "had this been the case, modern art would have been in possession of a model, from which an unalterable rule of taste, and an unerring theory of the beautiful, might have been deduced and applied to painting." It was owing to this want of success on the part of the painters, and to their being forced to trust somewhat to their own resources, that their art flourished longer than its sister arts, and that in dying it shone, as the dolphin is said to do, with brighter lines than during its life, casting not inconsiderable radiance over the decay of the rest.

It was then the unfortunate discovery, galvanising and deification of the exhumed bones of Classic, or, to speak strictly, Roman art, which was the veritable Gorgon's head that paralyzed true and healthy art. Its influence was doubly fatal; first, by substituting precedent for thought, and, secondly, by substituting second-hand paganism for Christianity. One result of the undue regard for precedent was, that the people (for whom artists ought to paint, sculptors to carve, and architects to build, rather than for their own compeers) caring comparatively little for the defaced bas-reliefs and broken columns, whose stories had become obsolete and whose purpose was unintelligible to them—and the subtile mysteries of proportion being beyond their comprehension, or, at any rate, but a small compensation for the loss of the human interest and phonetic power of the class of buildings to which from mediæval times they had been accustomed—began to lose all interest in the works which they saw rising around them. They found that these very learned architects shot completely over their heads, and that when they asked for artistic bread, they got nought from them but stones. Certainly we do not hear of bed-ridden old men asking to be brought daily to look upon any of the masterpieces of the Renaissance, as had been the case with the Campanile of Giotto, at Florence; for in truth theirs are not "bright, smooth, sunny surfaces of glowing jasper;" they have no "spiral shafts and fairy traceries" for the eye to delight in, but rather uncouth, rugged, prison-like rusticated walls and flowering cornices, such as those of the Palaces of the Strozzi and Ricardi, at Florence, and of the Farnese, at Rome, which plainly told them "we were built to keep you out." And even if any, from the love of novelty, should in those days, as some I am aware from the force of prejudice have been in these days turned from the Doge's Palace and St. Mark's, at Venice, to the contemplation of the Library, by Sansovino, on the opposite side of the Piazetta, one would think that when the natural surprise at seeing so many almost identical females, angelic by virtue of wings alone, somewhat awkwardly cramped into every pair of spandrels throughout the building, had subsided, and when sufficient pity had been bestowed upon the Cupids in the frieze, each condemned to bear in symmetrical balance, on either side of him, a swag of flowers altogether too heavy for his size, that the proportions of the building, admirable though they may be, would not detain a spectator long after he had exhausted the iconography which is so happily suggestive of its literary destination.

The consequence of all this was that the public ceased to ask for pleasure or instruction at the hands of architects, and the latter forgot that it was their duty to tender it, and, as if in revenge, hedged themselves about with a set of rules (the observance of which could, of course, only be appreciated by the initiated)? in oblivion that art should "pierce directly to the simple and the true."

But the substitution of second-hand Paganism for Christianity was even more fatal than the slavish adherence to precedent. It is absolutely impossible to produce good work without faith in what one is attempting to realise. In such faith had lain the strength of the early painters, in whom we can excuse shortcoming in their powers of execution for the sake of the purity and earnestness of their aim, for while men wrought in the spirit of the statement of Buffalmacco, recorded by Vasari, viz.:—"We painters occupy ourselves entirely in tracing saints upon the walls and on the altars, in order that by these means men may, to the great despite of the demons, be drawn to virtue and piety," and so long as the intention of works of art remained the same as that named in an inscription over the doorway of S. Nixier, at Troyes—viz, that three windows had been painted from "servie de catechisme et instruction du peuple"—we may foretell their success, and that, step by step, they will overcome the difficulties and technicalities of their profession without the aid of infallible precedents from the antique; but when they began to pander their art at the bidding of princely patrons to the representation of the labours and loves of Hercules and Venus and other of the gods and goddesses of Pagan mythology, we may as easily prophecy that notwithstanding such splendid genius and wondrous powers as those of the artists who congregated about the corrupt courts of Leo X. and the Medicis; the system has become rotten to the core, the lamp is flickering with an unhealthy excitement, which but preludes the speedy extinguishing of the light altogether. Such was the fact which ensued, the very prowess of Raffaelle and Michel Angelo seemed to prevent their successors from making use of the powers they undoubtedly possessed. They prated of the composition, the drawing, the coloring, and the chiaroscuro of their great masters, and humbly strove to follow them with such success as they were able to command in these particulars, but they seemed in their struggle after the means of art to forget the true object and the end of it, and one may commend their diligence so long as they confined themselves to the representation of subjects from profane history or mythology, seeing that it is of comparatively slight importance whether Alexander or Darius be caricatured or not in a picture which pretends to no accuracy even in costume, or whether Juno or Venus appear questionable in point of character if not of beauty, seeing that no one is called upon to believe in either their existence or their virtue; but we cannot but regret the misapplication of their efforts to represent the persons or scenes of sacred history. Thus Caracci was far better employed upon his famed "Butcher's Shop" than upon his "Three Maries" weeping their crocodile tears, and "Guido upon his Aurora amidst the Clouds," for the future admiration of the dozen or so of devoted students who may be always found copying the same, to the not very evident advantage of modern art, than upon his sentimental "Madonnas" and "Ecce Homos."

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* From a paper read by Mr. Seddon at Royal Institute of British Architects.

I have dwelt longer upon the effects of the Renaissance upon the painters than upon their brother artists, because, as I have said, from their fortunate failure in finding classic models, and the consummate excellence of some of their craft, the meteoric brilliancy of their fall was the more striking, and the warning it conveys necessarily the more patent; nevertheless, the same fate befell all the other arts, including that with which we are more nearly concerned, and to which my wasting space warns me I must now confine myself.

Let any one who would question what I have advanced, or desires to study Italian architecture, and the end to which it led, in a simple spirit of common-sense, take up Quincy's "Histoire des Architects," and turn over the plates in their sequence; the first, representing the Cathedral at Pisa, the work of Buschetto in 1063, and the few next in order, he would find, clearly demonstrating what I have stated, as to the trammels by which, during even the mediæval period, the attempt to introduce into Italy the architecture which was then flourishing beyond the Alps, was restrained by the natural predilections for the antique. The plan of this cathedral, that of the Latin cross, its apsidal ends reminiscences of the fatherland of its architect, its clerestory and ranges of arcades, and the Byzantine feature of the dome over the crux, are insufficient to conceal the preference for the horizontality of the classic school, or to excuse the mesalliance of the Roman order with the arch; this latter is seen still more uncouthly in the baptistery of Dioti Salvi, in 1152, where gables and crockets parodied from the Gothic were added. However, the fusion of the two elements with greater skill, and so much beauty of proportion and treatment of precious coloured materials, as to demand admiration of a style *per se*, are represented by the works of Arnolfo di Lapo and Burnelleschi in the cathedral, and of Giotti in the Campanile at Florence.

In the palaces of the Medici, by Michelozzo, and of the Strozzi, by Cronaca, at Florence, we seem to lose sight of the desire to please which the other buildings I have named show by their unsparing luxury of marbles and mosaic, and thoughtful delicacy of detail throughout, and are made acquainted with the stern grandeur and air of shrug-the-shoulder affected by the turbulent and selfish Italian nobles of the fifteenth century, in their fortress palaces, which, however, still depend for no small nor inferior portion of their effect upon their almost Gothic treatment of the windows, together with, to my mind, exaggerated frown of their heavy cornices of Classic type.

Then painfully evident is the study of the antique in the correct proportions, but tiresome monotony of the arcaded side of the Church of St. Francesco, at Rimini, by Alberti, each arch with its precisely similar sarcophagus, and each pier with its rectangular tablet, like a picture-frame, each spandrel with its circular panel like an immortelle, strangely commemorative, but hardly symbolical, of the career of the restless Sigismond Malatesta and his generals, who were probably not all cast in the same mould. How differently would such a theme have been treated in Gothic hands, let the monuments of Aymer de Valence, and its neighbours in the choir of Westminster suggest, or the tombs ranged along the aisles of the church of the Frari, at Venice.

In the Palazzo Pandolphini at Florence we must needs bow to the consummate feeling for proportion wherein the genius of Raffaelle is pourtrayed, though I think we cannot but regret that he did not, as he might so well have done, give reins to his imagination, and treat us to something a little more phonetic than alternate segmental and triangular empty pediments. Yet if we dare not do other than confess their perfection, we may plead that sufficient changes have since been rung upon this slender theme with, alas! too seldom the same plea of admirable proportion for an apology which this building and that of the Palazza Farnese at Rome can undoubtedly put forward. The distinctions and merits of this Florentine and the Roman and Venetian types of the Renaissance have been so well explained by Mr. Garbett in his "Rudimentary Treatise on the Principles of Design in Architecture," as to render it unnecessary for me to do more than refer an inquirer to his remarks on the subject, and simply to note, in following our present author, that we find as examples of the second class the works of Giulo Romano at Mantua and of Michel Angelo at St. Peter's, honourable, of course, to a greater or less degree for proportion but generally contradictory of truth in ignoring the necessity of floors in buildings by the use of single gigantic orders of pillasters for their exteriors, and for the method of veneering the same to their façades; tryglyphs from the examples I find in the plates under examination seem to be the main if not the single idea of the decoration, and for the pertinacity with which so happy a feature is kept before the mind we ought, no doubt, though I own my inability to be truly grateful. Of the Venetian type, by which I understand the decoration of each floor by an exterior order, we have the Library of St. Mark by Sansovino at Venice of which I have already spoken, the Villa of Caprarola, and the Palazzo Della Ragoine at Vicenza; but though we have not the noble Palazzo Grimani at Venice by San-Michele nor any of the picturesque painter-like conceptions of Longhena, such as the Palais Pesaro at Venice, which if not so pure in detail, commend themselves to me for artistic grouping and conception before most of the ordinarily idolized Italian buildings. These Venetian works with their pomp and luxury of effect, their successive orders of columns, constant use of coupled columns, depth of recess and richness of detail, seem to typify the vanity and love of parade of the age which gave them birth, and which preluded the fall of the city they adorned.

I do not remember ever to have been struck more forcibly with the character that architecture can present, than by the puerile vanity shown in many of these façades in Venice; for while the old Moorish and Gothic palaces, marred as they almost all are by later incongruous additions and insertions, though comparatively modest and ineffective, have sensible fronts, more richly arcaded and decorated of course than the sides, yet in harmony therewith, so that they are one in conception and structure; these fronts of the Renaissance buildings are all separate, show façades, stuck as it were before a building of totally inferior and distinct character, just returned round the angle a few feet to save appearances, which of course is found out as soon as one has turned the corner. Such are the three grand types of the Renaissance architecture of Italy as developed principally in Florence, Rome, and Venice, and whence sprung the architecture of the dark ages to which the plates of second volume of Quincy introduces us, but all the series of which I have neither time nor patience to follow.

From Italy the Renaissance spread into France—a result doubtless hastened by means of the Italian wars of Charles VIII., and Louis XII., and Francis I., but at first the native workmen merely applied the more ornamental parts to their own Gothic work, as in the Chateau de Blois.

Subsequently they developed it into a style of their own, of which Chambord and Chenonceaux are among the most favourable specimens. It may be described as consisting of the application of pilasters more or less enriched as surface decoration, and these are in fact made to do the duty of the buttresses which were so profusely employed in Flamboyant. There is much beauty in this style, which was the work of French architects and became naturalised in their land. It is very artistic, and less insolent in its display of barren proportion: it gives something more than that husk of art, at the same time it is like all Renaissance work, radically wrong and inconsistent as architecture compared with the real styles; its very notion of ornament is something added to and independent of the construction; it is highly picturesque but generally exaggerated in its grouping and skyline, and combination of turrets and high roofs, its best features, which it borrowed from the Gothic.

In the latter years of Francis I., Italian workmen and architects were imported into France, and were employed at Fontainebleau. They introduced a great modification into the styles, partaking more of the Classic feeling, after which, as was natural, it rapidly deteriorated and passed through the phases of the style of Louis XIV., set forth in the pages of Le Pautre, redolent of gilding and parade; thence it sank in the times of Louis XV. into that vicious and emasculated style which has earned the soubriquet of "Rococo," in which all the grandeur, manly, if somewhat heavy and impure, of its predecessor gave place to an elaborate trifling with florescent knucklebones, in curious combination with a species of shell-work; altogether an idiotic piece of business, which we might dismiss without a single thought, save of scorn, were it not that this, in the depth of the dark ages, was the very will-o'-the-wisp which architects and decorators danced after, and upon which, even so late as in the Great Exhibition of 1851, most of the productions of *civilised* nations were based, so that one had to turn to the works of the *barbarians* of the East, as to an oasis of true art, to refresh one's eyes with. Whether or not, in the interval, our effort to imitate these on the one hand, and to teach the Chinese Palladian plaster-work, and to smash palaces in Pekin, and to loot at Delhi on the other, may have turned the tables, we shall shortly learn.

(To be continued.)

MR. RUSKIN ON THE DESTRUCTIVE CHARACTER OF MODERN FRENCH RESTORATION.*

Mr. J. Ruskin said he should hardly venture to accept the invitation to address the meeting, for almost every member of the society knew better than he did what was going on both in France and England, many of them from personal knowledge, and some from professional engagements. He felt the difficulty all architects and other persons were placed in who had any connection with the restoration of ancient buildings. They ought not to throw stones at anybody, but what they should do was to suggest what should be done to ancient buildings under the most difficult circumstances. He himself for long had been utterly hopeless respecting the state of architecture in France—hopeless especially because he felt that the line taken there was, that what was determined by the leading public men there would be carried out, and that any suggestions which might be made to those engaged in that course was likely to wound their vanity, and was likely to come ungracefully from us, who had not altogether shown ourselves prudent or sufficiently cautious, perhaps, in the restorations we had undertaken at home. He felt it was a great difficulty to interfere, and one great difficulty was the weakness of the French, which he supposed they would confess to themselves, which all nations shared with them, but which, perhaps, they would admit they possessed, at all events, and which frequently led them to nobleness of action, as at Magenta and Solferino—he meant national vanity. So it might be in reference to the restoration of French architecture. He was afraid they would do harm if they brought forward any memorial on the subject to be presented to the French, unless they could show that they had a good ground for doing so. Ten years ago he made a tour of the cathedral towns of France. He should have remarked, however, that twenty years ago the cathedrals of France were all safe as far as modern work was concerned; and, as a lover of architecture, he mourned over the restorations now being made in France of her ecclesiastical buildings. There was, twenty years ago, nothing of importance undertaken in the way of restoration, but ten years after that things were changed, and the traveller at Amiens, Chartres, Notre Dame, and other places, in fact, wherever he went, he had to get out of the way of horses and carts filled with stone and other building materials to carry on alterations then being proceeded with, but none of them finished, and the structures being full of scaffolding. Although he deprecated the adoption of any memorial to the French authorities on the subject of restoration, yet he thought they might wisely and courteously suggest that when restoration had been commenced it should be carried on and gone through, instead of scaffolding being kept up at the buildings under restoration for so great a length of time. If he wished to send a pupil to study a French cathedral, at present he hardly knew where to send him, the buildings being enveloped in so much scaffolding. Then an important matter for them in England was certainly for them to settle their own code of restoration. Could they go to France and give neighbours their advice, while they were not agreed themselves as to what should be done in the way of the restoration of a building. They, many of them, differed in opinion as to the mode of restoration, and he referred particularly to the difference of opinion as to what should be done with sculpture. What he had proposed was considered extravagant and impracticable. The whole ecclesiastical architecture of France, however, was likely to be destroyed by one perpetual scrape, and thus would be removed the power of making an architectural history of the country. He wanted to know something of the thirteenth century, because it was his intention to write a history of the thirteenth-century architecture; and ten years ago he set to work on the French churches, and found that all his important documents were then in part destroyed, and that in five years more they would be destroyed. He accordingly gave the thing up, and not only that, but he gave up architecture—he never cared about architecture since. It was a hopeless thing he thought. He stood forward honestly and earnestly that night as an advocate against the destruction of buildings under the name of restoring them: but at the same time deprecated any over zeal in the way of sending a memorial to the French until they had come to some decided opinion on the subject themselves. What it seemed, therefore, they had to do was to determine, first, whether they at present as architects generally had the power of restoring effectually to its former appearance any great ecclesiastical building, and whether, if they had the power of doing so, it was expedient to do so, and to what degree. That it was right to put a stone in here and a stone in there to take care that no indolence or carelessness shall interfere with the stability of a building, and that no unauthorised person shall interfere with it, he supposed they were all agreed upon. An important question was whether a cathedral could be properly restored. Not that there was any want of capacity on the part of our architects of the present day, for he believed that there was as much genius and talent amongst architects now as there ever was. After referring to the importance of the *ecclesia*, the speaker said they should see whether they could get the sympathy of their own people before they attempted to influence the actions of the people of France. What power had they as copyists—what power had any man as a copyist? Supposing they had the best architects in the world, could they rebuild a cathedral as it had been built? Whatever good work there was in a cathedral was the result of a good strong hand and mind. All good art was the expression of the whole man—of his soul and heart, of his intellect, and of the whole power of his body. The whole personal power and energy of the body were required, as well as the power and energy of the soul. This was certain, that no great work of art existed which did not give some expression of the mind of the man at work; it was the handwriting of the thing. Now, he was not prepared to say how far that handwriting could be put upon art. He was much attached to the thirteenth-century buildings; in some thirteenth-century work there was the expression of as tender a feeling, and of as high genius, as was ever put upon stone or canvas. And he believed the peculiar characteristic of the thirteenth century was not its severity, plainness, nor its soul stiffness or persistence, but its tenderness. Some people called Dante a monster, while Dante was simply the most tender of all poets. So they had also thought the thirteenth-century architecture might be carried out by rule, instead of looking at the infinitely far more precious thing, the mark of the real tenderness and glory of the human soul in every touch. So it was in poetry of the age of Dante. They would see how general the character of the tenderness was. The thirteenth-century sculpture had in its touch that which nothing could replace unless the same tenderness were shown. Could one man follow out the thoughts of another, and put the thoughts of the same mind and depth in the restoration of a building as he who made the building? They might copy the autographs of their friends or of all the great men in England, in the British Museum, or elsewhere, but assuredly they could not do anything of that kind in sculpture. The necessity of restoration involved the impossibility of restoration; they might put a head on a figure if the head was off; they put on a new one, and that was not a restoration, but it was a substitution of the nineteenth-century impression. They might talk of restoration, but it was an impossibility in sculpture, they might as well talk of raising the dead. As he understood, what they were to do that night was to determine what should be done in respect of French restoration. After some observations on this point, the speaker proceeded to say that the whole question was how they were to recover the vitality of architecture and lose as little as possible of its impression. They could get a municipality to restore a cathedral, but they could not get a municipality to build a new one. The great matter was to replace a decayed stone by a good sound stone, but they ought not to put in a single stone with sculpture upon it; let every bit of old sculpture be retained, but not a bit of new stone put in with sculpture upon it. He disapproved of their taking any step in the way of finding fault with what their French neighbours were doing, and thought they should determine rather what they should themselves set as a wholesome example.

The prospectus has been issued of the National Company for Boat Building Machinery, under the patents of Mr. Thompson, of New York. The proposed capital is £200,000.

The Right Hon. Henry Herbert, M.P., has given over an English acre, in one of the most picturesque portions of Glenflesk, as a site for a Roman Catholic Church, also a subscription of £50. Mr. Daniel Cronin Coltsmann, one of the principal landlords of the locality, has subscribed £100.

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* Meeting of the Ecclesiological Society.

AMERICAN ARCHITECTURE.

OUR illustrations for this number comprise a perspective view of the Public City Building, or Town Hall, erected at Portland, Maine, U.S., after designs by Mr. J. S. Rand, architect, Boston; also a geometrical view of the chief elevation of the Fine Art Gallery at Washington, Messrs. Renwich and Auchmuty, architects, New York. The engravings were executed in New York, and we are indebted for the privilege of publication to the conductors of an excellent local cotemporary, the *Architects and Mechanics' Magazine*, N.Y., with whom we have exchanged some courtesies.

FIRES IN DUBLIN.

AN important document on this all-important subject, and enumerating particulars connected with fire-brigade establishments in the chief towns of Great Britain, the necessities for application to Dublin of more complete precautionary measures than hitherto existing, the provisions of suitable engines and escapes, &c., has just been issued from the office of the Police Commisioners, and therefrom we collect the following:—

"The average number of fires in Dublin yearly is twenty-nine (there were forty-eight fires in 1859), about one-third the number in Edinburgh. In estimating what the strength of the Dublin brigade should be, and in the altered circumstances attending the high pressure system, we think twenty-one firemen and a superintendent would be amply sufficient. We should think that the whole expense would not exceed £1,000 a year; and this would be much reduced if insurance offices, in the case of fires in insured premises, pay for the services of the brigade. In Manchester, it would appear, some of the insurance offices subscribe; those that do not, if the property is insured, being charged £1 per hour for each engine; if not insured, no charge is made. In Liverpool, beyond the borough, a charge according to distance of from one to three guineas for each engine is made—the offices, as already stated, contribute £350 annually. In London no charge is ever made for the services of the fire brigade, no matter whether the property is insured or not, save in the case of ships afloat covered by marine insurance companies that do not subscribe to the brigade, and then only the extra expenses are charged. In London there are about seventy fire-escapes, not in any way in connexion with the fire brigade, but under the direction of the Society for Protection of Life from Fire. The most complete fire-escape in use there consists of a ladder of thirty-two feet, 'fitted on the underside with a canvas trough, in which persons may slide with ease from a window to the ground,' and to this ladder a second one of twenty-two feet may be jointed, &c. It is mounted on a light carriage, with springs and high wheels, and can be easily moved by two men. The price is £52. This is the fire-escape kept in the streets, and so well known in London. In Liverpool there are eleven fire-escapes—long ladders with a pulley or block attached to the top spar, to which is run up a circular canvas bag; in Manchester, two; Birmingham, one; Edinburgh, none—*the stone staircases to the houses rendering them unnecessary*; Glasgow, none also—long ladders carried by the brigade, but they are seldom used, for the same reason as in Edinburgh—namely, stone stairs. It is not necessary to pursue the subject further, as it is now, we believe, under the consideration of the corporation, with a view to the introduction of them here. The advantages of the new steam fire-engine, lately added to the London brigade, and its superiority over the hand-power engines will be apparent from the following particulars:—The steam fire-engine is of 15 horse-power (nominal), and is capable of throwing water continuously to a height of 130 feet, horizontally 170 feet, and the quantity of water it can throw per minute is 266 gallons; the consumption of coal is 113lbs. per hour, and steam may be got up the rate of 30lbs. in ten minutes, everything being cold. It requires one engineer, one assistant do., and for the hose and branch four firemen; it weighs not quite three tons, is drawn by three horses abreast, in charge of one driver, and may be turned round in a space 13 feet wide; it will do the work of 100 men, and the cost is £700. The practical working height of the best hand-engine is only from 40 to 50 feet; the advantage of 90 feet additional, and the undiminished continuity of the motive power, fully warrants the merits ascribed to the steam-engine, and of being equal to four of the most powerful ordinary engines, whilst all the crowding and confusion attending the working of the latter is avoided, and a clear space is secured for the firemen to carry on their operations in. Presuming, then, that the Water Bill will be re-introduced next session, *under which the high pressure is to be developed*, we do not think the fire brigade can assume a permanent form until then; we would therefore suggest, that one steam fire-engine should be now ordered from the makers, Messrs. Shand and Mason, Blackfriars-road, London, for service in Dublin. We may state in conclusion the desirableness of placing the principal city police stations in communication with each other, and with the pipe-water offices and engine depot, by means of the telegraph, by which a considerable sum now expended for car hire in giving notice on the occasion of fires will be saved."

ECCLESIASTICAL ARCHITECTURE.

ST. JOHN'S CHURCH, ARDAMINE, COUNTY WEXFORD.

SIR—We are living in times in which Church Architecture, like all great national undertakings, is progressing to a state of something like the zeal and energy that actuated the architects of the mediæval period. For more than thirty years an unceasing and obstructive policy has been followed by certain architects in England, not only to exclude the best examples of the middle ages, but to introduce, as far as an obtuse taste could suggest, a sort of mongrel Italian, unsuited to the requirements of the country or its climate. The principal personage at the head of the retrograde movement is fortunately *only a professor* of architecture in one of the London universities. England is happily denuded of examples in constructive building to hand down to future ages *Professor* Donaldson's abilities in the arrangement of stone and brick.

A pleasing example in the early English style has been recently erected at Ardamine, on an elevated site, only a few perches from the ancient *Tumulus* on the south, the north side abutting close to the old burial ground. The church was built from the designs of Mr. George Edmund Street, of London. The walls rest on a foundation of concrete, 7 ft. 6 in. wide, at a depth of 8 ft. from the ground line. The external and internal façes are of Ardamine limestone, built in irregular masonry; the dressings, south porch, turret, and sedilia, are of Knockavoca stone, same as used in the old cathedral and ancient abbeys of Ferns, Dunbrody, and New Ross; bands of red brick are introduced inside and outside, contrasting favourably with the sober grey tint of the limestone. The church is provided for future extension by an arcade constructed in the north wall of the nave. The floors are laid in Godwin's encaustic tiles, some of the patterns presenting *all the colours*[*] that can be used in the manufacture of this beautiful pavement. The pulpit and font are of Caen stone, the latter having a low shaft of Irish marble between the base and the bowl. The west end is pierced with two tall lancet windows, the south wall of nave has two double-light windows, with trefoil heads, and the north side three single light windows. The chancel, which is 20 ft. in length, is lighted by four stained glass windows. The windows of the apse show double colnmns on the inside; these slender columns are of Irish marble—two of Connemara green, two of Cork red, and two of Clonmacnoise; the capitals are carved in the mediæval style of foliage, connected by a notched and moulded abacus. The reflection from a clear sun on the stained glass window, throwing its rich, varied, and mellow tints on the opposite walls, is parted with with regret as our fleeting luminary proceeds on his course to the west. The sittings are open benches, and may accommodate about 120 persons; should the majority, however, be ladies, a heavy per-centage may be taken off to the credit of crinoline. The roof is of open timber work, *all the rafters* are framed as principals. Such examples are very rare, and, if my memory is correct, the only roof constructed on a similar principle in England (until very recently) was the ancient church of Sompting in Sussex. The octagonal turret springs off corbelled piers, and is, I believe, original in design. The turret terminates with a finial of elaborate workmanship in wrought iron, richly gilt and painted. The stained glass windows in the chancel are from the well-known artists, Clayton & Co., of London, and are arranged in the ancient mosaic style, which has the effect of giving all the figures a greater depth of shadowing; each window is under 6 ft. superficial, and in that small space upwards of *three hundred* pieces of glass are used.

Two of the windows are memorial, to the memory of the late Mr. and Mrs. Richards. In the bands forming the medallions are Scriptural texts. The central window commemorates the building of the church. In the middle compartment is a fine portrait of the Redeemer blessing the bread and wine, with the text: "Do this in remembrance of me." The lower medallion encloses a portrait of St. John, to whom the church is dedicated. The next division contains the inscription: "This church is built to the glory of God, and is dedicated to his beloved servant, St. John the Evangelist; A.D. 1860."

Gorey, 25th June, 1861.

J. K.

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[*] The beautiful blue now used in some of the patterns was first suggested to Minton by Pugin, and opposed by Butterfield as having no precedent. Pugin's characteristic reply appears to have silenced all opposition:—"If the old fellows had known that colour they would have jumped out of their skins with joy."—See Scott's "Half-hour Lectures on the Fine Arts," &c., page 216.—J. K.

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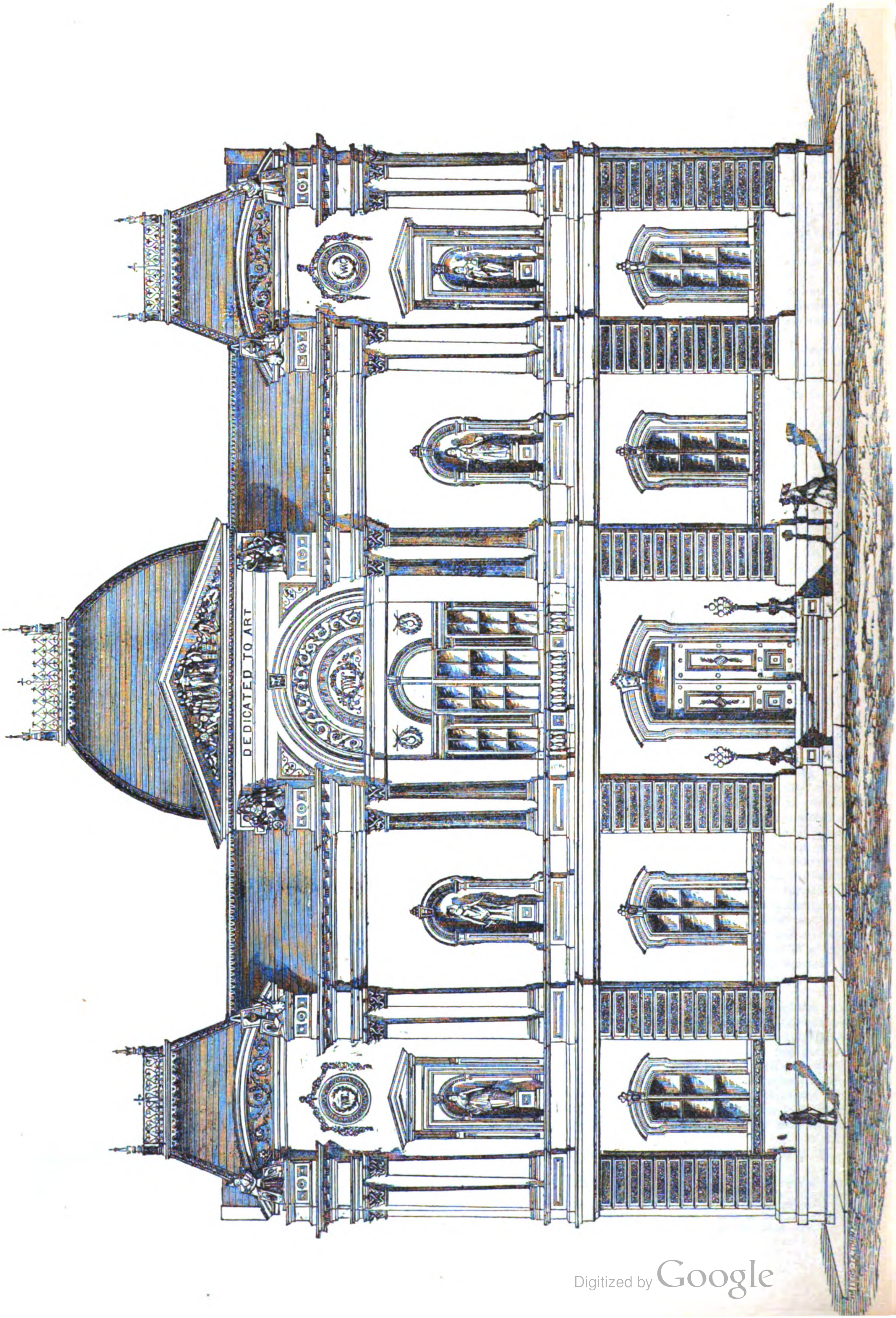
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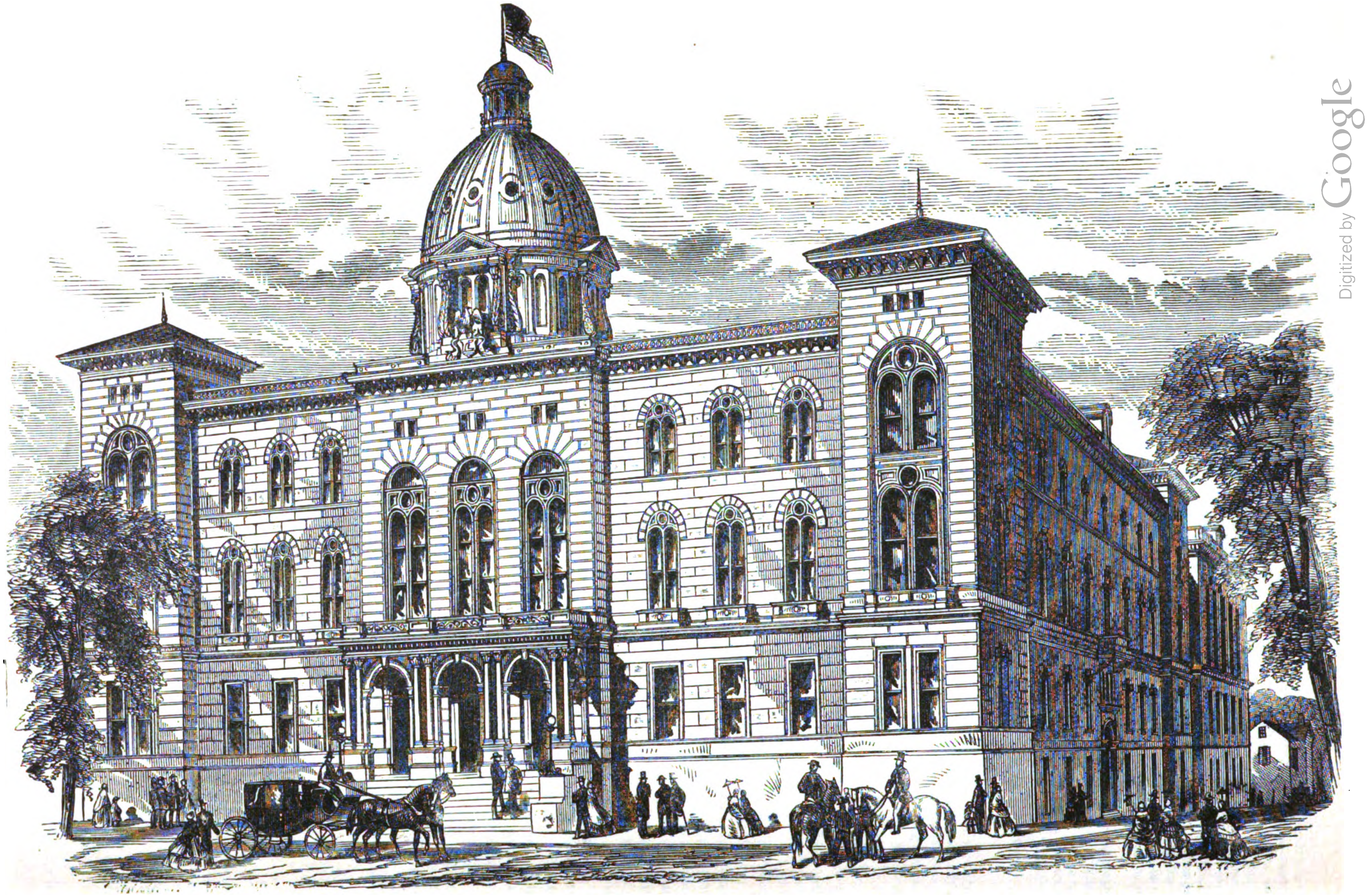

PUBLIC CITY BUILDING, PORTLAND, MAINE—J. S. RAND, ARCHITECT, BOSTON.

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UNIVERSITY OF ILLINOIS

THE RATEPAYERS OF THE COUNTY DUBLIN AND THE COUNTY SURVEYORS.

A MEETING, comprising a few gentlemen styling themselves "the Reform Committee of the Grand Jury Laws," was held on the 20th ult., at Bachelor's-walk—Mr. John P. Byrne, Ballybohill House, presiding—for the purpose of *protesting against* the bill now before Parliament to increase the comparatively paltry remuneration of those most efficient public servants, the county surveyors; and with that view the following high-sounding resolution is said to have been passed unanimously:—

> "That this committee and the ratepayers of the County Dublin regard with great apprehension the bill at present before Parliament to enable grand juries in Ireland to increase the remuneration of county surveyors, and for other purposes, prepared and brought in by Mr. Cardwell and Mr. Bagwell.
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> "That the committee feel confident that the fullest expression of surprise and dissatisfaction would be expressed by the cesspayers of every county in Ireland at any power vested in the grand juries of Ireland of further increasing salaries of county surveyors, or granting them any SUPERANNUATION allowances, there being but one feeling existing as to the injustice of the authority already vested in so irresponsible a body. This committee, therefore, does not hesitate, on behalf of the County Dublin, to protest in the strongest manner against a bill calculated to increase the burden which is already so oppressive, and this committee trusts that the promoters will pause before passing such a measure."

Now, we can hardly reconcile with consistency the motives which induce such an agitation, and which, we are proud to learn, has even so far proved abortive; for it has been for many years a patent fact, that the professional gentlemen holding the appointments of surveyors for the various counties in Ireland are the worst paid pûblic officials, considering the onerous character of their duties and their position in society, of any in the kingdom. In this age of political economy it is admittedly fair to draw reasonably tight the strings of the public purse, but discretion should accompany the act; and we really do experience a surprise that even a very indifferent minority of the ratepayers in the metropolitan county should be so misguided as to lend themselves to a hostile agitation as regards these gentlemen. To become qualified for the office of county surveyor a severe educational ordeal is necessary, and even when installed—which may be after years of anxious expectation—no mean ability, practical experience, and business aptitude are required for its maintenance; but the theory promulgated by this little band of reformers is, that it should be the object of the public to secure as long as it can, and at the *lowest possible cost*, the *most competent* professional services to guide the operations permanently necessary on the roads, bridges, harbours, &c., throughout each county, and, when infirmity or old age overtake the faithful and efficient servant, to turn him adrift on the world without a retiring allowance. Such a doctrine will not meet with a ready endorsement by the estate holders of Ireland generally, who usually are gentlemen of independent spirit, and know how to feel for ill-requited *employées*, especially for those with whom their interests are so much identified as the county surveyors; and we have no doubt but that its originators will have the mortification, and very speedily, of seeing their progeny consigned to ignominious oblivion.

NOTES ON THE HIGHWAYS.

ROAD-MAKING, like all other arts, must be perfected by degrees, and time and experience alone will remove the asperities which act as obstacles to its perfection. Consequently, the improvements which have lately been made in our leading thoroughfares give the strongest proof of what we are about to enjoy to a limited extent.

Of course we are perfectly aware that the funds requisite to carry out so great a work as the entire repavement of our streets must be extended over a series of years, and even during the period the progress of so extensive an undertaking must be necessarily tedious, coupled with the proper provision to be made in consolidating the strata to receive it; so that it may happen that our descendants alone may reap the benefits of a general paving. Under those circumstances, it may not be out of place to lay before our readers a few remarks upon rendering the repair of our macadamized carriage-ways less objectionable than the present practice.

It is usual to distribute a quantity of broken stone upon the surface requiring repair, and sometimes it happens that the shingling is varied in depth from five inches to that of a single tier of stones, according to the quantity required to form a fair upper surface. No provision is made prior to spreading the broken stone to ensure a rapid consolidation, and it is only after a considerable lapse of time, accompanied with an enormous waste of animal labor, together with serious injury to the feet of the animals as well as the wheels of vehicles, that anything like a proper surface appears to be found.

If we observe the compact surface of a macadamized carriage-way after a fall of rain, we find that the stones originally laid down are united by lesser particles, varying much in size, so as to fill the interstices of the concrete surface. These particles were not laid down with the shingling, but were produced by the constant traffic and the process of pounding and pulverizing the larger stones. Now, would it not be well if we could supply a mixture of clean, durable material of the consistence of gravel, in imitation of the foregoing, in the first application of our shingling, and save both time and labor in effecting a process so necessary for a consolidation? It is most necessary in every case to prepare the surface of the carriage-way by loosening it to receive the new metal.

It has been suggested that a heavy iron roller, drawn by 4 or more horses, would be effective in binding together the materials. All this is quite true; but the expense of such a process would be very considerable, and not likely to be adopted in an over-taxed city like Dublin.

In the repair of our footways (we refer to those in the suburbs and in many of our streets of lesser note) a material is employed totally unsuited to the purpose. If clean fine gravel were employed it would quickly become a compact mass, and form a good even surface in a very short time; instead of which a coarse material is spread upon them, consisting of stones from the size of wallnuts to hazel-nuts, and one of the consequences is, that the greater part of the materials find their way into the watercourse, until they are thrown back again by scavengers to undergo the same process, or until they finally disappear with the road scrapings, leaving behind any finer particles the mixture may have originally contained.

It is needless to dwell upon a matter so palpable and at the same time so very objectionable as the practice referred to. We may hope that it will be avoided.

Lastly, while on the subject of our ways, foot and carriage, it has often occurred to us that the cleansing of our crowded thoroughfares could be much better effected during the nights, by lamp or moonlight, when the traffic had ceased. It is painful to witness the endeavours of those unfortunate men who, after a fall of rain, set about cleansing such streets as Dame-street and Grafton-street during the busiest hours of the day. Surely they cannot perform one tithe of the work they otherwise should, if the vigilance necessary to prevent their being run over every instant could be dispensed with.

PROPOSED TIMBER COMPANY.

AN announcement of a project to form a joint-stock company, with limited liability, for importing and trading in timber appears in our advertisement columns, to which we are only in a position at present simply to direct attention, as requested, though we shall probably, when in possession of particulars, hereafter revert to the subject.

SANITARY MATTERS.

THE Committee of the Corporation having charge of the sanitary arrangements of our city held their usual meeting on the 21st ult. Present—Michael Egan, Esq., T.C., in the chair; Councillors Draper, Jude, O'Beirne, and Alderman Mackey. Proceedings of last meeting being read and approved, the weekly dsbursements were passed and ordered for payment. The hospital returns were read, showing a slight diminution in the admission for the week ended 14th ult. The sanitary returns of the police were submitted. The slaughter houses, knackers' yards, and public lodging houses were reported as being in a cleanly state. Lists of cattle slaughtered were read, showing for the week ended 17th June the following result:—Oxen, 51; cows, 148; heifers, 165; calves, 46; sheep, 1,139; lambs, 643; swine, 129; total, 2,321. Several parties were ordered to be summoned for neglecting proper observance of sanitary regulations, and the committee adjourned.

We would strongly urge on these gentlemen the desirability of looking minutely, and the sooner the better, to localities particularized in recent numbers of the DUBLIN BUILDER as in great need of improvement.

FRENCH DOMESTIC ARCHITECTURE.

THE enormous amount of building which has for some years now gone on in France, and especially in Paris, has made that city peculiarly attractive to English architects and builders, who have there a school of study, where they may find examples and warnings *ad infinitum* and *ad nauseam*. To read these examples aright, however, it is necessary to be well informed with respect to the habits of the people, for it is necessary to remember, trite as the remark is, that houses are made to live in as well as to look at, and that the requirements of one nation are almost as different from those of another, as the flat dish and the long bottle in the fable of the fox and the crane. To a certain degree a foreigner is likely to overlook some of these differences, and it is no more safe, therefore, to criticise a French house from an English point of view, than to adopt and transplant it bodily without considering its fitness for its new locality. To judge fairly of French domestic architecture we must use our ears as well as our eyes; we must know the objects in view, and also many collateral circumstances, before we can decide on the fitness of the habitations for the people for whom they have been erected, or on the ability of the designers and builders. To learn all this directly is a long process, too long for the great majority of students, and therefore it is useful to draw all the information that presents itself in an indirect manner; and one of these modes is the consideration of what the French themselves say about their own houses. In reading the criticisms, and listening to the opinions, or mere remarks on the subject, we have naturally to cast a vast deal aside as mere chaff or dross; and it must be admitted that the grain or the pure metal is mixed up with a very large amount of what may well enough be termed filling-in.

M. Ferdinand de Lasterie, a non-professional writer, does not hesitate to brand the architects of the present day in France with entire want of originality as regards great public edifices, and says that to know how to reproduce a Greek temple, a Gothic church, or a Louis XIV. palace, is generally a sufficient acquirement; he tells an anecdote of the famous sculptor David d'Angers, which is worth recording:—"As regards public monuments, perfectly adapted for their purpose, and of a style original and entirely of our own time, I know none but the abattoirs." And there is a great truth hidden under this sneer; all true styles originated like these slaughter-houses in that manner, which should at once serve the purpose intended, and meet all the circumstances of the case in the best, most durable, and cheapest manner; while we modern copyists generally have adopted the very opposite principle, and, having selected a style that was admirably adapted to its purpose in its own country, set to work to pare it, and clip it, and twist it to serve another purpose, and under different circumstances. With respect, however, to domestic architecture, the writer above mentioned thinks that the present day has its style totally distinct from that of any other period; that, in fact, the changes which have taken place in the manners and habits of the people have become, as it were, embedded in the stones of the new houses. It would be strange were it otherwise, and the study of the changes referred to will alone enable us to judge of the fitness of the new habitations. The necessity for wide roads and uninterrupted lines, and the increased price of land, have made a total change in the general outline and disposition of the streets, and have made picturesqueness dependent on ornament, frequently extraneous, instead of upon broken lines and varied forms. In old times the nobility built themselves sumptuous hotels, and the poor were huddled together in the old neglected houses of the great. The middle class had scarcely attained to a separate rank, it hid its wealth to avoid inconvenience; but now it has come forth into the full blaze of the sun, and is as exaggerated at present in its luxury as it was formerly in its modesty. Formerly the mercantile and legal classes lodged in very quiet, unpretending streets; the houses were approached often by a mere alley or a low gate, the staircases were remarkable for anything but brilliancy, and the outer door of the apartments frequently opened directly into one large room, that in many cases served for dining and drawing room, which was, in fact, the only general sitting-room, the furniture of which was perfectly simple and massive; the chief bed-room was generally of large proportions, and the kitchen was a vast apartment, with a large chimney, and a great collection of culinary utensils of all kinds. The *comfortable* home was then not uncommon in Paris. You must have the taste of an antiquary to find out such houses now. The same classes now inhabit very different places; the exterior must be noble looking, or, at any rate, pretentious; there must be a magnificent entrance for horse as well as foot; the staircase must be spacious, light, and highly decorated; the rails must be of an elegant pattern, painted of a delicate chocolate, and tipped with gold, if, indeed, they be not gilt half over. As to the interior—the *salon* must be large and lofty, its walls covered with paper of the most delicate tint, or divided into panels enriched with all kinds of elegant work, from a papier maché ornament to a charming design by a skilful painter, and on the ceiling, the doors, everywhere, is gold leaf applied in profusion, and often in great excess. Huge looking-glasses reach from the low mantel-piece almost to the lofty ceiling, the floor is covered partially or entirely with a velvet carpet, and all the fittings and furniture are on the same magnificent or gaudy scale. The dining-room is fitted with great taste, the prevailing mode at the present moment being modern, old oak furniture, with a great deal of sculpture, and much of it atrociously bad, but generally applied with taste; the furniture is generally in good keeping, but the whole on a very small scale, a room in which the parties should never exceed eight persons or so at the utmost, and in this particular the regular *gourmet* will doubtless say that the French exhibit a high sagacity and a deep knowledge of the *savoir-vivre*. The lady of the house has her own exquisite retreat—her boudoir, her bed-room also, generally, be it whispered—this chamber is generally just large enough for a bed, a few chairs, and a small table for the fair occupant's own labors, literary or otherwise, on ordinary occasions, and which will accommodate four whist-players on company nights, when the bed is a perfect bijou of satin, lace, and embroidery. Everything is on the smallest possible scale, and of the most luxurious description as regards ornamentation, and thus looks like a cell fitted up for a fairy; the master of the house has a small room to match, also fitted up with as much luxury as he can afford, or determinne on possessing for some time at any rate. In one corner, or in a recess covered by a handsome curtain, is his close, unhealthy bed, and he as well as the lady has, if possible, a dressing-room about the size of a box for four at a theatre; the kitchen is about the size of a small pantry in an English house, but it serves the purposes of kitchen, scullery, and pantry combined, only obtaining a slight increase of area by the meat-safe being hung outside the window when the aspect is not sunny, which might prove inconvenient for the *gigot;* the servant spends most of her life in this cupboard or laboratory, and generally quits the apartments of her employer to go to sleep with her compeers, in the complicated hive beneath the slates of the mansion. The smallness of the kitchen would send an English cook out of her wits; but the system accounts for the difference. Everything is carried on in the small way, and at the same time with great economy, and when anything extra is required it may be obtained readily from a restaurant or *cuisine bourgeoise* a few doors off; and the same remark applies to wines, to plates and dishes, knives and forks, table linen, lamps, glass, which, with almost every imaginable thing, may be hired for the occasion at a moderate rate. With such habits generally diffused, the task of the architect is in a great measure marked out beforehand. He has to sacrifice almost everything to appearance; he must decorate the exterior and give it an appearance of grandeur, no matter at what cost. He must have an inner court; but as ground is about the price of gold, he must arrange for a carriage to be able to turn round in the smallest possible space. Within he must give up half his space to the *salon*, and is thus compelled to reduce the bed-rooms to closets, and all the offices to cupboards. Balconies occupy an amount of space that it is next to impossible to spare in most cases, and the consequence is that half the new houses have the lower portions of the windows covered with elegant ironwork in chocolate and gold, with an advance varying from one to six inches from the wall. It has been calculated that to give a balcony to each floor of an average house would be equivalent to adding £60 to £80 a year to the rent, on account of the necessary diminution of space in the interior. The following may stand as a fair type of the modern street house of Paris at the present time. A grand front to the street, an elegant carriage entrance in the centre, and one, two, or more shops on each side of it; an *entresol* in which you may stand upright if you are not much more than six feet high; a first floor with a balcony, windows with large panes of plate glass, and gilt shutters inside plainly visible from the street; two or three other floors pretty much alike, a fifth in the roof with a balcony, and some twenty cupboards, for as many servants' bed-rooms, up amongst the chimneys—these are not generally considered as requiring light or air except in homœopathic proportions. These necessities have reduced house plans to such a monotony that, with the single exception of mere ornamentation, the architect can scarcely achieve any originality unless he makes his windows round, oval, or of a lozenge shape.

Houses inhabited by a single family are called *hotels*, and these were formerly almost exclusively the dwellings of people of large fortune, such as are still to be found in the Faubourg St. Honore—noble mansions, with a large court-yard in front, a garden behind, and roomy coach-houses and stables in the former, with a porter's residence in a screen giving on the street; of these few are now erected except by Imperial ministers, or the lords of the financial world; but a new race of small *hotels* has grown up, and these afford good scope to the architect, and well deserve study. They generally stand on a very small space of ground; they are often far too pretentious, and lose in comfort what they gain in outer grandeur; but a very large proportion are remarkable for elegance, and for the admirable distribution of the interiors. The style adopted is strikingly different to the grand *hotels* above referred to, and the modern mansion has not inaptly been said to present the appearance of a country villa dropped within the walls of the city—you must, however, imagine the large garden at the back. These *hotels*, like everything French of the present day, are too much after a set pattern. There is a kind of official type that is rarely departed from; here and there you may find a pure Italian or Classic building, never anything at once Gothic and decent, but the great mass belong to that wide-spread order of architecture and art in general—the Rococo. The way in which the details are carried out is deserving of all praise and of careful study; and, as regards the interiors, making allowance for the fact that the French generally require that all the bed-rooms on the principal floor should form a part of the suite of apartments for gala days, it is very difficult to speak too highly; in these elegant little mansions the French architect seems to be unapproachable.

It has been well observed that if the modern Paris *hotel* resembles a villa, the country houses of France generally look too much like town residences out of place, and it is generally admitted that the English understand the construction of villas far better than the French. The former use the old styles in a far more picturesque manner; they are not wedded as the French are to any one plan which may happen to be in fashion. "They know," says the writer I have already mentioned, "how to mingle the picturesque and the comfortable better than we do; they have the art of making nature herself aid the charm of their domestic buildings, to make the vegetable world contribute to the effect of their fresh and pretty decoration. Their style is less pretentious and less noble perhaps than ours, but it is economic and charming to the eye." The same writer says that the *chateau* is essentially French, and the cottage English, and he remarks, with great truth, that this is only a reflection of the fact that the chief life of the former is that of the city, while that of the latter is of the country. The difficulties which stand in the way of a proper appreciation of art or anything else in another country are curiously illustrated by the same writer. He says that England, otherwise a charming country, has the misfortune to be very much alike from end to end, and that France, on the contrary, is, of all the countries in the world, the most varied, both in nature and aspect! It would be difficult to find a more extraordinary error than this in the whole course of French literature, considering that the animus is perfectly friendly, and the whole tenor of the remarks thoroughly impartial. It is inconceivable that any one should be unaware of the fact, that nothing is so remarkable in France as the general uniformity; it is true that she has several districts of peculiar character, but throughout the great extent of the country nothing is so striking as the similarity of the scenery, the roads, the towns, and the houses. Such a strange error in the comparison of the two countries may be of some use in warning young architects how they judge of French buildings without having acquired a considerable knowledge of the usages of the society and the habits of the inhabitants, and how they criticise the character of the street architecture without inquiring into the strategetical or fanciful regulations, by which, like everything in France, it is bound as in fetters of steel.—*Building News.*

FARMSTEADINGS UNDER SCOTCH AUSPICES IN THE COUNTY OF KILDARE.

OUR Caledonian neighbours have been drafting themselves of late years, as "regenerators of the soil," into Ireland, and on more than one occasion we noted the particulars and progress of certain farmsteadings erected on recently acquired estates, of which, however, those of Mr. Allan Pollock, in the county of Galway, are the most important. In a late number of the *Agricultural Review* attention is directed in the following terms to an establishment of this class in the county of Kildare:—

"The numerous and extensive farmsteadings scattered over the level country surrounding Athy—the large and uniform appearance of the fields, furnished with piers and gates, and the peculiarities of the holdings generally, will naturally attract the attention of the tourist and traveller; and if he should be curious enough to enquire who the occupier is, he will be readily enlightened, that 'it is the residence of a Scotchman.' The entire district appears to be regularly colonized by such, and to those who may be desirous of examining the relative merits of Irish and Scotch husbandry, the above affords a most suitable field for the examination of both sides of the question. Previous to the Scotch settlements in this country, unexceptionable, and we may add, successful farming flourished; but the many drawbacks besetting the prosperity of the Irish farming community, during the years 1846-7, so blighted agricultural enterprise, and damped the energies of the farming classes, that some stimulating element was loudly called for, and which gradually resulted in the steady importation of Scotch land-stewards amongst the gentry whose farms had become vacant by the impoverished condition of the original holders—a course which subsequently led to the introduction of Scotch farmers, and the investment of Scotch capital. By this course a powerful impulse was, no doubt, given to the advancement of improved tillage in the remote districts where farming was most defective.

"By far the most superior description of farm management appears to us to be pursued at Levitstown farm, near Mageney, on the Great Southern and Western Railway, and nearly midway between Athy and Carlow. This extensive holding, of 500 Irish acres, is in the hands of Mr. Anderson, a gentleman whose name is favorably associated with improved husbandry, and who, manifestly, has expended a vast deal of capital in bringing the Levitstown farm, offices, &c., to assume their present appearance. No less than 106 acres of this holding have been devoted to green crop culture; 200 are under grain, of which 70 are under wheat; about 70 more under meadow, and the remainder under pasture for a large stock of sheep, in which there are 300 ewes, young stock; with orchard, paddock, nursery, &c. The box-feeding principle of stock fattening has been largely carried into effect by Mr. Anderson, and scarcely ever are there less than 130 head in the byres at a time. Owing to the great facility there is for supplying abundant quantities of straw, for bedding and feeding purposes, a vast supply of manure is manufactured, which, of course, tells for itself in restoring the fertility of the farm. The byres or boxes are cleaned out once a month, a period sufficiently long for the accumulation of the manure without interfering with the comfort of the animals, and also of sufficient duration to admit of decomposition setting in through the bedding by the trampling of, and absorbing the voidings of the cattle. The barn is furnished with a large threshing-machine, worked by water-power, and capable of turning out 80 barrels of grain per hour; and, simultaneously with the threshing of the corn, the power is available for working the machines for straw and hay cutting, oat and bean bruising, sawing timber, &c. Burgess and Key's combined mowing and reaping machine is employed for facilitating harvest operations; and twenty excellent farm horses, of the Clydesdale breed, are kept for the working of the farm.

"Mr. Anderson's staff of laborers is composed of an equal number of Scotch and Irish workmen, all of whom are housed and fed on the premises, in accordance with the Scotch usage of hiring and treating the agricultural laborer. We were curious enough to enquire whether either section claimed an ascendancy over the other in regard to efficiency of labor, and we were much pleased to hear the steward willingly admit that he *never saw* better workmen than the Irish laborers now in his employment, after being duly initiated into his method of executing approved farm operations. No one will deny but that the Irish labourer, when well fed, properly housed, and suitably clothed, is just as willing and as able to perform the maximum amount of labor which any English, Scotch, or Welsh man is capable of executing.

"On another excellent farm at Sayer's-wood, the property of Mr. J. M'Cullagh, we were also afforded an opportunity of examining the nature and extent of his principles of husbandry. Mr. M'Cullagh farms 300 Irish acres of the most stubborn land that could possibly be worked, and if ever the steam-plough gets into favor in Ireland, we know of no farm where its application would be so likely to suit as on the farm at Sayer's-wood.

"The farmsteading is on the covered principle, but Mr. M'Cullagh has deviated from the objects contemplated at its erection, inasmuch as the manure is removed to an outer yard, according as the byres require cleaning. By this practice the manure has been found to be better fermented, better prepared for application, and, on the whole, is the course which Mr. M'Cullagh is in future disposed to adopt. The entire farm-yard and offices are extensive and substantially built, and include every arrangement and structure to be met with on a well-regulated concern. A fixed six-horse power steam engine, for threshing the grain, cutting chaff, hay, and straw, bruising oats, beans, &c., has been erected quite convenient to the stack-yard, and the barn is sufficiently large to accommodate any amount of straw and grain that may be turned out of hands at a time.

"The only other concern to which we purpose devoting any space for the present is the holding of Mr. John Pennycook, known as the 'Quarry farm.' Mr. Pennycook is one of the class of Scotchmen who farm cautiously and successfully. We knew the general character of his land previous to his renting it from his Grace the Duke of Leinster, and we have no hesitation in admitting that its present appearance contrasts favorably with its uninviting aspect some years ago. The rent per Irish acre is 18s. 4d., a fact quite suggestive of the neglected state of the land at the time of his becoming the tenant. The entire farm is now thoroughly reclaimed—the crops forward and healthy, and the general character of the farm operations all that a well-wisher of improved husbandry could desire."

The new projects for steam-packet communication between Dublin, Kingstown, and Bray, and for omnibus communication between Dublin, Booterstown, Blackrock, Monkstown, and Kingstown, are being pushed forward energetically by their respective promoters.

NEW SYSTEM OF CONDENSING PEAT FUEL.

Referring to this amongst other matters calculated to conduce to Ireland's prosperity, and illustrating her progressive strides in the present age, *Saunders'* has the following :—

"There has, however, lain dormant for years a large and unprofitable portion of Ireland—the turf bogs—estimated at more than 2,830,000 acres, or nearly one-seventh of the surface of the island. Of this 1,576,000 acres are all flat bog, spread over the central portion of the great limestone plain. The remaining 1,254,000 acres are mountain bog, chiefly scattered over the hilly districts near the coast. Lignite, and intermediate species of fuel, between wood and coal, is found in dense strata, comprising the southern portion of Lough Neagh. The subject which is here intended to be treated of refers to the adaptation of all bogs for the manufacture of condensed peat, applicable to innumerable useful purposes, and which hitherto—in consequence of the many projects to manufacture it having to a certain extent failed—all attempts to bring peat into general use have hitherto proved unsuccessful. A bright light now appears likely to shine upon these dark tracts of country, for a new system of condensing peat fuel has been patented for Great Britain and Ireland and foreign countries, and from the perfect specimens which have been produced there can be no doubt that peat is now brought to an extraordinary state of perfection, and if extensively followed up, as it is supposed it will be, by a public company, the advantage to Ireland will be incalculable. Here it would be premature to state all that has been said by practical engineers of this new system of preparing peat; but it is sufficient to notice that they are of opinion, by its introduction into the manufacture of gas, a considerable saving will be effected; that its properties, when made into charcoal, are superior to wood charcoal; and the belief is entertained by the most competent persons, that if the project is sufficiently supported and efficiently carried out, it will at no distant period materially influence the gas manufacture of the present day. It may also be stated that it is suitable to locomotive marine, and stationary engines, besides being applicable to various useful purposes quite beyond what peat could hitherto be supposed to be made available for, and necessarily very profitable to the owners of the large tracts of moor in all parts of the United Kingdom. The few specimens which have reached Ireland may be seen at Mr. White's, bookseller and law stationer, Church-lane, College-green; but we hope to announce in our impression tomorrow the arrival of samples of much larger dimensions. It is proper to add that there is no chemical process introduced into the making of this condensed peat."

WARMING.*

The application of air heated directly or indirectly by fuel in combustion to churches, hospitals, prisons, dwellings, &c., is generally termed warming; directly, by contact with fuel in combustion, which is hurtful and dangerous; by contact with and radiation from a fire grate as usual in our dwellings, by similar means with stoves, and by flues; indirectly, by the intervention of water at a moderate temperature, a high temperature, or in a state of steam. In fire grates and stoves, the body of air in immediate contact with the sides of the stove becoming lighter by expansion, flies to the upper part of the room, and is successively followed by all the air in the apartment, until the whole of it is warmed to a temperature, which it would not only retain, but exceed, were it not for the continual access of cold air from without, either through windows, or from doors opening on colder apartments; in heating any space by these means, we have to consider this space, that for the combustion of fuel, and the chimney, which must have a free communication with the air above and below, and whose sectional area should bear a certain proportion to the fire beneath, or rather, to be theoretical, with the interstices between the bars of the grate, and the area of these interstices should be to the sectional area of the chimney as 1 to 4. The opening of the fire-place should be proportionate to the space of the apartment, and the form, as well as the sectional area of the chimney flue, should be such as to command a draught, which should overcome the gravity of the external air, and oppose its ingress into the chimney, the certain result of which is smoke. An opening of from 9 to 14 inches for moderate sized or large rooms will be found ample; one of the greatest improvements in our fire-places is the splaying off of the corners, which improvement, however, is too much neglected in farm buildings and cottages. The dissemination of foul air and soot, through an apartment occasioned by downward draught, is one of the greatest inconveniences of the open fire-place. Sylvester's stoves are, amongst the many improvements of late date, the greatest we have for open fire-hearths; in these the grate is even with the floor, and the cold air reaches it from an ash-pit below, connected with passages formed of iron bars, arranged in an ornamental manner, and forming the hearth; by this plan greater comfort is added to economy in fuel, the hearth being heated as well as the air before reaching the grate; by opening or closing louvres at the back, the combustion may be regulated according to the heat required, and by closing sliding doors the opening into the flue may be entirely closed when the fire is not in use.

Of stoves there are two kinds, the one of cast iron, and the other of earthenware, and if only on the score of insalubrity, the first must be considered distinct from the other; the nauseating smell of cast-iron stoves, and the continual headaches which they occasion, can leave no real doubt upon the subject: a cast-iron stove is much more quickly heated than one of earthenware, and cools as readily on the lowering or extinction of the fire. The diameter of the pipes connected with stoves may vary from 6 to 12 in., according to the quantity of fuel to be consumed, these dimensions, though great with regard to draught, are necessary when the pipes are employed as heating surface, besides which, if made of too small a diameter, they soon get choked with soot; moreover, a register always affords the means of regulating the draught; these pipes may also rise or fall in their length, without any ill effect being produced on the power of draught, and a much greater quantity of heat is also made available by the means of stoves; these last considerations are sufficient to denote the utility of stoves and pipes under particular circumstances, the greater regard to ventilation becoming, however, more indispensable. The subject of warming by flues, and by hot water, if only glanced over, would be useless; and, connected as it is with ventilation, its import would require a development far exceeding the extent of these pages; we refer both the practical man and the student to Peclet, "*Sur la Chaleur,*" where either will find the matter treated in a manner from which he must unavoidably receive the most valuable information upon at least one of the most important features connected with the architecture of the present day.

NOTES ON RUSTICATION.

The Italians made much of that kind of masonry, which, though it is termed *Rustication*, so far from being necessarily *rude*, is capable of expressing no small degree of ornateness and carefully-finished execution. There are, in fact, several varieties of it decidedly different in character; from that of bold, unpolished energy, nearly up to that of elaborate embellishment. The first is in its place in prisons, the last not out of its place in the façade of a palace. Rustication, however treated, prevents baldness and insipidity, inasmuch as, at all events, it produces richness of surface, and what in architectural language is called *color*.

To mention here briefly the several modes of rustication, there are, besides the coarsely rude and rough, or what may be called the primitive mode, those in which the face of the stones is either *vermiculated* or *frosted* (*i.e.*, tooled to produce a crispy surface); or else made quite smooth. Of either vermiculated or frosted rustics varieties may be obtained by giving a smooth border to each stone. After these, there is what may be called a fifth order of rustication, in which the stones are *facetted*. Another legitimate source of variety is, that the course of masonry may be alternately wide and narrow. Moreover, and besides all which, two if not more of these several modes may be employed conjunctively, yet how far successfully or not, must depend entirely upon the taste of the designer; for could architecture be reduced to mere matter of method and rule, it would no longer be art. Certain it is that almost innumerable combinations may be produced; and that what is called rustication might be rendered a most abundant source of mural embellishment externally.

With respect to columns, the rustic blocks upon them ought to be few, and if square in plan, ought not to exceed the diameter of the shaft, because they define themselves distinctly without projecting at all beyond the diameter of the shaft, and wherefore, it may be asked, should not occasionally the entire shaft be rusticated—that is, be left merely rough-dressed, or else roughened afterwards by "tooling?"

NEW CATHOLIC CATHEDRAL, CLOGHER.

The foundation-stone of this important work was laid on the 18th ult., and it will be completed after the designs and under the direction of Mr. M'Carthy, architect. The site is said to be most eligible for the purpose, and the building will comprise nave, aisles, transepts, choir, with apsidal termination, an eastern chapel and sacristies. There will also be a chapter house, which will be on the northern side. A tower and spire will be raised on the west flank of the south transept to a height of 210 feet. The entire length of the cathedral will be 177 feet. The nave and aisles will be 72 feet wide, and the total width across the transepts will be 110 feet. The style of architecture will be the Gothic of the fourteenth century.

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* New Office Book for Architects, &c. London: Atchley and Co.

MEMOIR OF THE LATE MR. WOODWARD, ARCHITECT.[*]

MR. WOODWARD was a native of Ireland, and received his professional education there, being articled to a civil engineer. He, however, zealously cultivated an acquaintance with the artistic department of architecture, particularly with the branches of Mediæval art. In the walk in which he has become distinguished, he was,therefore, self-taught. The first important building with which he was connected was the Queen's College, at Cork, finished in 1848. Sir Thomas Deane, the architect to whom the work was entrusted, associated Mr. Woodward with himself in its execution. It is a very successful adaptation of the late period of Gothic architecture, and forms a dignified and picturesque group, enhanced by and enhancing a beautifully-wooded site on a rocky eminence at the side of the river Lea. With Sir Thomas Deane, Mr. Woodward was similarly associated in the construction of the Killarney Lunatic Asylum, another important and successful building, in the same style as the last. In 1853, these architects, uniting the son of Sir Thomas Deane in partnership, settled in Dublin, and henceforward a different type of art, chiefly due to Mr. Woodward's inspiration, appears in their works. He had imbibed an ardent admiration for the maxims and line of study indicated in Mr. Ruskin's books; his firm faith in the authority of that writer is notorious. The high standing and experience of his elder partner must have facilitated in a very important degree the success which attended his new efforts, and also largely contributed to the opportunities for the exercise of his talents. In April, 1853, the design submitted by the united architects for the New Library of Trinity College, Dublin, was selected in a limited competition, and, under their auspices, the building rose to completion during the next four years. It follows the style of Venetian Cinque-Cento, with some eclecticism in the form of the mouldings and the style of the carving, the latter being applied with careful moderation and yet achieving great richness of effect. The building very happily unites breadth of effect and strength of form with graceful proportions and ornament, and picturesque dispositions of the parts. The next successful results to which Mr. Woodward contributed was the Oxford Museum. The competition which yielded this honor was decided in favor of himself and his coadjutors at the end of 1854. The ceremony of laying the foundation stone by the Chancellor of the University, the Earl of Derby, took place on June 20th, 1855.

The building having now some time since reached completion, its merits are so well known as to render any description superfluous. During its progress Mr. Woodward devoted his solicitude for half of each year mainly to this work, but at the same time designed and completed the University Reading-rooms, near the corn market, a work of less importance, but highly creditable to his talent. In the great Government offices competition of 1857, the fourth premium for the Foreign-office was awarded to the design of Sir Thomas Deane, Son, and Woodward, being the second premiated design of the Gothic school. The bias of Mr. Woodward's mind was strongly impressed upon these designs. The general disposition admitted of an unusual extent of sculptured ornament, which powerfully marked the whole with original thought, supported by other qualities of the highest order. Rumor attributed some control over the design to Mr. Ruskin. It is almost needless to say now that personally Mr. Ruskin had no connexion with the matter, and the only ground for the supposition is to be found in the vigor and beauty with which Mr. Woodward realised his own ideas, based on the principles advocated by the author. The latest important building of Mr. Woodward and his friends is the Kildare-street Club, in Dublin, now almost completed. Before this work had much advanced, however, Mr. Woodward's constitution had been seriously impaired by consumption, and he was compelled to relinquish the path which had so rapidly brought him into honorable distinction. After some partial relaxations, he retired to the islands of Hyires, on the shore of the Mediterranean, about half-way between Marseilles and Nice. Here, during several months, his health continued to decline; he commenced a journey homewards, but was unable to proceed further than Lyons. He died in that city, in the 46th year of his age.

Referring to the same event, the President, at a late meeting of the British Architects, took occasion "to direct attention to the death of one of their own body, Mr. Benjamin Woodward, the architect of the new Museum at Oxford. They had all, no doubt, seen that building; although there might be differences of opinion as to manner, there could be no doubt that the author was a man of singular skill, deep study, and great industry. He had passed away at an early period of life; and the profession to which he belonged had to deplore the loss of a talented and zealous member."

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[*] Read by Mr. James Bell, Honorary Secretary, at a meeting of the Royal Institute of British Architects, on Monday evening last.

MUSEUM OF IRISH INDUSTRY.

FROM the recently published report for the year 1860, by Sir Robert Kane, F.R.S., director of this Institution, we collect that amongst the additions have been several foreign woods used in building and cabinet work, and fabrics manufactured from wood, foreign and Irish; various illustrations of the uses of palms, stalks, leaves, and fibres in tropical countries. This branch of economic botany may be considered as now very completely represented in the Museum. Also that in the division illustrating the manufacture of glass and enamel, a series of glass, enamel, and porcelain ornamental beads, and also imitations of coral, jet, amber &c., have been added. A series of copper ores and other associated rocks and minerals. from the Dhurode mine, County Cork, presented by the Rev. M. Cash, has been added to the metalurgic collection. A series of beryls, fluors, garnets, and other minerals which possesss very great value as mineralogical and geological illustrations, has been procured, and also a highly interesting specimen of native gold in quartz, from Mount Alexander, Australia, in which the geological relations of the gold-bearing lode are usefully illustrated. The arrangement and labelling of the mineral collection is still in progress, but the determination of mineral specimens is necessarily a long and laborious work, when effected with that accuracy which alone can give scientific value to the results, or render the collection worthy of its place in the Government School of Science applied to Mining and the Arts. A collection of Neapolitan cameos, and of the rocks from which they are produced, has been obtained, which illustrates a very interesting branch of industrial art, and also throws light on the origin of those materials; those objects usually, though incorrectly, described as formed from lavas, being really cut from rocks of the cretaceous and jurassic formation, and which are popularly confounded with adjacent rocks of volcanic origin. It is stated that in the *Chemical Department* very satisfactory progress has been made during the past year, under the direction of Mr. Galloway. Five of the most important coals employed in gas lighting have been analysed, and analyses of various varieties of Irish and British coals, together with determinations of their heating powers, have been made for illustration of the gallery collections. Twenty-seven analyses of waters have been made for the Corporation of Dublin in reference to the important question of the supply of water to this city, and many other analytical investigations of industrial and scientific interest have been carried out. And in the *Government School of Science applied to Mining and the Arts*, the systematic and popular courses of instruction in the sciences applied to industry have been conducted by the professors during the past year with satisfactory results, in accordance with the arrangements described in the programmes for the sessions 1859–60 and 1860–61.

Prizes and certificates were awarded after each class examination to the students who had manifested suitable proficiency, and the examining professors having reported very favourably on the results, my lords were pleased to award bronze medals of the department to each of the candidates who had obtained first places, and who had been recommended by the examiners for that distinction.

The session was closed on the 25th June by the distribution of the several medals and prizes by his Excellency the Lord Lieutenant, who was pleased to express his satisfaction with the arrangements and with the progress which the system of industrial instruction had made.

CHURCH BUILDING NEWS.

Our readers have been already acquainted, through these pages, of the progress of a large building in connection with the Diocesan Seminary at Clonliffe (Jones'-road); but the following, with some additional particulors of the structure, has lately appeared in the *Freeman*:—"This great building, which was commenced only this present year, has already advanced as far as the third floor. It is nearly 270 feet in length, and will be four lofty storeys in height. The first storey, which is half sunk, will contain the culinary offices and stores, together with refectory and prayer hall, each 72 feet in length, and 22 feet wide; a noble corridor, 12 feet wide, will traverse the entire length of the first and second storeys. The second or principal storey will be approached by spacious steps leading through a rustic portico to the entrance hall, 20 feet wide; opposite the entrance hall are the principal stairs, and on either side are the reception rooms, with library and study hall, each 72 feet in length. Class rooms of different sizes occupy the remaining portion of this floor. The two top storeys will contain each a central corridor traversing the entire length, together with suites of apartments for a stuff of professors, private rooms for advanced students, four large sitting rooms, and 72 bedrooms for junior students. Projections at the rere will contain closets and baths, which will be supplied from iron tanks on the roof. The exterior of the building will be divided into four compartments by large projections, finished in the angles by quoins of cut limestone; moulded strings and cornices will mark the separation of the different storeys; massive limestone cornices will surmount the entire building and also the principal floor; the surface of the walls wil be plain; the style of the building will be Italian, of a grave and massive character. It is said that it will not be perfect until there shall be erected in connection with it a great hall and chapel, the latter to serve also as a place of worship for the inhabitants of Drumcondra and the surrounding district. The design and superintendence of the great building have been entrusted to Mr. Bourke. Mr. John Connolly, of Coolock, is the contractor for the erection.

The foundation stone of the new Catholic Church of St. Patrick, at Bloomwood, has been blessed by Archbishop Cullen.

It is in contemplation immediately to complete the tower and spire of the Church of St. Laurence O'Toole in this city; also to erect a parochial house in connection therewith. Mr. John Bourke, architect.

The foundation stone of the new Catholic Church of St. Paul, at Emo, was laid on the 18th ult. The internal arrangement consists of nave, chancel, side chapels, and vestries, and measures about 110 feet by 37 feet. At the south side of the western entrance is a tower aad spire, and the chancel gable has a very handsome five-light window, of handsome proportions. The side walls have buttresses, between each of which are decorated windows to give light to the nave. The timbers of the roof are to be of exposed and stained oak colour, and the cost will be about £3,000; style, decorated Gothic. Mr. J. S. Butler, architect.

A manse for the Rev. Mr. Burns, resident minister of the Scots' Free Church, is about being built in Wexford from designs by Mr. Richard Pierce. The site is a fine one, having a commanding view of the beautiful Slaney and the surrounding scenery.

The Dominican fathers propose to erect a new church in Tralee.

The Roman Catholic church of Donabate is to be re-floored, seated, and three new porches in connection therewith to be built.

The church of Balbriggan, County Dublin, is to be enlarged; Messrs. Welland and Gillespie, architects.

The house No. 23, Nassau-street (Mr. Rosenthal's) is about to be newly fronted and internal improvements effected, according to the plans of Mr. Duncan Ferguson, architect. The style of architecture adopted is very peculiar, being somewhat "Moorish." The opens on each storey having horse-shoe arch-headed windows, and varions-coloured brickwork is likewise introduced throughout. Close by, the house occupied by Messrs. Browne & Nolan is also to have a new façade, in the Byzantine style; Mr. J. M'Curdy, architect.

The houses 81 and 82, Grafton street, recently destroyed by fire, are about being rebuilt under the direction of Mr. Burne.

A new stone bridge is to be built over the river Nore, according to plans by the County Surveyor of Kilkenny.

The construction of the railway between Clara and Streamstown has been commenced by Mr. Bagwell, who has upwards of 200 men at work.

It is expected that the works on the West Cork Railway will shortly be commenced.

The Newry and Armagh Railway Company are about nine miles of a line between Gorah Wood and Market Hill.

Amongst the applicants for loans under the Landed Property Improvement Act are Messrs. Magill (Westmeath). Hewson (Limerick), William Sullivan (Cork), and Peter Blake (Galway), for erection of farm-buildings; and for labourers' dwellings—Lord Lifford (Donegal), John Lyle (Derry), and George Le Hunte (Wexford).

THE ART EXHIBITION.—The committee met at the Royal Dublin Society's House on Monday last, Gilbert Sanders, Esq, in the chair. The deputation which, pursuant to arrangement, had waited on the Lord Lieutenant, reported that his Excellency had received them on that day, and had informed them that his Royal Highness the Prince of Wales would honour the exhibition by a visit at four o'clock on (this) Monday, the 1st inst. The executive committee were directed to make the necessary preparations; and it was referred to the musical committee to make arrangements for the choruses and orchestra. In order to obviate undue pressure, and bearing in mind the very large number of ladies and gentlemen who are already entitled to admission, it was resolved that none but season ticket-holders should be admitted on the occasion; and that all special admissions, such as those granted to art pupils and exhibitors (the Press, of course, excepted), should be suspended. During the week ended 22nd June, the total number of visitors was 6,609, of whom 457 paid half a-crown; 3,441 paid a shilling, and the remainder were season ticket holders and members of the society. The demand for season tickets still continues.

Review.

Office Book for Architects, Engineers, Builders, Clerks of Works, &c. London: Atchley and Co.

HOWEVER great may be the affinity in some respects of the classes comprehended under the above titles, it is in others so very wide asunder, that to embrace in a single book a quantity of matter which should prove interesting and instructive to *all*, was in itself a task requiring no ordinary courage to undertake, and skill to accomplish, yet as far as we can judge by a somewhat hasty examination of the book before us, and without requiring at present in practice to seek its assistance, the author deserves congratulation for the successful attainment of his object. Curiosity—we trust a laudable one—prompts us to enquire to whom are we indebted for the authorship, which is recorded on the title-page after the anonymous fashion of "An Architect and Building Surveyor?" and perhaps without infringing on the privacy evidently desired to be observed, as to the identification, we may note a supposition—which as such will be taken by our readers—that it is not the work of a *junior* hand, but of one already extensively known as an author, and moreover an old and respected member of the architectural profession Besides a very comprehensive reprint of the Metropolitan Building Act, the contents embraces a chronological list of the most remarkable architects from the beginning of the 16th century down to the 19th, Sir Charles Barry being last on the list; tabular dimensions in feet of the orders of architecture, and of the principal English cathedrals, scantlings of floors, roofs, &c., a highly valuable series of experiments by George Rennie, Esq., C.E.,—never before published; various tables conveying information relative to building materials and land; lists of the members of the Institutes of Architects and Civil Engineers; likewise original chapters on the writing of specifications, and various other subjects. Embracing such a fund of ready referential and instructive matter in a very portable compass—which for such a character of work is undoubtedly an advantage—we infer with confidence that the classes for whom it is intended will, by a liberal patronage, amply reward the enterprise of the publishers and the ability of the author.

DEATH OF A DUBLIN EDITOR.—In the following terms is deservedly recorded the death of John William King, Esq., in the 57th year of his age, for upwards of thirty years Editor of *Saunders's News-Letter*, and which took place on the 23rd ult., at his residence, 9, Upper Camden-street:—"He was esteemed by all classes of society for his great personal and mental qualities, unswerving integrity, unblemished honor, a cultivated and gifted intellect, a generous and affectionate heart, and a steadfast and kind friend to all who merited his friendship. An honorable man, in constant intercourse with the public, and daily standing the tests by which human integrity is tried, he gained and retained the friendship of every rank, and, it may be added, he never lost a friend or made an enemy."

BRAY.—As previously noticed (in the *Irish Times*), a cutting has been made, in a straight direction, from the river down to the sea, whereby small vessels may approach the docks without incurring the delay and risk which previously attended their passage through the shallow course which the river naturally took previously to emptying itself into the sea. It is also stated that Mr. O'Reilly Dease has munificently offered to spend the sum of £10,000 on building a small pier and harbour, if the remaining portion of the sum required to carry out this most desirable object is subscribed by one or more gentlemen connected with property in Bray. The newly-erected bathing-place, belonging to Mr. Kelly, is now nearly completed, and will, doubtless, afford great facilities for sea bathing. It is, however, to be regretted that by the erection of a wooden paling for the purpose of screening the bathers from public view, an encroachment upon the right of the public to walk along the sea shore is thereby effected, and it may be remarked that, although the prescribed portions ot the strand within this enclosure is comparatively small, yet, as a principle, it must be considered objectionable, as it may act as a precedent for others to do likewise. It might also be stated that when the railing round the Dargan esplanade was first erected, several of the residents, fearing that they were going to be deprived of their access to the sea shore, broke down the railing in several places, and accordingly, by the wise directions and considerate thoughtfulness of Mr. William Dargan, who reclaimed this ground, directed that gates should be placed in each of these breaches, by which the public are now fully and freely admitted upon the sea shore.

PAVING THE STREETS OF CORK.—Block pavement is being adopted in the capital of the South; the experiment being first tried on St. Patrick's-quay to the Steam-Packet Office, and now at Winthrop-street. It is said, however, that, owing to a defective substratum, the former has presented inequalities. Our Cork friends, like ourselves, must profit by experience, and do better the next time.

The Dublin Builder.

VOL. III.—No. 38.

SCULPTURE AND ARCHITECTURE AT THE DUBLIN EXHIBITION.

RESUMING our notice of the works in the central hall, sculpture claims premier attention, the specimens contributed being peculiarly excellent, and, moreover, the mode of distribution adopted very judicious and proving a great acquisition to the general effect of this apartment. At the left of the entrance porch, a marble figure of a shepherd boy in recumbent attitude, and the last work of poor Hogan's hand, attracts a crowd of admirers, the pose of the figure being distinguished for that gracefulness and truthfulness to nature which were the great Irish sculptor's characteristics, and every feature is replete with beauty and sharpness of finish. "The youthful Saviour disputing with the Doctors" (No. 4), by Mr. James Farrell," and "Sleeping Youth' (No. 6), by Mr. John Farrell, aro both in marble also, and entitled to high commendation. Mr. Joseph Kirk, R.H.A., has plaster casts of his well-known "Children and dog;" a figure of "Sappho" (No. 18); "Boy and shell" (No 20); and marble group of "St. John and the Virgin" (No. 19); all of which may be ranked amongst the most excellent of that eminent artist's works. The same contributor has busts of Lady Langford, Dr. Bellingham, Sir Philip Crampton, Rev. Mortimer O'Sullivan, Sir Leopold M'Clintock, and Drs. Carlisle, Williams and Jacob, which, to the extent of our personal knowledge, are most faithful likenesses, and finished in artistic style. We may pause here to note, that "busts" form a large proportion of the sculptural subjects, those most attractive being—in addition to the above—of the Queen, Prince Consort, Earls of Carlisle, Clarendon, St. Germains, and Eglinton (Lord Lieutenants of Ireland), Mr. and Mrs. Dargan, all contributed by Mr. Dargan, and from the chisel of Mr. J. E. Jones; Lords Palmerston and Brougham by same artist, Dean Meyler by John Hogan; Sir R. Griffith, Bart., by C. Moore; Lady Eastlake and E. H. Baily, R.A., by the latter, &c. Alderman Roe, D.L., one of the committee, exhibits a very pleasing group of "Children and goat", by Bartolini of Florence. The plaster casts of a "Young Naturalist" (No. 31), and "Sleeping child and dog" (No. 49), by H. Weekes, A.R.A.; a colossal statue in plaster of the late Dr. Murray (Roman Catholic Archbishop of Dublin), by T. Farrell, and a group representing the death of Procuis, by Charles Papworth, London, with a few others, may be said nearly to comprise the remaining features of interest in this department. Previous to passing to the south gallery where the architectural drawings are arranged, we must not omit to mention, that "the great organ" at eastern extremity of nave, and built by Bevington and Sons of London, for the Paris Exposition of 1855, is a remarkably fine instrument, and its mellow tones on certain days and evenings of the week are diffused throughout the building to great advantage; also, that at the entrance to staircase are sundry casts of stone carvings, and a statue in Caen stone of the Virgin, very beautifully designed and executed by Hardman and Co. of Upper Camden-street.

Architecture essayed to hold her court with compatible dignity, but the arrangements for her reception are unpardonably deficient. Some of the *best* drawings contributed are placed in the *worst* positions, being either at the feet of visitors along the inner trellis-work of the south gallery and under a projecting shelf, or so high up that it is impossible, without the aid of a step-ladder, to view their features. Again, others, including designs by Messrs. Pugin and Ashlin, and Mr. Atkins of Cork, are literally set aside next the external trellis-work with *their backs* turned to the visitors, thereby rendering useless the labour bestowed by those gentlemen in their production. In the earlier period of the exhibition, consequent confusion and hurry might have been reasonably pleaded as an excuse for such, but it cannot *now*, seven weeks after the date of opening, and it is quite time that the committee should look to this, which we are willing to concede appears to be the *only* defect in the arrangement. Amongst the foremost exhibitors in this department are Messrs. Pugin and Ashlin, and Mr. G. Goldie respectively, whose drawings, though exhibiting widely different peculiarities, both in design and draughtsmanship, are remarkably excellent; and in conjunction with their names we may, perhaps, appropriately mention that of Mr. Lynn (Lanyon, Lynn, and Lanyon), another rising star in the Gothic hemisphere, whose design for St. Andrew's church, also exhibited here, and illustrated in this journal for October, 1860, deservedly elicited the highest admiration even from disappointed competitors. With the assistance of these gentlemen and other professionals who have made "Gothic" their particular study, we hope to see within a few years a complete revolution in the ecclesiastical architecture of Ireland. Mr. Ashlin, though associated with a gentleman of very high attainments, and, moreover, the son of the late A. Welby Pugin, is, as we learn, entitled to the exclusive merit for the design of the Irish works of that firm; for instance, SS. Peter and Paul's church, Cork, and the Augustinian church and monastery about to be erected at John-street in this city, with views of each of which we have already presented our readers. These, with photographs of various other works by the same gentleman, may be found at No. 268 in the south gallery, and those who appreciate effective outline drawing of designs exhibiting much gracefulness of contour and richness yet striking lightness of detail, should study the collection minutely, which embrace, to all intents and purposes, the works of a genuine and original artist. Mr. Goldie's adopted school is much broader and bolder, but his general grouping—especially in the design for additions to SS. Peter and Paul's, Phibsborough, which displays numerous chapels polygonally attached to the chancel, and somewhat after the manner of Linz cathedral, illustrated in present number—is exceedingly meritorious; nor is it less so in the drawings for church at Berne, of the same title, by this gentleman, which were awarded a gold medal in 1856. From the studio of Mr. Lane of Great Brunswick-street, architectural sculptor, is a recent acquisition of a Gothic monument designed by Mr. Goldie, executed in Caen stone and coloured marbles, and intended to commemorate the late Right Rev. Dr. Browne; which, with another in partly similar material to the memory of the late Rev. J. Mahony, P.P., and designed and executed by Messrs. Hardman and Co., are two of the most noteworthy features in the combined architectural and sculptural department. Returning to the gallery, the competition designs for St. Andrew's church by Messrs. William Atkins (who has judiciously amended the proportions of his spire), Rawson Carroll, and J. M'Curdy, architects, (of which we spoke previous to the decision), are all more or less distinguished for their excellence and their style of finish. Mr. M. B. Moran exhibits coloured drawings of interior of St. Patrick's (two views), evidently executed during that gentleman's studentship; also his designs for the churches of St. Augustine's, Drogheda, and Ballyvaughan, both of which, we believe, are in course of erection. The method of shoring adopted in the recent alterations at the Royal Bank, by Messrs. Courtney and Stephens, under the directions of Mr. Geoghegan, architect, is shown in an intelligible, isometrical view, and the latter gentleman also contributes his design for the extensive structure, about to be erected at Harold's Cross, for Blind Females, as already announced. Mr. Nicholl, of London, has some effectively-executed sketches of a cemetery chapel. Various architectural subjects are illustrated in numerous photographs; those by Mr. Grubb, Messrs. Nelson and Marshall, and Simonton and Millard, being fully equal to any we have seen elsewhere. Before closing this notice we may mention that the carved timber screen, executed by Mr. Boyle of Marlborough-street, for the new R. C. church of St. James, is a fair specimen of workmanship, and the rubbings of monumental brasses, selections of ancient metals, cartoons of stained glass windows and other articles, comprised in the collection of Messrs. Hardman and Co. are most creditable to the taste of that eminent firm. The card models of the new Molyneux church and contiguous buildings in course of erection at Leeson-street, after designs by Mr. Carroll, also of the clock-tower at Ardagh, by the same architect, are about the best we have seen executed in that material, and are very advantageously placed in proximity with the nave and under the south gallery. On the whole, the architectural department is rather better in this Exhibition, than it was in 1853.

THE CURRICULUM.

As proposed by the Institute of British Architects.

AFTER reciting that the examinations shall be arranged in two classes of "*ordinary proficiency*" and "*honourable distinction*" respectively, also the minor detailed regulations connected with the examination, the programme of the course is thus given :—

CLASS OF ORDINARY PROFICIENCY.—PRELIMINARY.

A measured sketch of some existing building, or portion of a building; a perspective sketch of some existing building, or portion of a building; a drawing of some ornament from the round or relief; and a perspective view with working plan, section, and elevation, of a design by the candidate for some building, together with its whole specification, and a portion of working details at full size.

Work to be done in the presence of the Moderators.

	Number of Marks.
Drawing and Design.—A design for some building, or portion of a building, in the style named by the candidate, the subject being given by the examiners	1,750
Mathematics.—Arithmetic, including the square root; algebra, including simple equations; Euclid, books 1 and 2; mensuration	500
Physics.—The elements of mechanical philosophy, and specially heat, light, and ventilation; the composition and resolution of forces	500
Professional Practice.—The principles of estimating; the laws relating to accident, agency, contracts, and dilapidations	500
Materials.—The general natures and properties of building materials, including their decay, preservation, quality, and strength	750
Construction.—The detail drawings and specification for such branches of the work suggested in the above-named design (including drainage), as the examiner may indicate	750
History and Literature.—An outline of the characteristics of the principal styles of architecture in Europe; the particular characteristics and history of any one style named by the candidate	1,250
	6,000

CLASS OF HONOURABLE DISTINCTION.—PRELIMINARY.

Original details at full size of work for wood, stone, marble, mosaic, glass, iron, brass, precious metals, textile fabrics, or embroidery; sketches or measured drawings of existing buildings or other subjects of design; a drawing of the human figure from the round or from memory; a subject of landscape gardening; an architectural subject in colours; a subject of decoration, in colour or otherwise; and some specimen of skill in modelling, or in carving, either in stone or in wood; specimens in four at least of these branches being necessary for the admission of the candidate.

Work to be done in the presence of the Moderators.

	Number of Marks.
Drawing and Design.—Such designs, drawings, and specimens of skill, in the style or styles named by the candidate, as may be thought needful to test his skill with regard to such preliminary work as may have been attached to his declaration: the subjects to be given by the examiners	600
Mathematics.—Algebra, including quadratic equations; Euclid, books 3, 4, and 6; plane trigonometry; conic sections. The candidate to name the extent of the examination that he thinks himself capable of passing	600
Mathematics and Physics applied to Practical Purposes. — Mechanics, statics, dynamics, hydrostatics, hydraulics, land surveying, acoustics, chemistry, electricity, galvanism, geology, and theory of colour. The candidate to name the portions chosen by him	400
Languages. — Translation from Greek or Latin, and translation from or composition in one or more living foreign language. The candidate to name the languages	300
Professional Practice.—Laws of property relating to buildings, including fixtures and rights of adjoining owners; arbitration	500
Materials.—Detail of the natures and properties of building materials, including materials which are not in ordinary use	400
Construction. — Complex construction in scaffolding, shoring, securing dangerous structures, pulling down work, alteration of buildings, foundations, walls, partitions, floors, roofs, arches and vaults, formulas for calculating the strength of materials	500
History and Literature.—The structures, architects, writers on practice and theory, and works illustrating styles or structures, in any style or styles named by the candidate	700
	4,000

The number of marks to be allotted by the examiners to their questions shall be 10,000; of which 6,000 shall be in the ordinary and 4,000 in the honourable class of the above programme, and also shall be as above noted,—Drawing and Design, ord. 1,750, hon. 600; Mathematics, ord. 500, hon. 600; Physics, ord. 500, hon. 400; Languages, hon. 300; Professional Practice, ord. 500, hon. 500; Materials, ord. 750, hon. 400; Construction, ord. 750, hon. 500; History and Literature, ord. 1,250, hon. 700.

Of these marks 3,000 in the ordinary class shall gain an acknowledgment of ordinary proficiency; if increased by 2,000 in the other class they shall gain an acknowledgment of honourable distinction; but the candidate shall not be held to deserve the acknowledgment of ordinary proficiency unless he obtains at least half of the number of marks allotted to the divisions of Drawing and Design, Materials, and Construction respectively, in addition to at least a fifth of the number of marks allotted to each of the other divisions in that class.

In order to secure unquestioned impartiality in the examination, each candidate upon complying with the form of application shall receive from the honorary secretaries of the institute a paper containing a number which he shall employ instead of his signature to all work during the examination. Such number is to be so placed that it may be easily removed by the moderators, who shall substitute their own sign as hereinafter provided. A particular sign shall be affixed by the honorary secretaries to the drawings, specification, and objects of skill submitted with the declaration, so that the authorship may not be known to the examiners.

The examination shall be superintended by two moderators, one of whom must always be in the room during the days of examination. Their function shall be to supply the question papers; to see that the intentions of the examiners are fulfilled; to explain the objects of the questions; to take care that no assistance be given by one candidate to another, and that no other persons than the candidates, except themselves, shall be in the room or hold communication with the candidates during the hours of work; to allow no other books to be used than those above permitted; to verify the production of the work in the room by each candidate; to affix to each work produced in their presence by each candidate a distinctive and numerically different sign; and to supply at the close of each portion of the day to the honorary secretaries such productions, with a register of the signs, accompanied by an index, showing the number designating the candidate. The moderators shall be remunerated by the institute in regard of their services at each annual examination.

The examiners shall furnish to the honorary secretaries, in time for the opening of the examination, sealed notes, marked as containing in each the subject for work in the division of drawing and design in the class of ordinary proficiency. The examiners shall meet on the first day of examination; and upon consideration of the drawings produced in the presence of the moderators during the day, as well as of the drawings and specimens of skill attached to the declaration, shall furnish to the honorary secretaries notes of the branches of work for which the respective candidates shall be required to make the detail drawings and specification in the division of construction in the class of ordinary proficiency, and the subjects for which they shall be required to produce specimens of their skill in the division of drawing and design in the class of honourable distinction. At the same time the examiners shall furnish to the honorary secretaries sealed envelopes, marked as containing separately the papers of questions and requirements for each remaining portion of the examination. The contents of those papers shall be as far as possible, uniform for the candidates; and shall be multiplied only in manuscript or lithography, under the immediate superintendence of the examiners. The honorary secretaries shall enclose each paper separately in another envelope, on which they shall mark the class, division, and number of the candidate for whom it is intended, and these addressed envelopes shall not be supplied except through the moderators to the candidates at that portion of the examination for which each is intended.

As the following articles must be ready for return on the last day of examination, the examiners at the same time, or by adjournment, shall take into consideration any degrees, diplomas, certificates, or medals obtained from any society of architects (approved for this purpose by the Council of the institute) whose president or honorary secretary, at the time when such distinction was adjudged, shall have been a fellow of the institute, or from any royal academy of art, or from any university in Great Britain, as well as any printed literary productions, which may be submitted by the candidate; and the designs, drawings, specification, and specimens of skill attached, as hereinafter required, to his declaration; by granting to each group of such objects any number of marks not exceeding two-thirds of the number allotted to the division or divisions appropriate thereunto in the class or classes in which the candidate presents himself.

Within seven days of the last day of examination, the examiners shall furnish to the council their report, stating the number of marks granted to the above-named objects in each division, and to each sign affixed by the moderators to the works produced before them by the candidates.

Upon receiving the report of the examiners, the hon. secretaries shall form a list of the numbers given by them to the candidates, with a schedule of the appropriate signs substituted by the moderators, as well as of the sign chosen by the hon. secretaries themselves for the designs, drawings, specification, and specimens of skill, submitted by each candidate; and shall affix to such list and schedule the marks granted to each moderator's sign, and to each previously-obtained diploma, certificate, medal, literary work, design, drawing, specification, and specimen of skill, so as to ascertain the marks due in each division to each candidate's number: and their report thereof shall be delivered to the council within a fortnight after the examination.

The council shall deduct from any marks granted by the examiners to previously-obtained diplomas, certificates, medals, literary works, designs, drawings, specification, or specimen of skill, the whole number of marks gained in the appropriate division or divisions in presence of the moderators, if less than the half of those above required for such division or divisions of the class or classes in which the candidate presents himself.

The total number of marks then due to each candidate's number shall thereupon be calculated by the hon. secretaries. Should the marks not amount to a number sufficient to pass the candidate, no further notice shall be taken. An alphabetical list of candidates successful in the class of ordinary proficiency, and a list of candidates successful in the class of honourable distinction, shall be publicly exhibited at the institute within one month after the examination. The number of marks gained by each candidate shall not be communicated to any person.

All diplomas, certificates, medals, literary works, drawings, specifications, and objects of skill, submitted with the declaration, shall be returned to the candidate at the close of the last day of his examination. No drawings, papers, or other object produced as work in the presence of the moderators during the examination shall be returned to the candidate.

Fees.

Each application for an acknowledgment of ordinary proficiency must be accompanied by a fee of two guineas; and each application for an acknowledgment of honourable distinction must be accompanied by a further fee of one guinea.

The committe have the honour of making the following recommendations:—

That the rules of the institute as to students and their prizes be taken into consideration by the council with a view to the formation of some system that shall lead educationally towards the voluntary examination now instituted.

That if fewer than six days be devoted to any examination, the examiners should be at liberty to vary the distribution of time prescribed in the regulations.

That the council should be empowered to fix for the first examination a smaller number of days and a less proportion than that above arranged of marks necessary to pass; and to raise for the second examination the proportion of such marks to an average between that of the first and that provided in the regulations, which shall be used for the third.

That, after the third examination, the council should request the examiners to report any change that they may deem desirable in the system.

WHY STEAM TRACTION IS NOT MORE GENERAL.

IT is certainly not very difficult to account for the long delay in the employment of steam carriages, both for passengers and the haulage of goods on the turnpike roads, as a substitute for horse-power. The attention of nearly all the scientific men and capitalists having been so entirely absorbed in another species of conveyance, the subject of steam traction on common roads has been comparatively little attended to, and this may in some measure, perhaps, help to elucidate the "why" it has made so little progress, when compared with other modes of conveyance.

The greatest, the most determined, and, at the same time, the most contemptible obstacle it has had to contend with, is *prejudice*; than this I know of none greater, except it be *impossibility*.

Engineers, as a body, seem to have been wrapped up in the belief than it was "impossible;" and they have not only "believed" it to be so, but have spread and propagated this opinion, with great zeal and perseverance.

Unfortunately, however, for the traction engine, its chief advantage, namely, its *enconomy in application*, becomes a disadvantage to an important and influential class of persons who are useful in promoting speculative undertakings; because such large profits as are made on locomotive railways, in the shape of law expenses, per centage, &c., cannot be made out of them by lawyers and engineers, from their simplicity and facility of employment, therefore we find all such persons advocating railroads.

Next, the *excessive tolls* on steam carriages, imposed, no doubt, from a determination on the part of the trustees to obstruct, as much as possible, the use of steam as a propelling power, arising from their having the erroneous idea that it must be more injudicious to the roads than traction by horse-power, has acted in such a manner as to totally prohibit their use in some parts of the country, if put on with a view to making them a profitable investment.

We can all remember how the late Dr. Lardner, who has been considered a great authority by some people, stated, in a lecture delivered by him in 1836, that, as for "making a voyage directly from New York to Liverpool, it was, he had no hesitation in saying, *perfectly chimerical!* and they might as well talk of making a voyage from New York or Liverpool to the moon." In spite of this dogmatic dictum, in less than two years the Great Western crossed the Atlantic direct; but I have not yet heard of the easy voyage to the moon.

To any one attentively reading the report of the select committee on steam carriages, which sat in 1831, and weighing well the facts then elicited (now nearly thirty years ago) as to what was *constantly being done in actual and regular work*, even at that period, when the superb tools, and beautiful and accurate workmanship of the present day, were, as one may say, quite unknown, the question of why there should have been no attention given to this subject since, must inevitably suggest itself.

To say that steam cannot be applied for traction on common roads, because a few absurd acts of parliament allow of prohibitory tolls being levied on them in some parts of the kingdom, is about as wise as to say that a steam engine could not be made to work, if Government were to put such a tax on coals as would prevent their use except by the richest owners of such engines; and this is precisely the case with steam traction at the present moment.

The idea of a steam engine drawing a heavy load at a speed of twelve miles per hour, was received with ridicule by the most "eminent engineers" of the day.

Sir Charles Dance said, when speaking of the opposition he experienced whilst running his steam coach from Gloucester to Cheltenham,—"That obstacles are always thrown in the way of a new invention, particularly if it is likely to produce important results, from the prejudices of those who have not fairly examined its merits, and by the opposition of others who expect their interests will be affected by its success. Thus, objections have been made to these carriages by various descriptions of persons, viz., country gentlemen, trustees of roads, farmers, coach proprietors, coachmen and postboys, &c. Some said they would be injurious to agriculture; others, that they would destroy the roads; others, that removing horses would ruin the farmers; and others, that it would ruin the coach proprietors, and throw all the hands employed out of work."

Sir Charles Dance's engineer (Mr. Stone) observed,—"This is a very bad place to commence on. We are surrounded with prejudiced people; agriculturists, coach proprietors, coachmen, stable-boys, and others directly or indirectly connected with them; these, *with the old ladies* of Cheltenham, I assure you, offer a formidable opposition to any innovation."

It seems that a great many "old ladies," some of whom do *not* wear petticoats, and *do not always belong to Cheltenham*, are generally to be found opposing anything new, *whether they understnnd it or not*, and are just as troublesome in the present day as they were in 1831. If some benevolent individual would provide a "retreat" for those dear old creatures, so as to keep them out of mischief, what a blessing it would be.

The proposition for the use of steam power on the Liverpool and Manchester Railway, excited the alarm of a great number of the shareholders. At the request of the dissentients, two "eminent engineers," the one engaged on public works, and the other *in the manufactare of steam engines*, "investigated" the subject, and, in "a very able document," proved most clearly that Mr. Stephenson's project was *practically and commercially inexpedient*.

Mr. M'Adam, in his evidence before the committee of the House of Commons, in 1859, says,—"Up to the year 1857, I was perfectly convinced that locomotives could never travel upon turnpike roads; but I was then induced to *see* how they were constructed with what is called an endless railway; my curiosity then led me to look at it, and when I saw it, I was so satisfied with the mechanical construction of it, that I saw the company and requested that they would give me an opportunity of travelling with an engine, so that I might see the effect of it, both as to draught, and to its effect upon the road. They allowed me to do so; and I went to Thetford, and accompanied the engine with a load of some thirty tons, I think, and brought it into London. *It was then in its infancy.* I promised the company when I went down, that I would keep a log of the proceedings of the engine, and let them have a copy of it. I had previously gone much into the subject with several gentlemen who had suggested engines years before. I had talked a great deal to Mr. Brunel about them, and the conclusion which I always came to, and which Mr. Brunel said was a correct one, was, that the resistance of the road to the engines, which were then suggested, was so great, that there would be no balance of power left to draw the carriages so as to pay.

The great mistake which the late Mr Boydell made, was in attending *first* to the introduction of his engine for *agricultural uses*, and that *so exclusively as almost to prevent its adoption for any other purpose.* He constructed them *as cheaply as possible*, and followed that *exceedingly objectionable practice of attaching the cylinders and working gear to the boiler*, hence those who heard of it simply as an agricultural implement, were slow to believe in its utility and great advantages for general haulage purposes; but now that this economy and utility, *under very great disadvantages* (whilst, in the words of Mr. M'Adam, "it was then in its infancy"), have been amply proved and exemplified, there need be no further doubts or uncertainty as to its working, or of its great economy and advantages for traction purposes.

The engines are now being made in a very proper manner. The boiler is *entirely independent of the working parts*, which are attached to a strong plate iron framing, similar to that of a locomotive engine, so that *no strain is thrown upon it*, thus rendering them what they should be, road locomotives. The trains of waggons drawn by these engines are now so arranged that, by means of chains and screw couplings, each waggon is drawn *direct from the engine*, without the strain of the draught being allowed to pass through all the waggons in front of the one drawn behind them, before it reaches it, thus doing away with a great deal of wear and tear, which, with a heavily loaded train, was found to be very objectionable. If, in sending these engines abroad, *proper men* go out with them, and a *correct statement of the circumstances under which they are to be worked has been furnished, so as to enable these requirements to be met*, I am convinced that they will give very satisfactory and profitable results.—*Steam on Common Roads.*

IMPROVEMENTS AT HOWTH.

THIS attractive locality is gradually progressing in public favour. During the last year several commodious houses have been built. The noble proprietor has erected at the corner of Balscadden Bay hot and warm baths, which will shortly be opened, and which will be a great convenience to invalids frequenting this now favourite outlet of Dublin. The path cut round the cliffs on the east side of the hill still attracts tourists and others in search of bold and picturesque scenery. Those who have not yet visited it can have no conception that within thirty minutes' drive by rail from Dublin such romantic scenery can be enjoyed, and there is no doubt that many who do visit Howth return without having seen its chief attractions. This arises, probably, from the difficulty of access to the eastern and southern portions of the promontory. By our advertising columns, however, our readers will find that this difficulty need no longer exist, as Messrs. O'Neill, the enterprising omnibus contractors have placed a light and commodious long car to ply from Howth and Sutton stations. We trust that this effort will be acknowledged by the public in such a manner as to induce the proprietors to continue so great a convenience. By its means the people of Dublin may quit the heat of the crowded metropolis, circuit the whole of the hill, and return with increased vigour, and certainly with renewed appetite, within the space of three hours. At the present moment the herring fishery is not the least interesting feature in the scenery. A vast number of fishing craft cover the sea as far as the eye can reach, and the daily arrivals and departures of these tiny vessels with the traffic of the English agents, who buy up the produce of the fishery, give to the quay a most animated appearance. A large tract of the southern portion of the hill has lately changed hands, and we understand that building on an extensive scale will shortly be the result. The liberal policy of the railway company in granting free tickets to builders of houses along its line will doubtless contribute to the more speedy accomplishment of this result.—*Freeman.*

There is as much iron ore in the Lake Superior district alone as could supply the whole world with iron for centuries. This ore extends over a large tract of country, and sometimes rises into hills several hundred feet high. It contains from 75 to 80 per cent. of pure metal of excellent quality.

COLUMN FOR CRAFTSMEN.

THE PLASTERER.

WITH the craft of the Plasterer is, to a considerable extent, associated, both the artistic and the utilitarian condition of modern architecture; indeed in the former capacity, during the present century at least, his resources have been tested to an uncommon degree, and that which our forefathers performed by the aid of the stone-cutter, has now become the peculiar province of the former, where "economy is the order of the day." Very much of the excellence of plastering work depends on the skill and care with which the component materials for internal or external works respectively are mixed into a mass, as well as the actual quality thereof; and those most in use are cements of various kinds—Roman and Portland being the chief—Plaster of Paris, Scagliola, lime and sand, &c. In ordinary internal work the Plasterer's duty mainly comprehends the rough casting, floating, and coating of chief walls, the lathing, floating, and coating of ceilings and stud partitions; but where ornamentation is desired, as in the case of enriched entablatures, centres, &c., extreme delicacy of manipulation and beauty in design may be brought into requsition, and with a facility not always presented by the employment of a natural stone. Good plastering is easily discernible from bad, being remarkable for smoothness, regularity, solidity, and absence from cracks or other imperfections. The measurement of ordinary wall plastering, partitions, and ceilings is by the square yard of nine feet, but cornices are taken superficially, their members being girt to obtain their width, or sometimes by the lineal foot; an extra allowance being made for each mitre in angles or on projections. Lime enters very largely into the composition of plaster and a very durable cement may be formed—ordinarily termed "compo"—for external work by a simple admixture of that material with good sharp sand. By a judicious use of this simple material, structures—domestic especially—may be made very architecturally pretensions, and in various respects it is certainly preferable to indifferent cement work. Plaster of Paris is so called from the genuine article being found in the hill of Montmartre, one of the environs of Paris; however spurious imitations are in constant use, and those about to apply it to building purposes should make sure to purchase at a respectable house, as affording a guarantee at least to some extent. Ornaments to be cast in plaster must be previously modelled to design. When the clay model is finished and subjected to the atmosphere, a wooden frame is adapted to it, and filled with melted wax, which, on cooling, presents a fac-simile of the model, and by repetition of the process casts *ad infinitum* may be produced. Various patents have been obtained from time to time for improvements in stucco material and cements, that known as "Caen cement" being the nearest imitation of marble combined with permanency. We had occasion in a former number, in describing Mr. Pim's new house at Monkstown, Messrs. Carmichael and Jones, architects, specially to note some columns beautifully executed in this material by Messrs. Hogan and Sons, plasterers; and it is much to be regretted that its expensive character precludes its more general use. Scagliola is a distinct branch of this art, and was invented in Italy, but there are many tradesmen who never witnessed "an Italian sky", proclaim their competency to produce a material, called by same name, of superior description; hence the very objectionable imitations so frequent. The Romans had an art of rendering their plastering, as evidenced in the remains of their aqueducts, much more durable than ours; however we must admit that several of the legitimate tradesmen in that line can produce a very excellent quality of work. The roofs of houses and floors of rooms, at Venice, are covered with a sort of plaster, we presume, corresponding with our Seyssel Asphalte—strong enough to resist the sun and weather for ages. Excepting in commercial housefronts, the public buildings of Dublin display but little of the Plasterer's art, the majority of them, we are happy to say, being, in the much more imperishable material of granite, Portland or limestones; very many, however, of the mansions of the nobility and gentry are faced with cement, and, in numerous instances, display excellent architectural effect In England, with certain exceptions, but London especially, cement is the prevailing material, and the workmen generally have acquired much skill and proficiency in its application. Too frequently, however, the Plasterer's art is made accessary to the concealment of defective workmanship and materials by his brethren, the mason and bricklayer; and modern building capitalists, also, sometimes scruple not to employ it in cheating both themselves and their tenants into the assumption that a neatly plastered exterior ensures a comfortable and safe abode. In London, Manchester, and other English towns, this principle—or rather want of it – is carried out with a vengeance; and two and three story houses are run up there with single brick external walls of the worst materials and workmanship, thinly plastered with cement to deceive the eye.

THE DARK AGES OF ARCHITECTURE.*

(Continued from page 553.)

THE course ran by the Renaissance in England we may take up at the period of Elizabeth, when, the political troubles becoming settled, men were able to turn their attention to art and architecture. For a long time the traditional construction and plan and the mullioned windows held their ground, but coarse, bad, pagan mouldings were introduced as improvements and an equally course sort of adaptation of French ornament was developed into a convenient store of precedents for the dark ages. Stone was made to assume the appearance of cardboard, cut and curled, and monstrosities of every description were delighted in.

This Elizabethan style was that which in England combined the features of the decaying Gothic with those of the revived Classic, and though less refined in detail than the contemporary work in Italy and in France was, perhaps, the most vigorous and picturesque. In time, however, here as on the continent, the Classic element conquered in the struggle, purity of style and correctness of proportion in imitation of Roman precedents were the objects architects set themselves to attain and so were ushered in "the dark ages." Yet many revered names there are among these architects, from whose reputation I desire in no degree to detract, I only lament that their lot fell not in better times. What I seek to show is not that Inigo Jones, Wren, Hawksmoor, and Vanbrugh were not great men, but that they were all the greater for having wrought out so much that is grand and graceful from elements lacking these qualities themselves, and which, when their genius was withdrawn, resolved themselves into the monotony and lifelessness inherent in them. Of the heroes who led this forlorn hope, Inigo Jones was the first and best. The proportions of his design for the portion of the palace at Whitehall which was carried out are as generally admired as they are known; but as it has been used as a precedent for myriads of acrobatic pilings of orders above orders, and breaking the entablatures over to give them some appearance of utility, we need the less regret its not having been repeated by himself.

It is strange that one who so thoroughly appreciated the importance of purity and consistency in the style in which he worked himself, could have so little regard for the same qualities in other styles, as to have built to the old Gothic Cathedral of St. Paul's an incongruous Pagan porch, and refaced the transept end in a manner which, fortunately for his reputation, lives only in tradition; this also has been much lauded for its proportions, but from the representations of it that exist, I confess I cannot regard it with enthusiasm; that it was, however, simply barbarous as an adjunct to a Mediæval cathedral, we may, I think, assume, from a comparison with the effect of the alterations made by another architect, who was not otherwise than a shining light among the constellations of the dark ages, to another of our cathedrals—I mean those made by Wood of Bath, at Llandaff. Now, the works of this architect at Bath are by no means bad of their kind, and would not lead us to suppose that he could have been guilty of the atrocities which I fear can with too great truth be laid to his charge, any more than we should believe upon less certain documentary evidence that Inigo Jones had maltreated in a similar manner the façade of St. Paul's. Of these alterations to Llandaff, I have enlarged the illustrations given by the Bishop of Llandaff in his work upon that cathedral, showing the design "as it was proposed to finish it," and we learn from contemporary letters quoted by the bishop that it was proposed to pull down the two western towers and raise one over the front of the nave, as seen in the design, and "then to finish with a rustic porch." Most fortunately the solicited contributions of the faithful were not sufficient to enable them to realise this conception. We learn, however, that they succeeded so far as to insert "windows framed with wood of another sort, which will come vastly cheaper and look as well as the Gothick," and to finish the interior in "stucko," to their own satisfaction; for the same letter states "that the church on the inside, as far as 'tis ceiled and plastered, looks exceeding fine, and is a very stately and beautiful room."

Sir Christopher Wren had by no means the same artistic feeling as Inigo Jones, though greater mathematical powers and science in construction. As an architect he had golden opportunities in the rebuilding of the city of London after the fire of 1666, and he had the genius to grapple with it in an engineering point of view, and architecturally also so far as it was possible in the style with which unfortunately he had to deal. The manner in which he did this has been so lately thoroughly set forth by my friend, Mr. Kerr, that I need not here enlarge upon his works—the more so as my purpose of showing the thorough intractability of the style which even his talents could not overcome, is rendered self-evident by the following remark, which I venture to quote from that gentleman's lecture on the subject. Speaking in reference to the double dome and screen-wall of the nave of St. Paul's, he says, "They are, at least, the makeshifts of marvellous ingenuity, and still greater artistic power; they are falsities it is true, but they are those of a master mind; they are no common vulgar fibs, but great grand lies of genius."

Now a style that necessitates lying, which requires "marvellous ingenuity and still greater artistic power" to conceal awkward roofs and buttresses at the cost of making one half a building a huge sham to render the other half tolerable, is I think fairly to be said to belong to the dark ages; and that Mr. Kerr's estimate of the makeshift is a correct one, my reminiscences of a church in Venice, by Palladio, the roof and buttresses of which had not been concealed by such ingenious means, yet which seemed to call loudly for a similar friendly shelter, will enable me to corroborate.

The group of the city spires and the towers of Westminster Abbey are conceived and massed with great talent and a true feeling for what is grand and picturesque, yet with such horrible details, such as a substitution of the queerest pots and jars in the place of pinnacles, that it is necessary that one should half shut one's eyes to enable one rightly to appreciate their outlines, and as such are after all borrowed from the older mediœval steeples. One would really rather open one's eyes and see true Gothic steeples with proper details as well. The thin leaden spire of St. Martin's Ludgate-hill, is as a composition rightly placed in contrast to act as a foil to the dome of St. Paul's but in itself is surely no beautiful object.

Time fails me to describe other of Wren's works, or those of his successors who took up his mantle—of Hawksmoor, Vanbrugh, or Chambers, and the rest of the band of that forlorn hope, despite whose efforts architecture sank down gradually to the uttermost depths of degradation, when the ideal of associated English homes were the monotonous, dreary walls of Harley-street and such like, wherein sham reigned triumphant from palace to terrace in plan, construction, and decoration alike. Art and architecture became absolutely dark or dead, and copies of the parodies of the works of other days were all that was attempted. The only merit that can be claimed for them is, as usual, that of "proportion," an element certainly so essential that there can be no architecture without it, yet one, the exclusive praise, of which is a sure sign that there is little else to praise, just as the most sarcastic thing you can say of a man is to laud too highly his good nature, the meaning of which usually is to suggest doubts as to his sanity. To wade through the works of this dreary period either for the purpose of description or reprobation would be a task the uncongeniality of which, together with the undue length to which I find I have extended what were intended to be prefatory remarks, must be my excuse for now shirking what might appear to be the subject I really undertook to treat upon. I cannot but own, however, that it is with some satisfaction that I find the ordinary limits of a paper reached without the necessity of an inquisitorial journey into the city for examples to criticise. In the first place, I am spared the necessity for becoming spiteful; in the next, a chilling reminiscence of the interior of St. Paul's indisposes me to revisit it until it shall have assumed, as we trust it soon may, all over, and not here and there only, in the able hands of our Honorary Secretary for Foreign Correspondence, richer hues, akin to those of St. Mark's at Venice, since we are promised the use of the statue materials for its decoration. Then it might have become incumbent upon me, however disagreeable, to sketch and measure the extraordinary sham portico set up by Sir John Soane at one end of the court of the Bank to match, according to a favourite notion in the dark ages, a real one at the other. Again, I had feared that it would become necessary to study the interior of Sir John Soane's Museum, which otherwise, not having a fancy to become a candidate for residence in that strange eclectic curiosity shop, I had been content to seek amusement from the illustrated catalogue of its contents. I had also been afraid that it would be necessary for me to search and see how far I could agree or not with Lord Palmerston in his admiration of the several buildings which he was pleased to call Italian, and as the Horse Guards was one scheduled in his list, the only pleasant feature in which, to my mind, are the sentries in their uniform, who sit like gorgeous personifications of "Patience" inside instead of "upon a monument," the prospect, I assure you, afforded me slight satisfaction.

I find myself also obliged to omit all consideration of the interesting question of the iconography of "the dark ages," and all research into the origin of the type of cherubs who smile and weep in convenient alternation upon keystones, or into the meaning of the lions' heads, whence flowers dangle to fill up panels, or into the purpose of the sundry pots that affect all high places. The question also of the polychromy of the dark ages, I find myself obliged to omit or postpone, unwillingly, because upon this subject much instruction might be drawn as regards what should be avoided. The main ambition on this point seems to ha [illegible] keep on the safe side; and safe colours which could do no harm, and whitewash, reduced the interiors of buildings to a similar condition of monotony to that we have remarked in the exteriors.

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* From a paper read by Mr. Seddon at Royal Institute of British Architects.

However, about the close of the last century, there appeared to be commencing a salutary "shaking among bones" (to quote again the phrase of Mr. Ruskin) in an artistic as well as in a political sense, and though it seemed for some time difficult to discern whether there were real evidences of resuscitation among them, and whether such shaking were likely to bring any flesh upon them, we, at this period of time, are able to perceive (at least we flatter ourselves so), that through all the restless changes which have ensued in the successive fashions of copyism since then, there has been beneath the outer garb of Greek and Elizabethan, of Roman, Florentine and Venetian, Renaissance or Mediæval, revived styles which have met the eye, an undercurrent of healthy struggling to attain independence. Just before the Exhibition of 1851, in another lecture, I asserted my belief, in opposition to that of the author above quoted, that not bones alone were being shaken, and that we were upon a sure, if slow, route to progress. The coming Exhibition of 1862 will, it is to be hoped, by its contents, if not by its carcase, afford another favorable opportunity for taking stock, and another starting-point in the road of progress.

What colors are the best to fight under in the future struggle for the advancement of architecture, in which we shall be all engaged, I must leave to the conscience and calm consideration of each.

As to what style may be the best to develop into a healthy, manly, Christian, English, Victorian architecture, I presume not here to dictate, since we differ in opinion on the subject.

It is well that we think not all alike, and are not content, as in the dark ages, like sheep, to follow blindly their leader in all things. But let us fight out the battle, if battle it is to be, in a legitimate and friendly way, without deputations and special pleading on the one hand, yet without fear as to throwing stones because both parties live in glass houses. On the other hand, let each be thankful to the opposing side for pointing out its weak places and turn manfully to repair them. There are plenty of what my friend Mr. Burges calls unnecessary "fizzings and crockets" and sham buttresses, as well as vases and rustications and sham pediments, which may be offered up in a holocaust together, while there is equal room for each party to endeavour, by practice, to prove what their champions have been so vehemently asserting—viz., the capacity of their favorite style to admit the highest art in painting and sculpture, and thus, whichever side conquer in the friendly struggle, both may rejoice alike, and the monotony and follies of the "Vernacular" style, as Mr. Scott calls it, which has descended to us as a legacy from "the dark ages," be left to the speculating builders who delight therein.

THE INSTITUTE EXAMINATION SCHEME.

The scheme of "regulations and curriculum" for a voluntary architectural examination, prepared by the committee of the Institute, and which will be found *in extenso* in our impression for last week, has been at last laid before that body. A special general meeting was held on Monday evening, the 1st inst., to take it into consideration, at which the proceedings were not of a character possessing great general interest.

The nature of the meeting may be briefly summed up by saying that the report was received, a protest virtually entered against anything like a "diploma" as connected with it, and the matter was referred to the profession at large for consideration. This, in fact, was the intention, and will be the force of the resolution passed, which postponed the further consideration of the question till some Monday in November, and made the committee responsible for endeavours to procure in the meanwhile the opinion of other architectural societies.

Deprecating as we do any needless delay, and regretting that this matter was not brought forward at an earlier period, so that if possible a conclusion might have been come to at the present moment, we cannot but admit that, matters being as they are, the only proper course has been taken. To have decided upon a question so vitally affecting the interests of a large part, nay virtually of the whole of the profession, at a thinly attended meeting of the institute, on a hot evening in July, and within a week of the first publication of the details of the proposed scheme, would have been unseemly, nay preposterous; and yet, unfortunately, owing to previous delays, the postponement of the question now must necessarily remit it till after that time of year has passed when no societies are in session, and when many members of the institute are out of town, thus of necessity driving it on to the commencement of next winter. This is what has been preferred, and in order to facilitate as far as practicable the discussion of the question, we propose to make a few observations upon the nature and scope of the proposals—premising, however, that if practicable societies ought to discuss it at once, and not postpone the consideration of it till they reassembled after their recess. There will be a good deal of time necessarily consumed in discussion, and there will be little chance of the suggestions sent to the committee being embodied by them or considered by them with the care they deserve should those suggestions be only received at the last moment before meeting the institute.

The Architectural Association, whose session closed last week, propose to hold a special meeting for the consideration of the scheme, an example which other societies will, we trust, be ready, if necessary, to follow.

Any of our readers looking over the paper we placed before them last week, will perceive that it consists of, first, a set of regulations; secondly, a list of books; and thirdly, a series of forms. And they will do well to bear in mind that, in the instructions of the institute to the committee, it was a leading feature that the examination should have an educational character—that is to say, as was explained at the present meeting, should be of a character to test the education of the candidates and to prove that they are educated men. As a consequence, should the examinations succeed, their result will be to raise the standard of professional education. Bearing this in mind, let us apply for a moment to the consideration of the regulations forming the first part of the scheme.

The nucleus of the regulations is a list of subjects in which candidates are to be examined, and which, it will be at once perceived, is divided into two classes—the one called the class of "ordinary proficiency," the other that of "honourable distinction." In either class the student seeking to enter his name for examination is required to send in a certain amount of preliminary work, and is permitted to send any previously acquired certificates or other distinctions, literary works, or any specimens of skill in his profession. It is open to candidates above the age of thirty to present themselves for examination in the class of "honourable proficiency," without going through the previous examination, but not to younger candidates. It is not, however, necessary that any younger candidate presenting himself to undergo the preliminary examination should immediately proceed to attempt to pass the other. He may postpone that till another year. We had forgotten to state that it is proposed to hold an examination once every year, in the month of January, so often as there are five or more candidates for admission into the class of ordinary proficiency.

A glance at the subjects will show that the list is a pretty comprehensive one; it is capable, in the hands of examiners who are disposed to be severe, of affording an opportunity for a most trying examination.

The subjects in which an ordinarily proficient youth ought to be able to show himself educated are, in the opinion of the committee, drawing and design, mathematics, physics, professional practice, materials, construction, and the history and literature of architecture. To show himself worthy of honourable distinction, he is to prove his more extended acquaintance with the same branches and with languages. For the first-class he must present as preliminary work certain drawings, including a complete design, specification, and a portion of the working details for some building. For the second he has a very wide range in which to submit specimens of artistic skill and power of design thrown open to him, and out of twenty named varieties of work he is required to produce at the least specimens in four, to be his own design and handiwork. We ought to add that in both examinations the candidate will have, by the regulations, the advantage of selecting that particular style in which he considers himself most at home, for the work he has to do, and upon which he is to be examined.

The value attached to the various branches is estimated by marks, of which the total number is 10,000, 6,000 being given to the esssential and 4,000 to the honourable class. Half this number must in each case be obtained to entitle the candidate to rank among those that pass, and the further provision occurs that in the class of ordinary proficiency the candidate must obtain some marks in each division—namely, he must obtain at least half the marks allotted to the divisions of "Drawing and design," "Materials," and "Construction," respectively, and at least one-fifth of the marks allotted to each of the other four divisions out of the seven included.

No such limitation occurs in the second division, the candidate being left to get his marks in all or some of the branches as he can—a method which we think it would be wise and advantageous to pursue in both classes.

No graduated *placing* of candidates appears to be contemplated; those who pass will be named in alphabetical order, and no arrangement is made for denoting the rank they took. It is even provided that "the number of marks gained by each candidate shall not be communicated to any person."

Here it may be right to observe that it is recommended—and no doubt the recommendation will be attended to—that for the first year only half the proposed numbers of marks shall be essential; for the second year the standard shall be raised half-way between that of the third and first years; and that in the third year for the first time the full standard shall be adopted; and then—these being considered, in a sense experimental years—the working of the scheme shall be reviewed, and it shall be considered whether any and what modifications are required.

The other regulations provide for the length of the examinations, which are not to exceed a week for the two classes, and the mode of conducting them. This is to be by written answers, and drawings, and not at all by personal questions and answers, the examiners never seeing the candidates, and the arrangements being under the control of two "moderators," who are to be present during the whole time, and to see that nothing unfair occurs.

The papers of questions are to be, as far as possible, uniform for all the candidates, though being, however, framed in conformity with the preliminary application that each sends in, they will of necessity vary to some extent.

A very large portion of the regulations is taken up by a series of precautions against the possibility of collusion or favouritism, which are all blended into a scheme so complicated that we strongly doubt the possibility of its being efficiently carried out. Mr. Kerr assured the meeting that he had the highest possible opinion of this portion of the scheme, but that he was not perfectly certain that he understood it!

The plan upon which this portion of the thing proceeds is something to the effect that the examiners, the moderators, the candidates, and every other person connected with the work, are to indicate the different portions of work by separate signs, that the honorary secretaries only are to know to what person the signs belong, and that the examiners, having tested each marked parcel of work separately, and given it the number of marks they consider due to it, the secretaries, by adding up the totals which one person has acquired under several different signs, marks, or numbers, will see if he has or has not been successful in getting as many marks as are required to pass him. The proposal is, as we have observed, very complicated. It is right in principle, and resembles somewhat the precautions taken with the same object in view in other examinations; but we fear it might lead to blunders in the carrying into execution, and, of all things, a mistake here ought to be impossible. Students ought not to be exposed to the possibility of an error of allotting the marks that have been gained to the person whose work obtained those marks; and on this ground, if on no other, the most rigid and jealous scrutiny ought to be bestowed on the regulations for the conduct of the awards.

The list of books appended forms a feature of great interest and great value. We know of no authoritative list of the best books on architecture in the English language except this; and here they are with marks affixed to them denoting the subjects for which they are specially to be consulted. The Architectural Association are, we hear, proposing to form a library. We strongly recommend that they should make it a first object to secure the entire series of these books. This list is, however, open to emendation; a few books might with advantage be added in exchange for those on the list, and there are some few which we do not see here that have quite as great a claim to be there as any actually included.

Lastly come the forms. They are preceded by a statement of the fees proposed. Each *application* is to be accompanied by a fee of two guineas for the ordinary and one guinea for the honourable class. We beg to submit that these amounts ought to be reversed. The men capable of taking the honourable degree will usually be better able to pay two guineas than their juniors are to pay one. We presume, too, that these fees are to be returned to unsuccessful candidates. Nothing is said on this head.

The application, to be accompanied by a recommendation signed by three gentlemen, one of a member of the institute, besides a request for the certificate, includes a declaration that civil architecture is and shall be the occupation of the applicant, and that he "will not have any interest or participation in any trade contract or materials supplied at any works the execution whereof he may be engaged to superintend." And in case of his failing, in the opinion of the institute to fulfil these engagements, promises the withdrawal of his name from the list of passed candidates. This we think will require consideration.

Such in its main features is the nature of the scheme laid before the institute, and by them offered for public discussion. We have thought that the best service we could render to that discussion was to furnish in the most available shape the materials for it; we have, therefore, given the scheme at full, and the above condensement of it, abstaining for the present from further expression of opinion as to details than it has been found advisable to introduce in the course of our notice.

At the late meeting one or two of the difficulties which must beset the execution of this scheme were brought forward. Mr. Roger Smith, speaking on behalf of the Architectural Association, expressed the fear that enough consideration might not be felt for candidates by the examiners, who might be prone to forget how few of the young men of the present day have obtained their knowledge of architecture in such a way as to enable them to answer paper questions. This is of importance: the examinations will be a dead failure if men known to stand well among their fellow-pupils and associates, and to be efficient in offices, are plucked; and yet this will be extremely likely to occur unless the greatest care be taken to frame the questions and set the work so that it shall *not be very different in kind* from anything that the men have been in the habit of doing already. We think that perhaps from this point of view the entire exclusion of *viva voce* examinations is to be regretted.

Mr. Charles Barry touched upon a second and graver difficulty—the action to be taken with regard to architects of acknowledged standing. His difficulty—not, however, put precisely in his own words—was this: A class of persons is about to be created, namely, those who have passed the examination; a large majority of architects in considerable practice will never dream of undergoing an examination in order to get into this class. Will this class, without their names, be sufficiently honourable and sufficiently distinguished for persons to come forward to join it? If their names are to be procured, and they will not offer themselves for examination, how are they to be got? The suggestion was thrown out that such persons might be admitted on the certified excellence of buildings they have erected. This we hope will not take place. The value of this examination will, we believe, entirely depend upon its being impossible to pass it except by passing it, and we are confident that numbers of the young men of the present day, and men of high standing too, will gladly avail themselves of this opportunity to gain honourable distinction, when once they are satisfied that the matter is established on a practical, liberal, and equitable basis.—*Building News.*

THE NEW FOREIGN OFFICE.

In the House of Commons on the 8th instant, Lord Elcho moved a resolution to the effect "that the new Foreign Office should not be erected according to the Palladian design now exhibited in one of the committee rooms of the house." He said he had undertaken a difficult task, inasmuch as the design in question was prepared under the special auspices of the prime minister. He advocated the Gothic was the national art. He did not take for a model the buildings in which they were assembled, which had reached the maximum of art, while it presented the minimum of convenience. He instanced several recent Gothic structures in the metropolis, which embraced all possible convenience for the purposes for which they were intended. Contending from their examples, the Gothic style was as well fitted for social as for ecclesiastic purposes.

Mr. W. Cowper said that public opinion, so far from being contrary to the design condemned by the noble lord, was decidedly in its favour. He had consulted persons not only of ordinary knowledge, but the most experienced architects, all of whom praised the Italian design of Mr. Scott as a most admirable one, although that architect was unfavourable to the Italian style. He had in this instance achieved a success which no one could hope to surpass. The design was fully as national as any Gothic style could be, while it harmonised better with the adjoining buildings, and at the same time afforded the largest amount of internal accommodation.

Mr. Layard denied that the Palladian style offered the fittest opportunity for internal convenience. That style must, according to the architectural practice of this country, be mean, as it could not receive that class of pictorial ornament which alone could ennoble it.

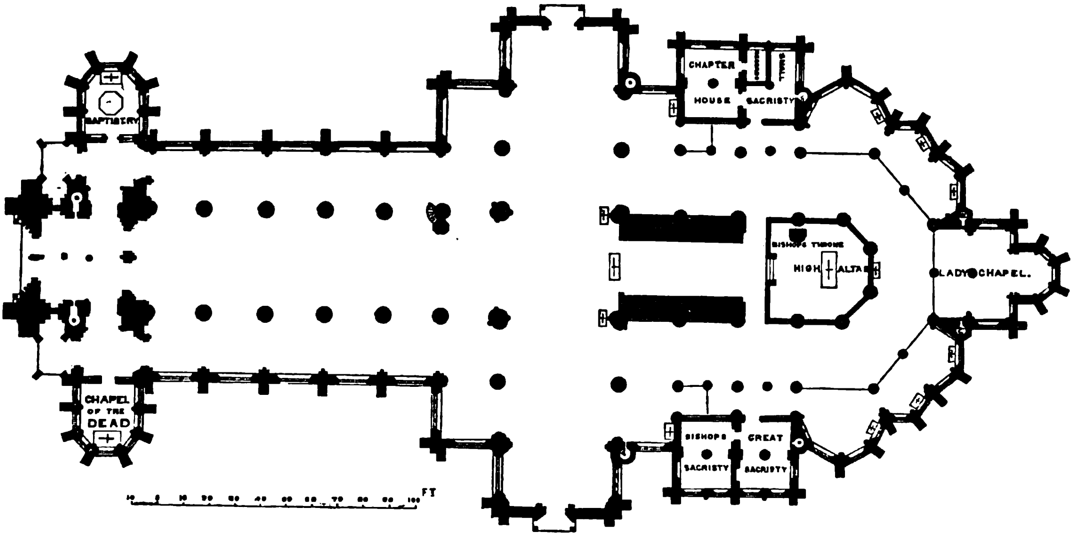
Mr. Tite argued strongly against the adoption of Gothic architecture for such an office in such a position. All the best authorities were in favour of an Italian style. He thought that the matter could safely be left in the hands of the government.

Lord J. Manners quoted the result of the inquiries of the commissioners three years ago, who, after a prolonged examination, reported that in respect of convenience and ventilation, no material difference existed between either style. He contended that the original arrangements which placed in the hands of the greatest Gothic architect in Europe, Mr. Scott, the erection of a Gothic building ought to be maintained. All over the country the Gothic style for public buildings was adopted, and by those who could not be classed as architectural reactionists.

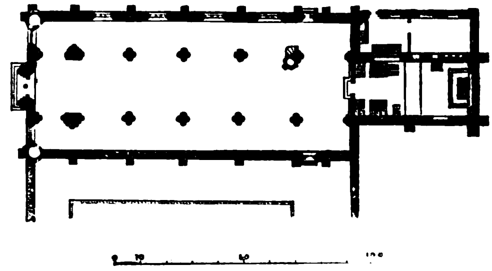
Lord Palmerston denied that the Palladian style of architecture was in disfavour throughout the country. The town halls at Liverpool, Leeds, and elsewhere proved the contrary. He defended the impugned design, and invited Lord Elcho, when it was carried out, to lay the foundation stone.

On a division the motion of Lord Elcho was negatived by 188 to 95.

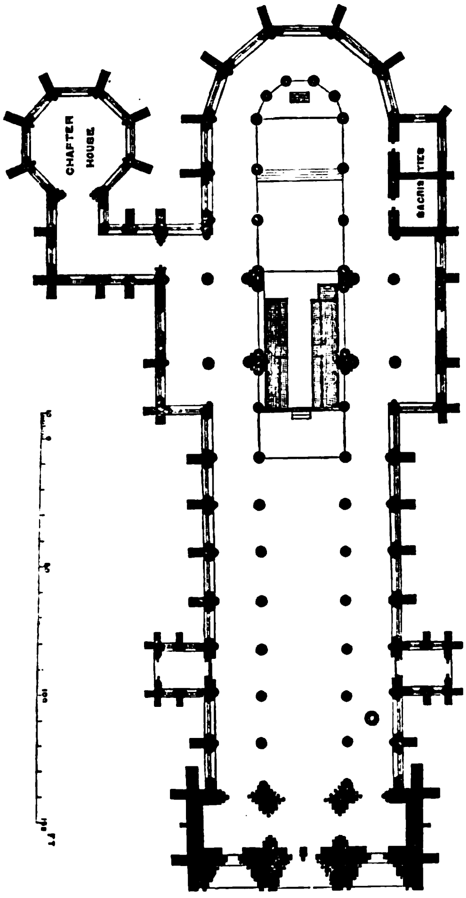
ILLUSTRATIONS OF CATHEDRAL ARCHITECTURE.



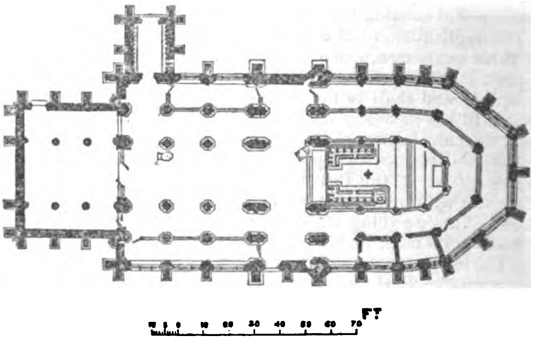
Plan of New Cathedral at Linz, Western Austria—M. Statz, Architect.



St. Ninian's Cathedral, Perth.
Mr. Butterfield, Architect.

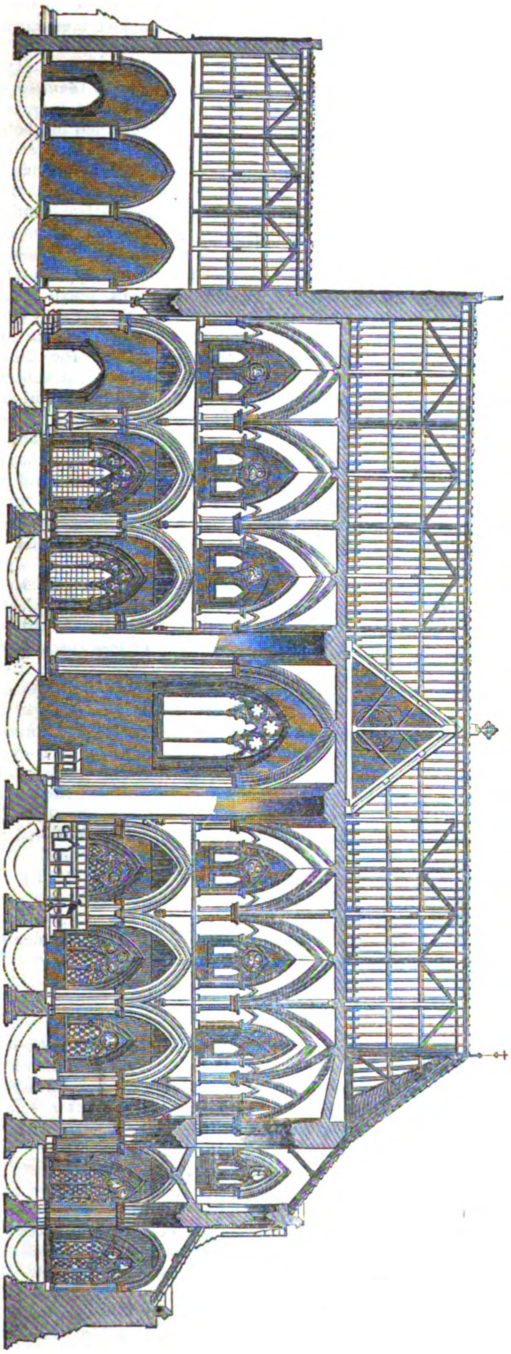


Plan of Inverness Cathedral.
As designed by Mr. Slater, Architect.

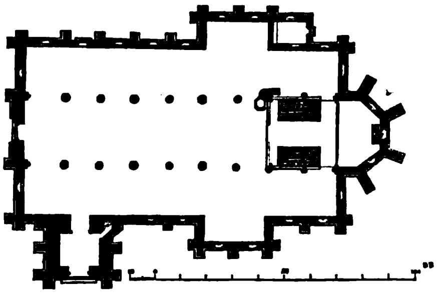


Plan of Proposed Colombo Cathedral.
Mr. Carpenter, Architect.

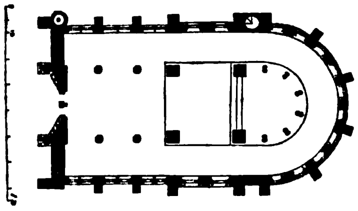
ILLUSTRATIONS OF CATHEDRAL ARCHITECTURE.



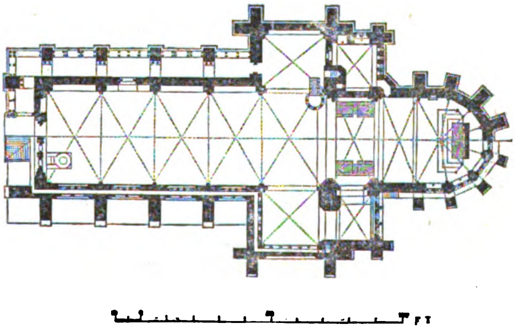
Longitudinal Section of Proposed Columbo Cathedral.—Mr. Carpenter, Architect.



Plan of St. Kitt's Church, West Indies.
Mr. Slater, Architect.



Mr. Burgess' Plan for Memorial Church at Constantinople.



Mr. Street's Plan for same Building.

THE SOCIAL SCIENCE ASSOCIATION MEETING.

THE celebrities of the scientific world, with the veteran Lord Brougham at their head, will assemble on the 14th August, in the Four Courts, in this city—a building the arrangement of which is peculiarly adapted for the proceedings of the association, affording a separate spacious apartment for each section, and radiating from a magnificent hall—Gandon's masterpiece—which will be more than ample for the accommodation even of the vast fashionable assemblage likely to be congregated. The first visit of his lordship to Dublin will be most happily associated with this great scientific gathering, and we have no doubt that his presence amongst us, so long delayed, will be regarded with much interest. Although his lordship is in his 83rd year, his giant mind is still bright as in his palmiest days of physical capacity, and as his entire life has served to illustrate the maxim that "we are never too old to learn," we believe that what may even now be observed in our institutions by so critical an eye will prove an acquisition to a store of mental wealth perhaps unsurpassed by any individual of the age. The proceedings will be divided into six sections, viz., "Jurisprudence," Ex-Chancellor Napier, President; "Education," Sir John Shaw Lefevre, President; "Reformatories and Punishments," Attorney-General O'Hagan, President; "Public Health," Lord Talbot de Malahide, President; "Social Economy," Judge Longfield, President; "Trade and International Law," Michael Chevalier, a great French political economist, President. It is thought that his Excellency will dispense hospitality to the entire body; and a conversazione at the Royal Dublin Society, promenade at the Zoological Gardens, and sundry excursions are proposed in the programme. The opening meeting, to hear the president's address, will take place in the Round Room of the Rotundo.

PROPOSED TESTIMONIAL.

WE feel much pleasure in drawing attention to the following proceedings of a meeting held at 4 and 5, Suffolk-street, on the 24th ult., by the Builders' Association, to arrange for the presentation of an address and testimonial to Mr. John Butler, an eminent member of the trade, and defendant in the memorable case of Kempston *v.* Butler, with the particulars of which our readers are familiar. We may take the opportunity of remarking that as the association has again shown signs of vitality, we trust that it may long maintain it, and that the repose it has been enjoying may insure its future invigoration. The chair was occupied by Mr. Wm. Crowe, and Mr. Thomas Henry Carroll acted as secretary. The following resolutions were unanimously agreed to, viz.:—

1st. That the thanks of the association and the members of the profession in connexion with the building business throughout Ireland, are eminently due to Mr. John Butler for his spirited and continuous defence of the rights of the trade in the case of Kempston *v.* Butler, whereby the disputed point as to the liability of contractors to support adjoining premises, has been definitely decided; but that while thus expressing our gratitude to Mr. Butler for having zealously contended for, and successfully obtained a large legal recognition of the non-responsibility of the contractor, we deeply sympathise with the plaintiff in the loss which he has sustained.

2nd. That in order to convey our thanks to Mr. Butler for the service thus rendered to the trade generally, an address be prepared and presented to him, accompanied by a suitable testimonial.

The following gentlemen were named as a committe to carry out the above objects:—Messrs. William Crowe, Samuel H. Bolton, George Moyers, James Beardwood, Henry Johnston, Matthew Lynch; with Mr. Thos. H. Carroll, hon. secretary.

SEWING MACHINERY.

THE journeymen tailors of this city, at a recent agregate meeting, declared that the introduction of the sewing machine had proved a failure as regards their trade, notwithstanding representations to the contrary. The speakers contended that the system which would spring from the use of machinery in the tailoring trade would be vicious and immoral, and upon all these grounds they appealed to the public to support hand labour as being the best, the cheapest, and the most deserving of support. Resolutions to the above effect were unanimously adopted. We should wish to hear the opinion of the boot and shoe makers on this question, for, to our minds, very important facilities have been rendered in that department for the speedy (at least) execution of work as compared with the *hand* system.

THE CLOSING OF THE SESSION.

PROFESSIONAL brotherhoods are temporarily suspended, and prior to a renewal of their labours collectively, artists and archæologists seek physical recreation and the invigorating influence of a balmy atmosphere far away from crowded cities and towns. The past session has been a practically useful one, some most valuable papers having been read, eliciting no less valuable discussions — reports of which appeared in due course in this journal — and a fitting conclusion to the sessional proceedings of the Institute of British Architects has been the establishment of the long talked of "curriculum," a summary of which may be found in this number. Referring to this document, the chairman of the Architectural Association, at the last meeting on Friday fortnight, recommended the members to study it and to prepare themselves for examination on the first opportunity. He had no doubt many would pass with honour to themselves and credit to the Association. He did not think that in presenting themselves for examination they would be expected to know more than young men in their position might fairly be supposed to do, who had used the means of education at their command. With regard to the examination for "honourable distinction," it would be of a more extended character; and some gentlemen might not feel themselves prepared at that moment to present themselves to the examiners; but he had no doubt that many of the members would present themselves at the first favourable opportunity, and pass through the ordeal with credit. In taking leave of this association the chairman further expressed his satisfaction at its progress, and hoped that the members would continue in their desire for self-improvement. Notwithstanding the difficulties with which the association had had to contend, it had effected much good, and he believed that it would prove a useful agent in the acquirement of professional knowledge. He thanked the members for their support of him during his year of office.

It was agreed that during the recess the committee should consider what should be the subject for Mr. Tite's prize, and make a report at the commencement of the session, suggesting three subjects, which should be discussed by the general body, and one eventually decided upon, so that three months might be given for preparation.

The Liverpool Architectural Society have terminated their session by "a gala day"—an excursion to Hawarden Castle and Church, Flintshire; and various other scientific and professional societies, through the kingdom with more or less *elat*, likewise.

WORKMEN'S EARNINGS.

THE penny banks afford inducements to tradesmen and mechanics, however scanty their means, to be thrifty and lay by a something for a rainy day, but the following return for the week ending the 8th instant, of the South Dublin Bank, does not evidence a sufficiency of appreciation, which is much to be regretted:—

Number of depositors, 175; number of new accounts opened, 19; number of withdrawals, 32;
Amount lodged, ... £10 7 11;
Amount withdrawn, ... 17 11 6;
total number of depositors since the 1st January, 1,463; total amount lodged since 1st January, £435 3s. 3d.; balance in bank to credit of depositors, £254 12s. 1d.

MORE SCAFFOLDING ACCIDENTS.

ON the 10th inst., a fall of scaffolding with twenty-five men thereon, occurred at the building in course of erection at Mount Argus. Some of the men were precipitated twenty-five feet: one —John Head—having died from the effects after some days' suffering, and others more or less so. A somewhat similar accident occurred on previous day at Irishtown.

INDURATED PEAT.

MR. BRUNTON, C.E., of London, has taken out a patent for the preparation of condensed peat so as to render it fit as a fuel for locomotive engines, gas manufacture, and domestic use. The process is described by the patentee:—

We take the peat as dug from the bog, which can be had at an expense of from two to three pence per ton, and place it in the machine, which is nothing more nor less than a cone having its apex downward, formed of perforated zinc plates with holes about the eighth of an inch in diameter. In the cone there is an Archimedian screw, and the edges of this screw touch the sides of the cone all round. The machine may be turned by horse, steam, or any other power. The action of the screw presses the peat against the sides of the cone, separating the fibre and forcing the peat through the apertures in a vermicular form. The great object is to remove the fibre, because it is that which keeps the peat open and porous and prevents its condensation. Peat has an inherent tendency as it dries to condense, if you take the fibres away from it; and by this process that object is effected, and the fibrous portions are carried away through the waste pipe. The fibre does not constitute more than from five to ten per cent. of the whole substance, so that the loss involved in its separation is inconsiderable. In a cone of three feet diameter there will be from fifty to eighty thousand holes, so that you will see what an enormous division there is, and how well adapted the peculiar action is to get rid of the water. In order to take advantage of it a stream of warm air from a fan is sent up among the peat as it comes from the strainer, and you get rid by that means of two-thirds of the moisture originally contained in the peat. We calculate that on an average it takes four tons of wet peat to make one of dry. Therefore you have to get rid of three tons of moisture in order to obtain one ton of this hard solid fuel. Two-thirds of the moisture is removed in the first instance by means of the machine, and the other ton is retained in order to facilitate the process of moulding the peat. When the peat passes from the machine it is drawn away by a band and deposited in an ordinary brick moulding machine. When moulded it will take about a fortnight to dry, and then it becomes hard and solid like this which I hold in my hand. That is the whole of the process, and you see it is necessarily a cheap one, because the machine is very simple and inexpensive. The principal part of the machine is made of wood. A cone four or five feet in diameter would cost about 25s., and a screw of cast iron would add little to the expense. There is no need of hand labour, and the only other outlay would be for the moulding machine and drying shed. The great advantage of this fuel is, that it is so dense that it will stand the draught of a locomotive engine. It will burn with a great flame, and produces more gas per ton than Newcastle coal, and the residuum is more valuable than that of coal. The grease which it yields is more valuable than that of coal-tar, and the charcoal is more valuable than coke. I am not aware of the cost of charcoal in Dublin, but in London the price is from £6 10s. to £7 per ton. In South Wales the tin-workers pay from 50s. to 55s. a ton, and I know one tin-worker who gives 40s. a ton for charcoal at the peat works, and pays 12s. a ton for its carriage into South Wales. It is obvious, therefore, that the manufacture of this peat fuel will be most profitable. For railway purposes I believe it will be peculiarly advantageous. We know that Ireland imports all her coal from England, and it is evident that it would be a great advantage for the Irish railways to be able to get their fuel on the spot, as I suppose there are few railways in this country that do not pass through a bog. This fuel can be made at the bog at from 2s. 6d. to 3s. 6d. per ton, and I presume coal cannot be obtained from England for any such sum.

A company had been formed in London to manufacture this fuel, particularly for gas purposes; and upon this point I will read the opinion of Mr. Frederick Versmann, F.C.S., who had made an analysis of this substance, and who concluded his report thus: "I therefore consider your process of the utmost importance, and I have great pleasure in expressing my sincere wish that you may succeed in producing the peat at such a low price as to induce the gas companies, at least partially, to substitute the coal by your prepared peat. It is my firm belief that your process, if sufficiently supported and effectually carried out, will in no long distance materially influence the art of gas manufacture of the present day."

Mr. Ilbery asked whether the condensed peat had been tested in a locomotive?

Mr. Brunton replied. The peat has been tried under blasts of various kinds, and had stood tnem very well. I believe it would answer admirably for domestic purposes, as it makes a bright and cheerful fire. I might observe that it is exceedingly hard, takes a high polish like ebony or bog-oak, and can be made into pulley-blocks, handles of doors, and various other articles.

The Chairman.—A brick moulding machine capable of turning out thirty or forty thousand bricks a day would cost from £75 to £120 or £150, and there would be little more outlay than the cost of the sheds to protect the peat from the weather whilst drying. Two machines of five feet diameter each would give 100 tons of condensed peat per day, and the cost of that machinery would be about £50. The patent right would be 3d. a ton.

There are at present in Bordeaux twenty-five cork factories, employing seventy-five workmen, using annually 3,396,846 lbs. of cork bark, and producing about 10,000,000 corks. 90,000,000 ready-made corks are obtained from the neighbouring places, Nesac, Bayonne, and Provence. The cork trade of Bordeaux, therefore, may be estimated at 100,000,000 corks annually, worth about £156,333. The cutters are paid from 3¼d. to 4¼d. per thousand, and the turners from 1s. 2d. to 1s. 6½d. per thousand; that is about 1s. 6d. per day.—*Mechanics' Magazine.*

FARMERY AT BALLYFIN.

ABOUT sixty miles from Dublin, four to the right of the Mountrath station on the Great Southern and Western Railway, and well into the interior of the Queen's County, the attention of the traveller is attracted by a tower of considerable height, rising at the foot of an extensive range of hills, and surmounted by the "Union Jack." This is the sign to distant passers-by of the exact location of Sir Charles Coote, Bart., at Ballyfin. A good road conducts the visitor to this place, which is particularly attractive on account of the celebrated mountain farm on the estate.

The excellence and uniformity of the extensive range of offices at once engaged our attention, as it appears that the site of these substantial and commodious edifices was originally occupied by open sheds of a wretchedly defective character, and that the present arrangements were designed to harmonize with the beautiful and costly mansion in front. The demesne, which covers an area of 600 acres, is now permanently laid down, after undergoing a process of thorough drainage and reclamation, so as to prepare it for profitable pastures and artificial meadows; the old, useless fences completely removed, the hollows and other irregularities filled up, so as to ensure a gently undulating surface. The stones available after the removal of the old, unsightly fences, were "used up" in erecting the stately tower immediately behind the farm offices; and though only 130 feet high, yet, by the aid of the powerful telescope on the top of the tower, a view of sixteen different counties is obtained.

The extensive range of machinery in the farm-yard are all worked by means of water-power. The threshing machine, which was manufactured on the premises, is large and substantial, without much of that artistic finish now so much displayed on the exterior of these implements, and is capable of threshing, winnowing, shaking the straw, &c.; and the corn, after being perfectly winnowed, is brought back by means of elevators, and conveyed by means of a simple box-conductor to the granary, some twenty yards distant from the machinery. Simultaneously with the threshing of the corn, an underground shaft, turned by the water-wheel, works the furze-bruiser, hay, chaff, and straw cutters, beans, bones, and cake crushers. The hagyard being on a higher level than that of the barn, the corn is easily deposited on the floor adjoining the threshing machine, thus economising time, labour, and a positive saving of grain, during the process of removal. Indeed, we have scarcely ever examined a farm-yard in which the various appliances are so compact and so advantageously arranged, and in which the working of the several departments, and the putting up of the various requisites, are so inexpensively effected. The feeding or cooking house adjoins the byre, and is supplied with an excellent cooking apparatus for preparing mashes and other soft feeding for the cattle.

The cow-house is in keeping with the other farm offices—simple, but substantial and commodious, and forms two sections, running at right angles with each other. Parallel with one side of the cow-house are the barn, granary, and cooking houses; and with the other are the sheep and pig-houses, cart, implement, and harness-rooms, stables, &c., so that the entire constitutes a perfectly squared "lock-up" yard and offices. The roofed-in space in the centre serves for the manure pit, and is furnished with gutters and catchments to collect all the rain water, and carry it to the liquid manure tank, with a view of diluting and augmenting the liquid deposits from the farm offices. Immediately adjoining the dung heap is the large reservoir, into which all the urinal droppings from the different offices are collected, by means of underground sewers for its reception, the contents being subsequently applied by means of a force pump and gutta percha hose to the watering of the dung previous to application: and owing to the manner in which the manufacture of the manure is so completely under control, any degree of decomposition can be ensured by the artificial damping from the tank. The dung obtained by this process cuts like cheese, and retains all its rich properties until applied to the land.

The sheep and pig-house is rather an original structure, and for aiding in the manufacture of home-made superphosphate, we know of no arrangement more effectual. The sparred styes for the animals are about four feet above the ground floor, and by means of openings or arches in the wall underneath, the bruised bones can be readily introduced and evenly strewed over the floor, and, by means of the droppings from the animals above, immediate fermentation ensues, and in the course of a few weeks a mass of completely unadulterated compound is obtained. This arrangement, we believe, was carried into practice at the suggestion of Professor Cameron.

To each of the cottages on the immediate portion of Sir Charles's estate a considerable breadth of land, from 20 acres downwards, is attached. The management of this is effected by the senior members of the family during leisure hours, whilst the wives, daughters, and young children perform all the lighter descriptions of work, such as thinning and weeding the crops, feeding the pigs, calves, &c. The labourers in these cases become the tenants at a moderate rent, and after the new residence and its other desirable appendages are provided, no addition is made to the rent of the original cabin. The comforts, cleanliness, and internal arrangements of the new cottages have produced such an elevating sense of possession on the part of the occupants that scarcely an instance has occurred in which a change of occupants has taken place. Not only this, but the large expenditure of money, amounting to several thousand pounds, devoted to the drainage of the many portions of the estate on the hands of the tenantry, for whose exclusive benefit it has been applied, and for which nothing has been added to the rent-roll. It is scarcely necessary to add to this, that possession under Sir Charles Coote is one of those things which are highly prized when enjoyed, and coveted by those who only know the value of such possession.—*Agricultural Review.*

NEW CHURCH OF SS. PETER AND PAUL, MOATE.

IT is intended to commence immediately the erection of a Catholic parish church in the town of Moate. The style adopted is late Norman. The church will be cruciform in plan, and will contain nave, aisles, transepts, circular apse, side chapels, tower, baptistry, sacristy, porches, &c.; it will be 110 feet in length, 70 feet across transepts, and 51 feet across nave and aisles; cylindrical stone columns, with the characteristic Norman capitals supporting recessed and moulded arches, will divide the nave from the aisles; the aisles will be lighted by recessed semicircular-headed lights, and the clerestory will be lighted by coupled lights of the same character. The entrance front will contain a deeply-recessed Norman doorway, surmounted by a columned arcade, the alternate opens of which will be filled with glass. In the point of the gable will be a circular wheel window, recessed, and finished with columns and mouldings. The transepts will be lighted by triple windows, recessed. The tower will contain a rich moulded doorway, and will be decorated on the four faces of the second stage with arcades; the third stage will form an open bell cot, divided into three divisions on each face by Norman pillars, supporting arches, finished by a corbel table. The entire will be surmounted by a lofty pyramidal stone roof, terminating in a small Irish cross, 102 feet from the surface. The roof, which will be about 56 feet to the apex, will be of open timber-work. The chancel will be finished with a circular groin, springing from short columns supported on corbels. An organ gallery will be constructed, projecting from an open in tower, which will terminate one of the aisles. The material is the limestone of the district.

DILAPIDATIONS.*

INTRICATE and difficult as the laws of dilapidation appear to be generally, those concerning church property, from their stringency, appear to be the most so. It would appear that all "grades of church officers" are liable not only to repairs, but to preservation from decay; and if necessary, to the rebuilding and restoration, even in the case of tempest, fire, or decay by time; the only exception is the curate, from his uncertainty of tenure; but even he, where the whole profit of a benefice has been allotted to him, must submit to the rector or vicar, &c., holding back for the repair of the chancel and parsonage as much as one-fourth of the profits, if so much have been expended during the year.

With regard to other property, it appears that tenants are not to be generally held liable for damage arising from fair wear and tear, the action of the elements, or the results of the lapse of time; and the more frail the tenure, the less liable is the tenant; hence, against a tenant-at-will a landlord can have no remedy for repairs, though such tenant is liable for trespass if he commit wilful damage. Tenants for a longer term are not only liable for dilapidations arising from "avoidable accident, carelessness, or wilful damage," but under covenants or agreements are liable for damages arising from neglect. The tenant from year to year is not only liable for damage from avoidable accidents, &c., but for all dilapidations which are not the result of occupation, or of inevitable accident; thus, if windows or doors be torn off their hinges, glazing broken or cracked, chimney-pieces broken, water-closets stopped up, papering torn down,—such dilapidations not being the necessary consequences of fair wear and tear, the tenant by the year is liable to damages for the same; but he is not liable for any decay, breakage from decay, or loosening, unfastening, or falling off by lapse of time; neither is he liable for accidents from the elements; but a yearly tenant is bound to keep the premises wind and water tight, more particularly where a trifling expense will effect this; unless, indeed, from the effects of time, any parts of the building are rapidly falling to pieces.

With regard to liability for dilapidations of the "tenant to repair under covenant," more particularly a general covenant to repair, the law is so strict and rigid, that a lessee cannot be too careful nor too cautious with regard to his covenant with the lessor; for under such a general covenant to repair, however great may be the dilapidations, even to the destruction by fire or otherwise, from any cause whatsoever, however unexpected or unforeseen, the law will enforce from the lessee a total restoration of the premises, and the same with regard to a so covenanting lessor; but the courts will construe such restorations to be in a reasonable manner; hence, if a lessor covenants to repair, the law will compel him to rebuild in a case of destruction by fire or other accident; but if the lessor hath not so covenanted, he is not held liable so to rebuild or restore, though he maintains his right to sue for rent. A lessee also continues liable for rent, under a covenant to repair, "casualties by fire and tempest excepted," though the landlord refuse to build or repair in such case because he is not bound by covenant to do so. Under general covenants to repair the lessee is liable to damages for dilapidations to buildings erected, during his tenancy, by him or otherwise, as well as to the buildings forming part of the estate when the lease was granted, and the whole must be given up in a state of substantial repair; but he is not bound to make good defects in the buildings from lapse of time, so long as the buildings are not rendered unfit for occupation by such defects; he would, however, be bound to repair any accident accruing from such defects of lapse of time as it would be considered the result of neglecting what he ought to have attended to. At the same time that the law is stringent on the subject of repairs of dilapidations under a general covenant to repair, it is not unjust, for the courts will take into consideration and evidence *with regard to general condition*, to show ruin and decay from age and infirmity in the buildings at the time the lessee entered into occupation, and return a verdict for amount of damages accordingly; and hence the necessity of a careful survey of the premises at such time by duly authorised parties, and a carefully drawn specification of the state of the premises, for the law will not require of a tenant to give a new house for an old one. Without a covenant to "alter and improve," a lessee will not be allowed material and expensive alterations of buildings, externally or interiorly,—not even though by so doing he may have doubled their value,—but with such covenant, on the contrary, he is bound to alterations and improvements as well as to substantial repairs.

It appears that there is a considerable difference between a covenant to keep in repair, and a covenant to leave buildings in repair; inasmuch as in the former case he is liable for breach of contract, immediately he suffers them to decay, though reasonable time will be allowed for doing so; in the second case, of a covenant to leave in repair, an act for breach of contract will not lie until the expiration of the term, even though the buildings be pulled down during the tenancy.

A lessee should never engage to sustain and repair ruinous buildings, for if any part be so far gone as to require pulling down and rebuilding, the law will not consider such rebuilding as the performance of his covenant to sustain and repair.

A promise, by word of mouth, from lessor or lessee, to repair, is held as valid as a covenant under a seal.

An "injunction" may be obtained by a landlord to restrain a tenant from any act of determined mischief, if applied for immediately on evidence of the intent, and may even be obtained by any person having even only contingent interests in the property.

If a lessee, under a covenant to keep in repair, suffer the premises fall into a state of dilapidation, a notice must be served by the landlord, who will then have a right at any time before repairs to bring an action of ejectment against the lessee.

On a lessor becoming acquainted with any necessity for repairs, of which the lessee has covenanted the performance, he should serve on the lessee a notice specifying the same, evidence of which on any action afterwards brought by the lessor for dilapidations, will materially affect the lessee's defence.

POTTERY.

POTTERY may be arranged under two groups, *antique* and *modern*, and in a technical point of view, into three main divisions —*earthenware*, *stoneware*, and *porcelain*. Pottery is either mat or unglazed, enamel glazed, or glazed. The first of these terms needs no explanation; the second comprises all wares to which a superadded opaque vitreous covering is given, generally of a different colour from the body or substance of the ware; and the third denotes a transparent glassy coating or varnish. Antique pottery, which is exclusively comprised in the division "earthenware," is both *mat* and *glazed*, but not enamelled; opaque enamel glazes are characteristic of mediæval periods, especially of the 15th, 16th, and 17th centuries; and modern pottery, particularly porcelain, is almost exclusively of the true glazed kind. These observations, however, do not strictly apply to oriental pottery, the historic development of which has little coincidence with the European; porcelain, the most perfect species of pottery, having been manufactured in China at a very remote period, whilst in Europe it is of entirely modern origin.

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* New Office Book for Architects, &c. London: Atchley and Co.

The Majolica ware is supposed to have derived its origin from a very similar pottery made by the Moors in Spain from an early period of the middle ages, and to have taken its name from the island of Majorca, from whence the first specimens were probably exported to Italy. During the 15th and 16th, and in a less degree, the 17th century, its manufacture was extensively carried on in Italy, especially in the central districts, where Faenza, Gubbio, Pesaro, Castel, Durante, Urbino, and other neighbouring towns gained great reputation for their fine productions. The most remarkable variety of Majolica is the lustre ware which reflects metalic lustrous tints of various colours, according to the angle at which the light strikes its surface.

Bernard Palissy (born about 1509 in the province of Perigord, in the south-west of France, died 1589,) was the inventor of this characteristic variety of pottery. Palissy was originally a glass painter, but having incidentally seen a beautiful cup in enamelled pottery, of foreign manufacture, he thenceforth directed all his energies to the application of coloured glazes or enamels to earthenware, then little known in France. After many years of unceasing experiment, in the midst of poverty and extreme privation, working likewise in ignorance of processes already familiar in other countries, he completely succeeded in his endeavours; and being already conversant with the arts of design, soon produced beautiful and original works.

Pallissy's pottery may be classed generally under three varieties; first, his "rustic" pieces, called by himself "*rustic figulines;*" the fishes, shells, plants, &c., introduced, being moulded from nature. The second class is characterised by subjects of figures, executed in bas-relief, surrounded by ornamental borders and accessories; and the third is distinguished by enrichments of ornamental forms only.

Palissy's descendants and workmen continued for a long time to manufacture pieces from his designs and models, but they are very inferior in beauty to the original productions.

Josiah Wedgwood, born at Burslem, in 1730, died in 1795, is unquestionably the greatest name in the annals of the ceramic art. The varieties of pottery invented and perfected by his individual agency are, perhaps, on the whole, the most excellent art manufactures this country has yet produced.

THE BOTANIC GARDENS' SUNDAY OPENING QUESTION.

The period for final solution of this long-vexed question draws near, and the Royal Dublin Society will either be compelled to forego a large amount of the government grant, or open the gardens to the public on Sundays. As a matter of prudence, we believe, that the latter course will be adopted; and, though we confess to no partiality for the principles of those who would seem to oppose the opening from religious scruples, we should sincerely sympathise with the society if the good now sought to be effected were at any time perverted into a detriment to so valuable a property. As a mass, the working classes of Dublin are as steadily conducted as those of any other city in the kingdom, yet it must be conceded, that "there are black sheep in every flock," and that *all* the members of same, individually, may not, at *all* times, be so—as fully exemplified at the recent aggregate meeting held in the Rotundo—and a few malcontents might, at such an institution, effect, in a very short period, an amount of damage most difficult, if not wholly impossible, to repair. Perhaps we may briefly suggest a mutually satisfactory and practical solution of this difficulty. It is advanced, that the gardens are too small to accommodate a multitude; admit it, and suppose the public yield to the society the question of *unrestricted* admission, and again the society yield to the public the right of a limited number—say 500 or more—to visit the gardens on Sundays; then the object of the promoters of the movement, viz., to ensure physical and mental recreation, on Sundays, for the toiling artizan and his family, shall have been fully attained; and if, by *free* tickets only, judiciously dispensed through the secretaries of trade societies and other responsible sources, objectionable characters of either sex may be effectually excluded, the possibility, or at least the probability, of damage be obviated, and the society might still preserve with *grace* so valuable an appendage to its estate. Under any circumstances some little precaution against "a crush," as long as the novelty lasts would be indispensable; when the latter wears off will the public permanently appreciate the consummation of a boon for which so much agitation has taken place? We must leave the universal tell-tale to answer.

The greatest span of suspension bridge yet completed in America is that by Mr. E. Serrell, C.E., of ten hundred and forty-three feet, over the Niagara river, at Lewiston.

DEPRESSION IN MINING SECURITIES.

According to the commercial summary of a local contemporary we learn that "Almost every description of Mining Securities have shown marked depression. In Wicklow coppers a fall of no less than £5 has been established within the week, and there is as yet no evidence of the downward movement being arrested. The total relapse within the half year is very little short of £20. The cause is, however, apparent, and seems solely the result of the interruption to the business produced by the American crisis, and it is equally obvious that the first prospect which opens of a peaceful solution, and which is already spoken of, will cause a speedy check to any further depreciation. A striking instance of the effect on Mining Securities thus produced is in the instance of the Mining Company of Ireland, the market value of their shares being almost unaffected by the result of the last half-year's operations, which was satisfactory beyond all expectation. General Mines and Connorrees show a falling off of 5s. in each instance as compared with the closing rates of the proceding week.

INTERNATIONAL EXHIBITION OF 1862.

"Her Majesty's Commissioners hereby give notice that no demands for space, either from local committees or individual exhibitors in the United Kingdom, Isle of Man, or Channel Islands, will be received after Tuesday, the 1st of October, 1861, and that the allotment of space will then be made on the returns sent in up to that date. Where no local committees are formed, provincial application for space will be referred to, and determined by, national or metropolitan committees."

CHURCH BUILDING NEWS.

It is said that the Augustinian Fathers have decided on commencing their new church in John-street (illustrated in the Dublin Builder for May 15, 1861) next spring. The plan will comprise nave 36 feet broad, aisles, transept, chancel, and four chapels; total length in clear and exclusive of transept, 146 feet by 64 feet in width. The nave will be separated from the aisle by lofty Aberdeen granite columns on black Kilkenny marble bases, and will be terminated in an apse of five sides, from which will radiate the side chapels. It is proposed to light the church chiefly from the aisles, which will be as high as the nave. The columns being of marble can be reduced to a very small section, so that the view of the altar from the aisles will be almost uninterrupted. The height of the nave interiorly is 68 feet, that of the aisles 45. The façade towards Thomas-street will be surmounted by a bell-tower, terminating in a French double-pointed roof, and attaining the height of 160 feet. It is proposed later to erect a monastery forming a quadrangle with the church.

The *Sligo Champion* gives the following particulars of a new Roman Catholic church in course of erection at Ballymote, communicated by Mr. Goldie, architect, to the pastor:—"The first division of the contract is now approaching completion. It was to include excavation, masonry, and cut-stone work, and to cost £1,515. To this amount is added stone arches for £100, and a portion of the tower for £260, making in all £1,875. Of this Mr. Barker (the contractor) has drawn £1,688 10s., leaving a balance of £191 10s. to complete the arches, clerestory, west rose window, and chancel window and arch. But to this balance may be added the value of the roof to sacristy, and porch, slates, lime, sand, barging, &c., on the ground, which may be estimated at £50, and which belong to the second portion of the contract, so that you have a sum, or an equivalent, for £241 10s. to complete the first portion of the contract, the value of which is about £199. The important point now to be decided, and that as speedy as possible, is that of carrying on the second portion of the contract, namely, roofing and slating, to which was apportioned the sum of £868. Your present chapel is in a dangerous and unfit state for divine worship. The walls of the new church, if left exposed for the winter, will be sure to suffer from wet and wind."

Three altars have been recently erected in Ennis Catholic church, under the direction of Mr. M'Carthy, architect, by Messrs. Hardman and Co., one being the high altar of very beautiful and elaborate design, and the others side altars of the Sacred Heart of the Blessed Virgin, respectively. The chancel and side chapels have also been richly decorated by the same firm, who are most efficiently represented in this city by Mr. Thomas Early, assisted by Mr. Powel, to whom we understand is due the merit of designing the various statues and sculptured groups in the above-named works.

Sundry works are to be executed at the churches of Aghavallin, Co. Kerry, and Killard, Co. Clare, according to plans by the architects to the Ecclesiastical Commissioners.

The proposed alterations at St. Michan's church, North Anne-street, will, according to the *Freeman*, consist in the erection of a parochial house for seven clergymen, and apartments for public purposes; also the removal of the present old and inconvenient presbytery and an extension of the church and the erection of a new front facing Halston-street. The design of the church front includes the erection of two Gothic towers, which interiorly will form side chapels, leaving between them the chancel for the high altar. The exterior front will be finished in the much-admired Gothic style of the thirteenth century. The towers will be terminated by high pyramidal roofs, crowned with a rich cresting of gilt bronze. Between the towers will rise the central front, surmounted by a high-pointed Gothic gable, the centre of which will be filled by a large and splendidly designed tracery window, elaborately carved and decorated. The apex of the gable will be surmounted by characteristic emblems, and adorned with an elongated oval window or niche for the reception of appropriate decorations. The peculiar character of the frontage presented considerable difficulties to the architect, especially an awkward side passage of a few feet in width—indispensable as regards access to the interior building—which, however, has been made to pass through a Gothic buttress, symmetric with one on the other side. These buttresses progress by graduated stages to the top of the building, forming tasteful accessories to the central details of the structure. Mr. John Bourke, architect.

The new church of Torry, recently consecrated, is built in the mediæval style, with high pitched roof and pointed gables, crowned with crosses. The east window, of stone mullions and finely executed tracery, is of three lights, filled in with stained glass, containing representations of the Crucifixion, the Virgin and Child, and St. Patrick. It also has its nice little screen, making a separation between the chancel and nave. Mr. E. W. Godwin, is the architect, as also of the Gothic structures at Newtowncunningham and St. Johnston.

Tuam cathedral is to be restored, altered, and added to, under the direction of Messrs. Lanyon, Lynn, and Lanyon, architects.

PROTESTANT HALL, WATERFORD.—This hall, recently inaugurated, is situated at the top of Catherine-street, overlooking the river, and commanding a splendid view of the surrounding country. On the left-hand side is the neat and tasteful People's park, and the handsome Court-house. The hall is in the Italian style, executed in red English brick, with massive granite dressings. It has two capacious wings forming committee rooms. The dimensions are: length, 60 feet by forty feet, and height 30 feet. The building is admirably ventilated all round by tunnels discharging through the two towers in front. The gallery, though small, is exceedingly handsome, the iron-work being supplied from Hammersmith. The gas-fittings are of the newest and most perfect description. The architect is Mr. A. Denny; the contractor, Mr. John Fitzpatrick.

Alterations and additions are about to be made to the Mendicity Institution. Mr. J. S. Butler, architect.

Alterations and additions are to be made at the building, formerly the old House of Industry, at Clonmel, for the purpose of converting it into an auxiliary asylum. Mr. Wilkinson, architect.

Knock-bridge, over the canal near the Madden station, on the Belfast Junction Railway, is to be taken down and reconstructed under the direction of Mr. R. Tuthill, C.E., Newry Navigation Company.

It is proposed to light the town of Thurles with gas, and the necessary buildings are about to be constructed.

A new station is to be erected at Omagh for the Dundalk and Enniskillen Railway Company. Mr. Wm. Murray, architect.

The handsome stone structure in progress of building on the slip at the east angle of the pier at Kingstown, is a house for the life-boat.

The Rev. Dr. Taylor, P.P., laid the foundation-stone of a parochial house, at Maryborough, recently, the site selected being known as the Old Golden Croft. Mr. John S. Butler is the architect, and Mr. Edward Craven, Maryborough, the contractor.

A memorial to the late Sir Matthew Barrington, Bart, is to be erected in St. Mary's Cathedral, Limerick.

The Marquis of Downshire is expending a large sum of money on improving the pier and harbour of Dundrum.

A building, affording increased dormitory accommodation for the Royal Hibernian Military School, is in course of construction under the direction of the Board of Public Works' architect.

Two hundred and thirty new national school-houses have been erected in Ireland during the last year.

A numerous staff of artists and tradesmen have arrived from London at Kenmare House, Killarney (the mansion of Viscount Castlerosse) to execute several alterations and improvements, for the reception of her Majesty.

The trustees of the will of the late Rev. William Aloysius O'Meara are about erecting a widows' alms house at Limerick, adjoining the Mount St. Vincent Orphanage.

The Dublin Corporation Water Works Bill has passed the House of Lords, after protracted opposition in its various stages.

THE UNITARIAN CHURCH COMPETITION.

MESSRS. Lanyon, Lynn, and Lanyon, architects, have been declared the successful candidates in a limited competition for a new church, to be erected in Stephen's-green, for the Unitarian congregation. The adopted plan is somewhat of ˥ shape, and shows the body of the church—which will be in the decorated Gothic style, and accommodate 400 persons—placed parallel with the roadway of the green. A principal gable, with very elaborate and handsome features, and screening from certain points of view some existing red brick houses, will present itself at the northern end. The floor of the church, which will be approached by a spacious flight of steps at northern extremity, will be raised 8 feet above the level of the pathway, so as to enable spacious and lofty apartments for schoolrooms to be provided in the basement. This structure will prove a great acquisition to our metropolitan architecture, and the merit of the design is due to Mr. Lynn, of the above-named eminent firm.

BRAY.

THE entire of the property in this locality belonging to Mr. Edw. Breslin has been mapped out, after designs by Messrs. Lanyon, Lynn, and Lanyon, architects, viz., from Quinn's Hotel, in the town, right down to the beach, the Quinsboro'-road, and the back road down to the quay. Mr. Dargan, as may be seen by advertisement columns, is about to build seven houses there, designed by the same architects, and, as may be inferred by our previous frequent notices of works, the general progress of this once "deserted village" is next to mavellous.

LAW NOTES.

Doolin v. *Boyle*.—Counsel on behalf of plaintiff moved for an inspection of the works done by plaintiff for defendant, Mr. James Boyle, at Marino Park, Killiney; and that two measurers, Mr. Read and Mr. Regan, should be allowed to value the work in dispute. Counsel also moved that the subject matter of the action, being one of account, should be referred to the Master of the Court (Exchequer), or to W. G. Murray, architect, as arbitrator. The works had been measured by Mr. Phayre, but he made a return to the plaintiff exceeding in amount the return he made to the defendant, and the latter appeared to have been through mistake. If the case went before an arbitrator, it would be necessary, for the justice of the plaintiff's case, that there should be a new measurement, which it was sworn could now be fairly made.

On behalf of defendant, there was no objection to refer the matter to Mr. Murray, but there was to a new measurement. The works were alleged to be now in a different state. The defence was provided on the copy of the measurement furnished by Mr. Phayre to defendant, according to which there was £150 due. Of this £120 had been paid, and the remainder was lodged in court. The plaintiff claimed a larger sum.

Baron Hughes said he would refer the whole matter to Mr. Murray, giving him power, if upon investigation and in the exercise of his professional judgment he deemed it necessary for doing justice between the parties, to order a new measurement. The costs to be costs in the cause, and abide the result of the arbitration.

Darcy v. *Malone*.—Action by a builder to recover about £200 for extra work at a new chapel in the county Tipperary. The venue was laid in Limerick, and an application was now made by Mr. Ryan on behalf of the defendant, the Rev. Mr. Malone, to have the venue changed to Nenagh.

Plaintiff opposed the motion.

Baron Hughes directed a change of venue to Nenagh.

Macintosh v. *Deane*.—Defendant moved by counsel, before Baron Deasy, in Consolidated Chamber, to have venue changed from Antrim to Cork. It was an action for non-acceptance of a cargo of timber, sent by plaintiff from New Brunswick to defendant, a timber merchant, at Cork. The defence was in substance that the cargo was not in accordance with the written contract. It was sworn by plaintiff that he resided in Cork, and that he was a necessary witness to support his defence, that he was advised and intended to examine timber merchants residing in Cork, whose names he gave. Cork, where the transaction took place, was evidently the more convenient venue.

Counsel on behalf of plaintiff opposed. Motion refused.

A GULLET OR NOT A GULLET.

At the Wicklow assizes on the 9th instant, counsel on behalf of Mr. Latouche appeared to traverse a presentment on the barony of Rathdown for a sum of £568 for constructing *a gullet* along the esplanade at Bray, £200 had been subscribed by the inhabitants, and he contended that it was *not* a gullet but a main sewer for the benefit of the residents along the esplanade, and could not be presented for as a gullet under the 56th section of the Grand Jury Act, nor under the Towns Improvements Act off the barony. Mr. Brett, C.E., county surveyor, proved that it *was* a gullet, and that the enlargement was fully compensated by the £200 so contributed. Judge O'Brien reserved the question for the *twelve* judges.

BOOKS RECEIVED.

The English Cathedral of the Nineteenth Century, By A. J. B. Beresford Hope, M.A.D.C.L. London, John Murray.

A desire to render more justice to this important work than we possibly could in a hasty review, owing to its arrival almost on the eve of publication, induces us to postpone consideration until our next number. We, however, take occasion to mention, that through the courtesy of the author and publisher, "the illustrations of Cathedral Architecture" herewith are presented therefrom.

Pamphlets.—"*An Historical Review of the Restrictions upon Marriage, especially in relation to England, with the true reasons why Marriage with the sister of a deceased wife was prohibited.*" By an Antiquary. London, Wertheim, Macintosh and Hunt. Also, on the *same* subject, by Henry Hall, Viscount Gage. London, G. Watson.

Any consideration of these works, which have a sectarian tendency, and may, for ought we know, possess merit for those whom the subject concerns, "socially or politically," would be quite outside *our* province.

The Tuileries—or rather the southern wing of the palace—is under repair. The cost is estimated at 40,000,000f (£1,600,000).

An industrial exhibition in Bristol is proposed. The committee—composed of influential residents—have already made arrangements which are calculated to insure complete success to the enterprise.

The building of the International Exhibition of 1862 is reported to be progressing with marvellous rapidity. Only two foreign countries decline the advantage of exhibiting, Turkey and Morocco.

The sum of £64,556 has been voted by the House of Commons for the erection, repairing, and maintenance of public buildings in Ireland, for year ending 31st March, 1862.

Miscellaneous.

The Wallace Monument.—Recently the Duke of Athole laid the foundation-stone of the Wallace monument, accompanied by various civic and volunteer bodies in procession. Subscriptions have been sought and obtained in almost every quarter of the globe, and now the fund amounts, after deducting expenses, to £5,500. The cost of the monument is estimated at £7,000, leaving a deficiency of £1,500. The design for the monument is by Mr. J. T. Rochead, of Glasgow. It consists of a Scottish baronial tower, fully 200 feet high, and 36 feet square. The walls are massive, fifteen feet thick at the base, and graduating from five to six feet at the top. At the east side of the tower is a house for the person in charge of the monument. An open courtyard, entered by a massive circular-arched gateway, having bold mouldings, separates the main building from the keeper's dwelling. Above the gateway are the heraldic arms of Sir William Wallace. Passing through the gateway into a stone-arched passage, a series of steps lead to an open octagon winding staircase, projecting from the south-west angle of the tower, and running up nearly to its entire height. Arrowlet slits or lights pierce the walls of the staircase at intervals, almost to the summit of the square tower, and imitation ropework, with moulded angles, bind the walls externally. The staircase forms the approach to several spacious and lofty halls, designed for the reception of visitors and the display of antiquarian relics illustrative of early national history. An imperial open crown of stone forms the apex of the monument. This coronal top is upwards of fifty feet high, and, according to report, is to be built of pure white sandstone. It comprises eight arms, from the angles and sides, all converging and abutting on the centre upon an open newell staircase, and forming a series of flying buttresses, broadly ribbed, having the spandrils filled in with open tracery. Crocketed pinnacles surmount the outer flanks of the buttresses, and some very effective sky lines are obtained by the openings of the crown. Should the funds admit, a marble statue of Wallace will be placed in the upper gallery or hall of the tower. The site selected is the highest point of the far-famed Abbey Craig, about two miles north-east of Stirling. A grand object in a beautiful landscape, this hill has long been a favourite resort of the tourist, who required no "climbing tower" whence to enjoy the richly-tinted panorama of river and plain, hill and dale, which expands before and around him on attaining the summit.

Visit of Her Majesty.—It is the intention of her Majesty the Queen to visit Ireland towards the latter end of next month. Her Majesty will remain four or five days at the Viceregal Lodge, in the Phœnix Park, and will probably visit the Camp at the Curragh of Kildare. Thence she will make an excursion to the Lakes of Killarney. The visit being of a private nature, as was the case with that of 1853, no public reception or ceremonies are contemplated. This event, viewed in conjunction with the present stay of the Prince of Wales amongst us, may be regarded as a significant sign of increasing royal interest in Ireland, and we have no doubt but that it will be most heartily appreciated.

A Condemned Tramway.—The Metropolis (London) Road Commissioners lately resolved that the present tramway on Bayswater-road should be removed, and the road restored to its original state. Mr. Train has been allowed till the 4th of October to carry out their directions.

The Paper Duty.—It is a great mistake to suppose that newspaper proprietors will derive the entire benefit of three-halfpence per pound of duty to be abolished on the 1st of October next. The paper manufacturer will take care to have at least a third of the sum, while, according to the calculation of some of the ablest and most intelligent men in the paper trade, it is not at all improbable that, by the beginning of the year, the rise in the price of rags, consequent on an increased consumption of paper, will be so great as to keep up the price of paper to nearly, if not wholly, its present amount.—*Morning Advertiser*.

Steam Locomotives on Common Roads.—In London, recently, a serious accident took place, whereby several passengers on an omnibus had more or less "bones broken," owing t the horses taking fright at a locomotive employed by the contractor for removing the *debris* from the Hampstead reservoir. The vestry authorities have taken the matter in hand, with the view of preventing the employment of such machines for the purpose.

Stradbally Hall.—The farm offices are roomy, extensive and substantially built, and their perfect uniformity throughout, at once arrests the eye of any person having the slightest knowledge of the style of architecture suitable for an extensive farm. The dairy is just what we had expected, sufficiently large and airy, and supplied with every necessary in the shape of modern dairy utensils; hot and cold water pipes leading from the cistern and kitchen, supply any quantity of water for the necessary purposes, and the splendid marble counters so well stocked with glass and porcelain milk vessels, show that due attention has been devoted to this valuable appendage of the farm. The stables, granaries, harness-rooms, coach-houses, laundry, bakery, byres, piggeries, root-houses, workshops, &c., are all so regularly and so conveniently arranged as to tend to economise a vast amount of time and labour in attending to, and executing the multifarious objects in such a large establishment.—*Agricultural Review*.

Public Works in India.—The competitive examination for appointments in 1861 in the civil engineer establishment of the public works department in India took place on the 3rd of June and four following days, at the India Office. The examiners were Professor Cape, M.A., F.R.S.; Lieutenant-Colonel Auchterlony, Madras Engineers; and Mr. George P. White, C.E. Thirty-two candidates presented themselves for examination, of which, we understand, eleven have been selected for appointments.

American Steam Frigates.—"There is no navy in the world", says the *Daily Wisconsin*, "which has on one station five such men-of-war as will in a few days be cruising off our coast. The Niagara, Wabash, Minnesota, Colorado, and Roanoke, are the *largest* wooden steam frigates in the *world*, and cannot be surpassed as specimens of naval architecture. They carry an aggregate of 180 guns, which can throw 114 pounds more iron in a broadside than an equal number of the 120-gun liners of England. It costs 25,000 dollars a-day to keep them in active service, manned as they are by no less than 2,300 men."

Not Lost.—A gentleman whose house was repairing, went one day to see how the job was getting on, and observing a number of nails lying about, said to the carpenter employed on the works—"Why don't you take care of these nails? They'll certainly be lost." "No," replied the carpenter, "you'll find them in the bill."

Trade Catalogues.—"One cannot but be struck with astonishment at the innumerable ways in which an enterprising tradesman appeals to the public with a view to increase his trade. Printing in all its branches, assisted by the skill of the wood engraver, seems in the present day to be one of the media most generally employed in spreading the knowledge of various manufactures. These arts have ably been brought into use by Mr. Benson, an eminent watchmaker of 33 and 34, Ludgate Hill, and 46 and 47, Cornhill, who has sought, by means of an 'Illustrated Pamphlet' (consisting of nearly 60 pp., and containing upwards of 250 beautiful designs for watches, clocks, &c., with an elaborate description of every construction of watch now made), to enable persons living in any part of the world to select the watch best adapted for their use, and have it forwarded free by post."—*Sun*.

Auctions, Sales, &c.

ON THURSDAY AND FRIDAY MORNINGS, the 18th and 19th instant, commencing each Morning at Eleven o'clock, precisely,
In the WOOD SALES SHEDS,
BRUNSWICK & TOXTETH DOCKS, LIVERPOOL.

211 Logs Mexican Bay MAHOGANY, being the Cargo lately landed ex Magicienne, from Minatitlan.

Apply to Messrs. JAS GRAHAM and Co., Merchants.

60 Logs Tonula MAHOGANY, now landing ex R. S. Ely.

Apply to A. GLASSFORD, Esq, Merchant.

57 Logs Honduras MAHOGANY, ex Jessie.

517 Logs and Curls St. Domingo (Porto Plata) MAHOGANY.

30 do. do. SATINWOOD, now landing ex Chancellor.

On account of the Importers

98 Logs City St. Domingo MAHOGANY, lately landed ex Her Majesty.

Apply to Messrs. IMRIE and TOMLINSON, Merchants.

200 Pieces Crown WAINSCOT OAK BILLETS.

100 do. 2nd Quality, now landing ex Loveley, from Memel.

On account of the Importers.

205 Logs and Planks Bahia ROSEWOOD, weighing about 35 tons, now landing ex Richmond, from Bahia.

Apply to Messrs. JOSEPH TOPLIS and Co., Merchants

3976 Pieces City St. Domingo LIGNUMVITÆ, now landing ex J. H. Elliot.

Apply to Messrs. GUION and Co., Merchants.

To the above will be added Parcels of Italian WALNUT and other FURNITURE and FANCY WOODS, and AMERICAN and BALTIC WHITEWOODS, meantime expected to arrive.

E. CHALONER, Wood Broker and Measurer,
6, East Side Queen's Dock, Liverpool.

ON FRIDAY next, the 19th instant, at Twelve o clock, noon, precisely, on the Quay east side of the Brunswick Dock, Liverpool

20 Logs Prime Waney BOARD PINE TIMBER,
425 do. do. YELLOW PINE Do.
111 do. do. RED do.
300 do. do. BLACK BIRCH.
2378 2nd Quality PINE DEALS,
now landing ex Sirocco, from Quebec.
150 Logs Prime YELLOW PINE TIMBER.
104 do. do. RED do. do.
29 do. do. Lake St. Clair OAK.
35 do. do. BASSWOOD.
160 do. do. BIRCH,
now landing ex Rajahgopaal, from Quebec.
250 Logs YELLOW PINE TIMBER.
380 do. BIRCH,
now landing ex Ann Gray, from St John, N.B.

To the above will be added other parcels of AMERICAN and BALTIC WOODS, and Catalogues, containing full particulars of the above, may now be had on application to

E. CHALONER, Wood Broker and Measurer,
1, East side Queen's Dock, Liverpool.

MAHOGANY, TIMBER AND DEALS.

JAFFRAY BARCROFT will SELL by AUCTION, in the CUSTOM HOUSE DOCKS, on TUESDAY next, 16th July, 1861, the Cargo of Mahogany, just landed ex Johanna Fredcrika, direct from Tonula, containing 59.700 feet of prime panel, counter-top, and cabinet wood.

Also 25,000 feet St. Domingo Mahogany, suitable for table and chair manufacture.

And 31,000 feet of prime Honduras Mahogany.

Detailed specifications of all the above can be had on the day of sale. Also

30 Logs of Wainscot Oak.
7 Pieces Large Quebec Oak.
20 „ Ash.
61 „ Birch.
160 „ Red Pine (large size).
55 „ Board Pine.
1500 „ 1st quality Quebec Spruce Deals.
1200 „ 1st „ „ Pine Deals.

JAFFRAY BARCROFT, Broker & Measurer,
42A, Great Brunswick-street.
Dublin, July 10th, 1861.

Auction of Saint John Deals, Memel and Quebec Timber, &c.

WILLIAM CARVILL will OFFER by AUCTION, on THURSDAY, the 18th July, in the Custom House Docks, at One o'clock p m,

The Cargo of Spruce Deals, Plank and Battens, now landing ex ship Vortex, from St. John's, N.B.

The Cargo of Spruce Deals, Planks and Battens, just landed ex ship Saxon, from St. John's. N.B.

The Cargo of Red and Yellow Pine, Ash, Oak, Pine Plank, &c., per ship Victor, from Quebec.

The Cargo of Memel Timber, Plank, and Lathwood, just landed ex ship Friedrich Wilhelm.

JAFFRAY BARCROFT, Broker & Measurer.
Rathgar Saw Mills, and Custom House Docks,
Dublin, 2nd July, 1861.

N.B.—A Cargo of best Bangor Blue Slates, per Charlotte, daily expected.

Building Materials by Auction.—Shop Sashes, glazed with Plate and Sheet Glass; a number of Memel Beams, Joists, Rafters, Scantlings, Glazed Windows, with Shutters and Trimmings; Doors, Flooring Boards, Slates, &c.

MR. HUGHES having an accumulation of Old Building Materials has instructed the Subscriber to Sell by Auction, on TUESDAY, the 23rd of July, 1861, at the rere of Nos 80 and 81, TALBOT-STREET, the Materials of the Houses recently taken down at the corner of Dame-street and Eustace-street, together with a quantity of other Materials; the entire consisting of several Shop Sashes, glazed with best British Plate Glass; 36 dozen Sheet and Crown Glass, with Shutters; Showboards, Pilasters, and Consols to match; a number of modern good Windows, with Shutters and Trimmings complete; Shop Doors, glazed with Plate and Sheet Glass; several Panelled, Sash, Hall and Ledged Door, Memel and Irish Oak Bressimers, Joists, Rafters, Scantlings, and Flooring Boards, Circular Dome Lights, a quantity of good old Double and Ton Slates, Ridge Tiles, &c; a number of Metal Pillars, Marble and Stone Chimney Pieces, Old Grates, old Iron and Lumber, &c.

CHARLES BENNETT, Auctioneer,
6, Upper Ormond-quay.

Sale at Twelve o'Clock.

All Lots purchased must be removed within two days after the sale, or deposit money will be forfeited.

KILKEE, CO. CLARE.

Handsome & Commodious Marine Residence TO BE SOLD.

THE following Houses—Nos. 1, 4, 9, and 10, M'DONNELL-TERRACE, WEST END, KILKEE.

Nos. 1 and 4 contain each—Parlour, Drawingroom, five Bedrooms, Kitchen, Pantry, Scullery, and Servants' Apartments.

Nos. 9 and 10—Parlour, Drawingroom, four Bedrooms, Pantry, Kitchen, Scullery, and Servants' Apartments.

To each House is attached a large enclosed Yard, with Turf-house. Stabling and Offices can be built.

M'Donnell-terrace commands a magnificent view of the Bay and bold cliff scenery of this delightful and fashionable watering-place. The subscribers, from their local position, have had such advantages in building the Terrace as enable them to offer these beautiful houses at a comparatively small price.

The other houses of the Terrace have been already disposed of, and the purchasers are receiving a large per centage for their investment. The Terrace is built on the estate of W. E. A. M'Donnell, from whom the buyer of each house can have a direct lease for a term of 999 years at a reasonable ground rent.

For further particulars apply to the owners—Messrs. CHARLES M'DONNELL & SON, Timber Merchants and Builders, Kilrush, County Clare.

VITRIFIED SEWAGE PIPES. JOSEPH KELLY has a large Stock at his Stores, JOHN-STREET, which will be Sold at reduced rates.

THE CITY SAW MILLS,
TIMBER AND SLATE STORES,
66 and 67, THOMAS-STREET, DUBLIN.

IMPERISHABLE TESSELATED PAVEMENTS.—H. SIBTHORPE AND SON, Agents to Maw and Co., are prepared to supply Designs for Floors of Churches, Conservatories, Entrance Halls, and Passages, with proper Workmen to lay them in any part of Ireland.

Various specimens may be seen at their Warerooms,
11 AND 12, CORK-HILL, DUBLIN.

THE CITY OF DUBLIN STEAM PACKET COMPANY'S Vessels sail from KINGSTOWN TO HOLYHEAD, on the arrival of the Mail Trains leaving Westland-row, Dublin, at 6.30 a m., and 7 p.m.

N.B.—Passengers from Dublin leave by Special Trains from Westland-row at 6 15 a.m. and 6.45 p.m.

KINGSTOWN to LIVERPOOL—Every Tuesday and Saturday, at Seven o'Clock p.m.

DUBLIN to LIVERPOOL, with Cargo and Passengers, daily (Sunday excepted), about two hours before high water.

DUBLIN to BELFAST every MONDAY, returning every WEDNESDAY.

15, EDEN-QUAY and NORTH-WALL, Dublin.

TERRA COTTA—Warranted to stand the most severe frost.—This material is especially fitted for Garden Decorations, and for all exposed work, such as Fountain Basins, Garden Vases and Statues, Balustrades, Tracery for Terraces and Parapets, Terminals, Crosses for Gables, Capitals of Columns, Brackets, Consoles, Chimney Shafts and Pots, and all other work exposed to wet heat, and frost. Specimens may be seen at 16, GREAT MARLBOROUGH-STREET, LONDON, W., and at the Works, STAMFORD, LINCOLNSHIRE.

Oils, Colours, Glass, &c.

MANNIN'S Wholesale and Retail DRUG, OIL, COLOUR, and GLASS WAREHOUSE,
2, GREAT BRUNSWICK-STREET.
(near D'Olier-street.)

Cattle Medicine of all kinds.

N.B.—Every article is warranted genuine, and at the lowest price.

PLATE GLASS, PIER AND CHIMNEY GLASSES, of the largest dimensions, SILVERED; and all sizes, SILVERED and UNSILVERED, for mirrors, sashes, and shop fronts.

WALTER BURKE,
91 AND 93, MIDDLE ABBEY-STREET.

WINDOW GLASS for Dwelling Houses, Out-offices, Conservatories, &c., with a large assortment of Plate Glass Mirrors.

MAURICE BROOKS,
SACKVILLE-PLACE, DUBLIN.

UNION PLATE GLASS COMPANY. The very beautiful article of Plate Glass, manufactured by this company, can be had at the price of the lowest in the market, shipped to any Port in Ireland.

H. SIBTHORPE AND SON,
Agents for Ireland,
11 AND 12, CORK-HILL, DUBLIN.

SHIPWRECKS—IRISH LIFE BOATS.

APPEAL TO DUBLIN.

THE COMMITTEE OF MANAGEMENT have to state that they have recently expended nearly £7,000 on the following Irish Life-boats, viz.:

PORTRUSH,
GROOMSPORT,
TYRELLA,
NEWCASTLE,
DUNDALK,
DROGHEDA,
SKERRIES,
WICKLOW,
ARKLOW,
CAHORE,
WEXFORD,
ROSSLARE,
CARNSORE,
TRAMORE,
DUNGARVAN,
ARDMORE,
YOUGHAL,
BALLYCOTTON,
WESTPORT.

During the past year the Institution has also incurred expenses amounting to £10,545 on various Life-boat Establishments on different parts of the coasts of the United Kingdom.

During the same period the Society has also granted £1,108 15s. 3d., as awards for saving 499 persons from a large number of shipwrecks on our coasts: a most satisfactory result, and clearly showing how much has been accomplished by the well-directed efforts which the Life-boat Institution has brought to bear on this humane cause. This great and national work has, however, only been accomplished by the Society incurring further liabilities to the extent of £3 834.

With so sacred an object in view as the Rescue of our fellow-creatures from an appalling death by Shipwreck, it might be supposed that the NATIONAL LIFE-BOAT INSTITUTION had claims which would come home to the heart of every one in this great maritime country. Such, it may be hoped, will be the case as its operations become more generally known, and thus an abundant harvest, not only of popular sympathy but of general pecuniary support, will be the permanent result.

The Committee of this Institution do not, therefore, hesitate to solicit most earnestly the support of the people of the CITY OF DUBLIN and its environs, in aid of the benevolent objects of the NATIONAL LIFE-BOAT INSTITUTION. They cannot but sympathise with the vigorous efforts now being made by this Society to save the lives of shipwrecked crews. Their help was never more needed than at the present time, when, through the extraordinary exertions the Society has made within the past few years, it has now One Hundred and Eight Life-boats under its management, for the maintenance of which, in a state of thorough efficiency, a large permanent annual income is absolutely needed, if its humane mission is to be perpetuated.

Contributions are thankfully received by the following Members of the Dublin Branch of the Institution:

CAPT. ABBOTT, R.N., Hon. Secretary.
CAPT. MACLEAN, R.N., 22, Blessington-street.
LIEUT. TULLY, R N., Seville-place.
LIEUT. HUTCHISON, R.N., Harbour House, Kingstown.
P. HOWELL, Esq., Steam-packet Office, 12, Eden-quay.
ANDREW TAYLOR, Esq., 44, North Wall.
JOHN WALSH, Esq., Agent to Lloyd's, Dublin.
W. J EGAN, Esq., Steam-packet Office, 46, North Wall
H. L ALLEN, Esq., Steam ship Office, 5, North Wall.

By Capt. Abbott, R.N., Ulverston-road, Dalkey, the Hon. Secretary of the Dublin Branch; by all the Dublin and London Bankers; and by Richard Lewis, Esq, Secretary of the National Life-boat Institution, John-street, Adelphi, London, W.C.; or by the Collector or Assistant Secretary, Mr. SAMUEL B. TAYLOR, No. 1 Lower Leeson street.

The Dublin Builder.

VOL. III.—NO. 39.

UNDUE PREFERENCE [illegible]FACTURERS.

SOME time since a correspondent [illegible] through our columns of an undue preference alleged to [illegible] public department to the manufactures of certain parties connected with the building line, but the communication was so pointedly personal and invidious, and moreover implied so direct a collusion, that we declined insertion; however as the general principle is one of some importance both to the profession and the various building trades, and is just now receiving much consideration in another direction, we may likewise appropriately direct our thoughts thereto. The question resolves itself simply into this main, although its lateral branches are very numerous, "Is an architect in writing a specification justified in providing specially for the materials manufactured by one particular firm, where those of another or others may be equally desirable as to *quality* and *price?*" We apprehend that if *our* architect friends answer the query, there will be a direct and unanimous *affirmative*, whereas, judging from personal experience, the builder will add as direct a *negative*. Such an opposition of opinion on the part of two great bodies so closely allied in their pursuits, conclusively attests the importance of the question. May it be attributed to conscientious, to interested, or disinterested motives? Is the architect, who specially provides for the employment in his works of certain manufactures, to the total exclusion of others of similar character, actuated by *conviction* that they are *the* most desirable, or may he—an exception, we trust, to a general rule—have given in his adhesion to that practice of "*understanding*" which has been openly stated as not altogether uncommon; or again, is he merely actuated by the somewhat pardonable—under some circumstances, though, under others, replete with injustice—desire, merely to serve a *friend*, when he can do so without detriment to his client? On the first point, we believe that the author of a specification, whether in an official or private professional position, *is* perfectly justified both in noting and maintaining a preference, despite whatever outcry may be raised against him for the provision of such materials in his work as in his conscientious and impartial opinion *shall* conduce *most* to their stability or finish; secondly, when private pecuniary influences are in question, the course is not only untenable but unprincipled and contemptible—although many are found to justify it as "a mere matter of business;" and again upon the score of "friendship", perfectly admissible in private practice, but *wholly* objectionable as regards public officials, whose dictum may, from time to time, exercise a considerable detrimentary influence on the free trade of a market. Let us take as illustrations the materials—"building stones," "bricks," and "cements;" in the two former, the one district may, and most frequently does, yield articles widely differing in quality, and even though with similar ingredients as regards "bricks" especially, a peculiar mode of manufacture may produce a much better article than that obtained in an adjoining field; in like manner, "cement"—which, in point of importance, both in a utilitarian and a decorative regard, ranks next to the foregoing—of whatever class it may be, whether Portland, Roman, &c., comprehends various qualities and kinds, patent or otherwise; can it therefore be justly alleged, if an architect specially mentions *a name* as the source from which the supply is to be obtained, and really believes it to be *the best*, that he gives an undue preference? We should say *not*, but at this point, the question turns on the monosyllable *if*. We are slow to assume that pecuniary influences are so general as some assert, though, on the other hand, their existence to a degree in some transactions cannot be denied, however much we should wish, both in our journalist and private capacity, to maintain the so-called "dignity of the profession." A correspondent of our excellent cotemporary, "*The Building News*"—for whose opinions it is, however, specially noted that the editors are not responsible—speaking of "Commissions to Architects, says:—

"Every architect and builder knows perfectly well that the practice called 'giving commissions to architects' is of common and every-day occurrence. *And why not?* The same system of giving commissions to those who bring in business, additional trade, pupils with premiums, in fact, every gain and advantage, not otherwise or so readily procurable, is in hourly operation by the majority of men engaged in business matters of every kind; fairly conducted, it is one of the principal elements of all commercial transactions,—'get such or such an advantage for me and I will give you so much for it. *What can be more fair?*' A most extraordinary feeling has arisen in the minds of some upon this question, of some who I have not the slightest doubt in the world, actually receive those 'commissions' of which they are publicly so anxious to ignore the *very existence;* this is a folly, and is likely to result only in convincing the public that there is a secret and enormous system of defrauding them of advantages which they would otherwise themselves possess. For it is equally a folly to attempt to bolster up an idea that the public are not already aware that such a system of commission does exist. And, as I have before asked, *why not?* A client engages an architect to superintend a certain work, some items which cannot conveniently be included in the contract are omitted, say stoves, mantel-pieces, and many other items; take a stove for example—perhaps a price has been provided for it, say £5. Now, when that stove is wanted, suppose the builder provides it; after the architect has visited the warehouse and made a selection of a stove of that value, he, the builder, will charge the client £5 for it, paying *himself*, say, for example, £4 10s., the *trade* price, *thus profiting* 10s. Suppose the architect, who, be it observed, has all the extra trouble of attending to select, orders the stove to be sent to the works, and receives 10s. himself, the difference between the trade and retail price, the stove will cost the client still the same price of £5, and he cannot get it for less, for if he buys the stove himself, every one knows that he will be charged not the trade, but the retail price of £5. In what respect in this transaction has the client been defrauded or even unfairly dealt by? It is true the architect might hand over the 10s. thus gained to the client, but is there any, even moral, reason *why he should do so?* The same might be said of the builder, or it might be represented as dishonest conduct on the part of the tradesmen to sell his goods at one price to one person and at a higher price to another. The whole argument against 'commissions' of this nature looks very like an attempt to dictate to tradesmen that they must sell their goods at one price alike to a builder or architect who requires many, as to a private buyer who requires only one. If it is wrong for an architect to buy a thing at the trade price and sell it at the usual retail price, how is it that a builder may do so without reproach? 'Oh?' some one says, 'an architect is a professional man who ought not to buy and sell.' How is it, then, that he may buy and sell the labor of his clerks? Besides, this alters the aspect of the question altogether. If it is only a question of comparative respectability the less that it is said about it the better, to my mind, for young architects must live as well as old ones. An eminent architect considers it not 'respectable' to take commissions for trifling works, so hands them over to a clerk or less fortunate friend, another architect, say in class number two, thinks it *infra dig.* to measure even his own work, so employs a surveyor to do it, number three persuades himself that a 'respectable' architect should not take out quantities of any besides his own work, and so on through the various shapes and forms assumed by that dreadful idol—'respectability.'"

Unquestionably there is much truth in the foregoing, and it may be applied both to English and Irish practice, but we must take exception to the manner in which the writer lays "the flattering unction to his soul" that justifies the principle or rather the want of it; and referring to our own immediate subject must remark that, where such a system has any existence, it, at least, leaves room for assumption of *sub-rosa* understanding on the part of those who continually compel contractors to use the manufactures of *certain* parties and pass by others. A builder who has been accustomed to deal with Messrs. A and Co. for certain materials, and who has always experienced fairness and considerateness therefrom, naturally feels a repugnance to open a new account with Messrs. B and Co., who are strangers, and reminds the architect that he can procure as good (at least) from the latter as the former, but the professional functionary is inflexible, and says, "look to your specification and attend to its provisions, Messrs. A and Co.'s goods are those to be purchased and *none other.*" A multitude of suppositions from that moment pass through the builder's mind, and relations are not on the most satisfactory possible footing.

THE MUSEUM OF INDUSTRY.

THE report of Sir Robert Kane, F.R.S., M.R.I.A., director of the Museum of Irish Industry and Government School of Science applied to Mining and Arts, for the year 1860, states that the arrangement and classification of the several collections in the Museum has been considerably advanced during the past year, and additional specimens obtained have been distributed among the technological series. The educational value of the collections has been much enhanced, and their objects rendered more intelligible to the ordinary class of visitors.

The preparation and affixing of full descriptive labels is carried out. Satisfactory progress has been made in the systematic catalogue; considerable portions of the divisions embracing British and foreign porcelains and earthenwares, and British and foreign fuels and iron ores and iron manufactures have been already prepared. Amongst the additions to the museum have been a collection of foreign woods used in building and cabinet work, and of fabrics manufactured from wood, foreign and Irish; various illustrations of the use of palms, stalks, leaves, and fibres in tropical countries. This branch of economic botany may be considered as now very completely represented in the museum. A collection of materials used in paper making, with an interesting series illustrative of the stages of that manufacture, and various samples of paper from China, and manuscripts written on bamboo paper. In the division illustrating the manufacture of glass and enamel, a series of glass enamel and porcelain, ornamental beads, and also imitations of coral, jet, amber, &c., have been added. A series of copper ores and other associated rocks and minerals from the Dhurode Mine, county Cork, presented by the Rev. M. Cash, has been added to the metallurgic collection. A series of beryls, fluors, garnets, and other minerals which possess very great value as mineralogical and geological illustrations, has been procured, and also a highly interesting specimen of native gold in quartz from Mount Alexander, Australia, in which the geological relations of the gold-bearing lode are usefully illustrated. The arrangement and labelling of the mineral collection is still in progress, but the determination of mineral specimens is necessarily a long and laborious work, when effected with that accuracy which alone can give scientific value to the results, or render the collection worthy of its place in the Government School of Science applied to Mining and the Arts. The total number of visitors in the evenings for the year was 8,934, making the total number of visitors in the year 32,999. In the chemical department very satisfactory progress has been made during the past year under the zealous direction of Mr. Galloway. Five of the most important coals employed in gas lighting have been analysed, and analyses of various varieties of Irish and British coals, together with determinations of their heating powers, have been made for illustration of the gallery collections. Twenty-seven analyses of waters have been made for the corporation of Dublin in reference to the important question of the supply of water to that city, and many other analytical investigations of industrial and scientific interest have been carried out by Mr. Galloway and the session laboratory students under his direction. The library of the Museum has been open during the session to registered students of the Government School of Science applied to the arts. The number attending was 557, giving a daily average of 3.67. The attendance was almost entirely in the evening, as the class of students are usually otherwise occupied during the day.

DUBLIN TO LONDON AND PARIS AND BACK.

We have not failed to notice in previous numbers, as our readers may remember, the exclusion for some years of Dublin from the advantage of those excursions to *the* metropolis, which throughout England are systematically pursued from May to November; and we consequently now experience much pleasure in perceiving that arrangements have been made through the agency of Mr. Henry R. Marcus, of London, the well-known caterer, for an excursion to London on the 5th inst., available for 7, 14, or 16 days, and thence to Paris and back, if so desired. Huge placards and advertisements have already fully announced the fact, but on reference to the small bills we find them in some regards so dubiously worded, as to lead astray many parties not accustomed to the road if not explained. For an excursion to London only, the instructions for the up journeys are now clear enough, viz., to leave North Wall for Holyhead at six a.m. on Monday, 5th instant, and thence by special train to London, returning on the 12th inst.—first-class, 34s, second-class, 16s.; or optional for return on 12th, 19th, or 21st for first-class, 40s., second-class, 20s. The return arrangements are, however, broken off at Bangor (where on a former occasion difficulties arose by the excursion tickets not being available for the next train to Holyhead unless on *payment of an extra sum*), no date for arrival at Holyhead being fixed; however, as we are told that "the steamer will leave for Dublin at 9 p.m., or as soon after as tide will permit," we presume that this special train having merged into the Parliamentary is intended to arrive at Holyhead at 9.5 p.m,—the period fixed in time bills for the latter. Intermediate excursions to Bangor, Conway, Rhyl, and Holywell are in connection therewith, at exceedingly moderate rates. The cheap excursions to Paris and back, announced for 44s. and 32s. 6d., must not be understood as applying to *Dublin*, but *only* from London to Paris and back, and is *an addition* to the return ticket from Dublin to London and back. We hope that arrangements have been made to convey the "excursionists" direct to the train from the steamer on arrival, and *vice versa*, and not as formerly cause them to walk from the jetty to the terminus, a distance of two miles, while the holdrs of *other* tickets proceeded by train.

COLUMN FOR CRAFTSMEN.

THE PLUMBER.

Without underrating the usefulness of the plumber's craft, it must be conceded, that it does not comprehend so extensive a sphere as any of those branches noticed in the foregoing series, and is strictly confined to the constructive. Nevertheless both skill, or the want of it, are apparent, when respectively present or absent in his workmanship. The duties of th[illegible]er briefly comprise the reduction of lead from [illegible]eets of various thicknesses, and in conne[illegible]e laying on of this material, or cop[illegible]case may be), forming all platforms and gutters with proper fall and drips to down pipes, securing the carrying of water off with facility, and, at the same time, staunching all parts to prevent damage to the structure from leakage; again, in the manufacture and fixing of water-closet apparatus with its piping, traps, pan, cranks, cistern, pump, &c., and in the suitable supply of water to the several parts of public or private buildings. Lead is obtained from mines, of which we possess some in Ireland, yielding ore of uncommon excellence, especially in the county Wicklow, where, under the auspices of some enterprising companies, mining operations are carried on most extensively. The following particulars of the process of reducing lead from its raw state to pigs may here prove interesting. After the ore has been taken from its bed, it is smelted, first being picked, in order to separate the unctuous and rich, or genuine ore from the stony matrix and other impurities; the picked ore is then pounded by machinery under stampers, and being washed, is put into a reverbatory furnace to facilitate the evaporation of sulphur. When the surface becomes somewhat pasty, it is covered with charcoal and well shaken together, the fire increased and the purified lead flows into moulds, holding about 154lbs. each, and their contents are known as *pigs*. Lead is inferior in tenacity to other metals, for a leaden wire, the 120th part of an inch in diameter, can only support 18·4lb. without breaking. It melts at a temperature of 612 deg. (Fahr.), and boils and evaporates at a higher. Cast sheet lead, used for architectural purposes, is technically divided into lead of 5lbs., 5½lbs., 6lbs., 6½lbs, 7lbs., 7½lbs., 8lbs., 8½lbs., by which it is understood that every superficial foot is to contain those respective weights according to price. Milled lead used by plumbers is very thin, seldom containing more than 4lbs. to the foot super., and is by no means adapted to platforms exposed to the sun's rays or to great wear, being liable to expand and crack. The lead that lines the Chinese tea-boxes is reduced to a thickness to which it is said European plumbers cannot approach, the process of so doing being as follows:—"The caster sits by a pot containing the melted metal, and has two large stones, the lower one fixed and the upper moveable, having their surfaces of contact ground to each other, directly before him. He raises the upper stone by pressing his foot upon its side, and with an iron ladle pours into the opening a proper quantity of the fluid metal. He then lets fall the upper stone, and thus forms the lead into an extremely thin irregular plate, which is afterwards cut into a proper shape." Solder is used by plumbers to secure the joints of lead work, where other means would be improper or impossible. As it is a rule that solder should be easier of fusion than the metal intended to be soldered, the plumber, therefore, uses a composition of equal parts of tin and lead fused together, and run into moulds and technically called "soft solder." Plumbers' work is estimated by the lb. or cwt., and the weight of each quality may be discovered by the table below.

Thickness.	lbs. to a square foot.	Thickness.	lbs. to a square foot.
·10	5·899	.15	8·848
·11	6·489	·16	9·438
one-ninth	6·554	one-sixth	9·831
·12	7·078	·17	10·028
one-eighth	7·373	·18	10·618
·13	7·668	·19	11·207
·14	8·258	one-fifth	11·797
one-seventh	8·427	·21	12·387

LONDON BRIDGES.

Every one who has visited London, no doubt, has noted amongst its chief features the various bridges which span the Thames between the City at King William-street, and Chelsea at the West end. London bridge was in its day a very fine work, but is now inadequate to accommodate the enormous traffic passing over it. Blackfriars has been for many years in a dangerous and dilapidated state, and measures for its rebuilding have at length been adopted. Waterloo bridge is one of the most perfect specimens of architecture in the world. Hungerford Suspension answered its purpose well, but is being replaced by one for Railway purposes, and will be re-erected at Clifton, near Bristol. The Chelsea Suspension, a comparatively new structure for combined traffic, is a magnificent work, and not less so, though of a different character, promises to be that now in course of erection at Westminster, the particulars of which are hereunder quoted from a description by our able contemporary, *The Building News.* For the two latter, Mr. Page is the engineer:—

In a very short time the last traces of the first stone bridge which ever spanned the river Thames will be removed. It is second in antiquity only to Old London-bridge, and second also to it only in its obstructive qualities. For years it has been a positive nuisance, and its condition had at length justified the language used by the Company of Watermen and the West Country bargemen in their petitions, 125 years ago, against its erection. It had become "a great prejudice to the navigation of the river Thames, so as to render it dangerous if not impracticable." The arches were propped up, the echoing alcoves were demolished, the balustrade was removed, the roadway was lowered, everything in fact, which ingenuity could devise, was done to lighten the bridge and add to its support, but to no purpose—the piers still continued to sink, and the bridge to assume a more ruinous aspect. It is as curious as it is amusing now to remember the enthusiasm which its erection excited, and the eulogy bestowed upon everything connected with it a century since:—"The length, breadth, and regularity of the design, the breadth and depth of the river it extends over, the quantity of water which passes through it without sensible obstruction, the spaciousness and commodiousness of the carriage and footways over it, the easy ascent it affords, the defence of passengers against the weather in their way over it, the watch for the security of their persons, the beautiful globular lights suspended on irons that project inwards with a lofty sweep from the top of each recess and on the sides of the abutments," all combined to render it superior to every bridge known or described in history, in "estimable particulars and circumstances."

Notwithstanding all these advantages, the opposition to its erection was so well sustained, and such bitterness of feeling was entertained by interested parties that a clause was inserted in the Bill providing that persons willfully destroying or damaging the said bridge should suffer *death.*

It was intended by the Commissioners who laboured, as Labeyle says, "for the honor of doing what was thought impossible," to erect a timber super-structure of peculiar and ingenious construction, but the great frost of 1739 occurring whilst the works were in progress, tore away the piles and left the stonework almost uninjured. This circumstance enabled the architect to obtain the Commissioners' sanction to a stone bridge of fifteen arches on what was then esteemed a peculiarly grand scale, the former, for instance, increasing from a span of 52 feet (excluding the small abutment arches) on each side, to one of 76 feet for the centre arch, and the piers from 12 feet broad to 17 feet. The entire length of the bridge was 1,220 feet, its breadth 40 feet.

If our ancestors who exhausted the terms of praise upon the old bridge, could but witness the structure with which Mr Page supplies its place, they would, indeed, require a new vocabulary to express the full extent of their admiration. The width of the openings is almost doubled throughout, whilst the number of them and the substance of the piers opposed to the river is diminished more than a half. There is no "easy ascent," but a perfect level to the roadway over the bridge. Cheesewring granite in the piers, and iron in the super-structure, take the place of stone, and on such scientific principles has the new bridge been built that one half of the bridge was finished before the old was removed, and opened to the public before the other half was commenced, and yet when completed there will be no indication of it in the structure. The whole will fit together with the nicest accuracy, and be as sound as if it had been constructed in the ordinary manner.

The first half of the bridge was opened to the public sixteen months ago. Within two years from that date, that is, next spring, the whole will be completed. The present appearance of the works is exceedingly interesting, and shows fully, by the quantity of material accumulated, the nature, the magnitude, and the importance of the undertaking. A temporary wooden bridge for foot passengers has been built to the eastward of the new bridge. The space between it and the portion already opened, and daily traversed by vehicles, is crowded with stacks of beams, sheds for shoeing and ringing the piles, wharves for the reception of materials, dredging boats, wooden houses, huge travelling cranes, masses of wrought and cast-iron girders, heaps of iron plates, platforms for gravel and cement to form the concrete, ponderous "monkeys" in constant action driving down the piles, blocks of granite, stores for tackle, &c., slabs of iron sheathing piles, immense framing to support the temporary bridge, the *debris* of the old one, through all of which the river and the steamers rush uninterruptedly, and amidst which the workmen labor regularly. A sort of balcony projects from the eastern side of the new bridge. It has been built temporarily to facilitate approach to the works; ladders lead from it downwards at regular intervals. By means of it we can pass over and note the progress which has lately been made. The bridge will consist of seven elliptical iron arches, each formed of sixteen parallel pierced ribs, stiffened with transverse girders; on these transverse girders convex iron buckle-plates, about a yard square, will be riveted to bear the wood blocks, which will form the foundation of the roadway to the bridge. Outside these ribs a face rib will be fixed, but it will have nothing to do with the support of the bridge, being placed only to give an agreable finish to the exterior of it. The ribs are not all equidistant; the central ones, upon which the greatest weight will of course be, being closer than the two external ones on either side.

The piers are built of Cheesewring granite, and are 85 feet from cutwater to cutwater, with a thickness of only 10 feet. The roadway will be, when finished, 75 feet wide. Semi-octagon buttresses, with moulded caps and bases, stand on the tops of the cutwaters, and the parapet between them is of iron, pierced with trefoils, and surmounted by a moulded capping.

The first two or three arches of the old bridge on both sides have, as our readers doubtless know, been absorbed in the abutments of the new one. The abutments are finished, and the springing girders fixed in their places on a bedding of felt, to insure equal pressure, and to allow for the expansion of the metal. The openings of the seven arches increase gradually in width from 85 feet next the shore, to the centre, where the opening is 150 feet wide. The first pier from the Middlesex side is just completed, but the "waistcoat-pieces," as the lowermost girders are called, are not yet fixed. The workmen, at low water, are engaged cutting away the superfluous concrete from the foundation. The second pier is finished, and the waistcoat-pieces fixed. The third pier has only lately been commenced, and we have thus an opportunity of observing the construction of the foundations upon which it is to rest. Elm piles with iron points are driven down some 30 feet deep through the bed of the river. These are placed 2 feet 6 inches apart throughout the surface of the pier. They are surrounded by iron cylindrical piles linked together by means of tongues and grooves, with iron sheathing piles "jollied" down some 2 feet 6 inches below low-water mark. The whole of the interstices between the piles are then filled with concrete, mixed in the proportion of one part of gravel to four of Portland cement. Temporary piles are driven outside to retain the concrete; they are afterwards drawn, and the concrete trimmed off, as we have just noticed the workmen doing it on the second pier.

On this foundation the granite piers are built. They are splayed off at the ends, on plan, to form cutwaters, the verticle line of which is a very graceful and artistic curve. The fourth pier is finished, and the lower girders are in their place upon it. The fifth pier is scarcely so far advanced as even the third; the piles are only half driven, and close by it we see, at low water, the last remnants of the old bridge—one of the foundations of a pier, with the heavy solid mass of Portland stone, which, far more than the weight of the super-structure, hastened its settlement and ultimate ruin. The piers were too massive, and sank, and the upper portion of the bridge sank naturally with it. That seems the reason why no diminution of stonework above could materially check the ruin of the work. The stone the bridge was built of came from the best Portland beds; it is very hard and comparatively uninjured, although it has been exposed to the same gaseous agencies which, in a few years, have disintegrated that of the Houses of Parliament. It has been bought by different contractors, and some of it is being now used in the new offices of the London and County Bank in Lombard-street.

Still crossing the balcony attached to the bridge we come to the 6th pier and find the bridge in a more forward state, the convex buckle-plates are on and the whole span is finished, with the exception of the central girder to the span, which, with its transverse girders, will be of wrought iron. In the next and last span, even this portion is fixed in its place. The central girder, corresponding to the key-stone of an arch, is throughout the bridge of wrought, whilst all the rest is of cast iron. This has been provided to guard against the effects of vibration caused by the transit of carriages over them. A layer of india-rubber or gutta-percha is placed at regular intervals between the girders to allow for the expansion of the iron. The lines of the girders are scientifically drawn, and the weight most skilfully directed. There is no undue pressure anywhere, and no waste of material. In appearance the bridge will surpass every bridge which has hitherto been thrown across the river, and it is built in accordance with the soundest principles of modern science. It will be an equal boon to passengers of all kinds, on foot or on horse, in carriages or in steamers, to waggoners and to bargemen. It will enable a good view to be obtained of the grandest pile of modern times, and be itself an elegant adjunct to it; it is a great ornament to the metropolis, and a work of great public utility.

It is being built by Government from the designs of Mr. Thomas Page, C.E. The ironwork has been supplied by Messrs. Cochrane.

Since the above was in type, we have learned that the designs, submitted in limited competition by Mr. Page, C.E., for the rebuilding of Blackfriars, also have been selected.

ARBITRATIONS.*

THE law with regard to arbitration is too extensive a subject to be exhausted within narrow limits, and indeed it would answer no useful purpose to attempt to do so, as the subject is more appropriately treated of at length in the works of practice intended for the special use of the legal profession. So far, however, as lay arbitrators and laymen are concerned, the more salient points of the law of arbitrations will be found in the following, the object of the author being to set before his readers the landmarks by which they must be guided in matters of this sort:—Parties desiring to end any controversy for which there is no other remedy but by personal action or suit in Equity, may, by arbitration, agree that the submission of their suit to the award or umpirage of any person shall be made a rule of any court of record which the parties shall choose, and insert their agreement in the submission or the condition of the bond or promise whereby they oblige themselves to submit to the award or umpirage of any person or persons; which may, on affidavit of the witnesses thereto, or any one of them, be made a rule of court and enforced by the usual means. The submission so made is not revocable without leave of the court; and the arbitrator or umpire is to proceed with the reference notwithstanding revocation by the parties, and make his award, although the person making the revocation shall not afterwards attend the reference; and the court, or the judge thereof, may from time to time enlarge the time for making the award. When the reference is or is intended to be to two arbitrators, one appointed by each party, either party in the case of the death, refusal to act, or incapacity of any arbitrator appointed by him, may substitute a new arbitrator, unless the document authorising the reference show that it was intended that the vacancy should not be filled up. Where an action is brought, and it is made to appear to a court or judge that the matter in dispute consists wholly or in part of matters of mere amount, which cannot be conveniently tried in the ordinary way, the court or judge may decide the matter in a summary manner, or order that it be referred, either wholly or in part, to an arbitrator appointed by the parties, or to the officer of the court, or in country causes to the judge of any county court, upon such terms as to costs and otherwise as the court or judge shall think reasonable; and the decision of the court or judge, or the award or certificate of the referee shall be enforceable, by the same process as the finding of a jury on the matter referred. An action by an engineer for professional services, the claim depending partly upon his right to commission and partly on the propriety of charges for work done, the items of which were numerous, the judge ordered to be referred to arbitration as a matter of account, consenting to try the question with regard to the right to commission as a question of fact. It has also been held that an action for dilapidations where money is paid into court, and the question is only as to the amount of the dilapidations, may be a matter of account, and the subject of a compulsory reference under the 17 and 18 Vict., c. 125, § 3. The court, by which the rule or order shall be made, or which shall be mentioned in the submission, or any judge, by rule or order, may command the attendance and examination of any person to be named, or the production of any documents to be mentioned in the rule or order; and disobedience shall be deemed a contempt, if, in addition to the service of the rule or order, an appointment of the time and place of attendance signed by one at least of the arbitrators, or by the umpire before whom the attendance is required, shall also be served either together with or after the service of the rule or order. The mode of conducting the arbitration must be left to the arbitrators, subject always to the liability of their award to be set aside if they conduct it illegally. In conducting the arbitration, however, they must act impartially and not consider themselves agents for the persons by whom they were respectively appointed. An arbitrator greatly errs if, in the minutest particular, he takes upon himself to listen to evidence behind the back of any of the parties to the submission; and where an arbitrator questions a witness, and receives statements from him in the absence and without the consent of one party to the reference, the court will set the award aside, without taking into consideration the nature of the statements, or the probability of their having influenced the decision. The court will also set aside an award on the ground of interviews having taken place between the arbitrator and one party in the absence of the other; and similar misconduct on the part of the person applying will not prevent the court setting aside the award, for the matter concerns the true administration of justice. If a reference be to two arbitrators, and the terms of the reference do not show that it was intended that there should be an umpire, or provide otherwise for the appointment of an umpire, the two arbitrators may appoint an umpire at any time within the period during which they have power to make their award, unless they be called upon by the terms of the reference to make the appointment sooner. In any case where an umpire shall have been appointed, it shall be lawful for him to enter on the reference in lieu of the arbitrators, if they shall have allowed their time, or their extended time to expire without making an award, or shall have delivered to any party or to the umpire a notice in writing stating that they cannot agree. The appointment of an umpire in a submission to arbitration is a judicial act, and must therefore be made or signed by the arbitrators at the same time, or in each other's presence; for if it be not, the court will not issue an attachment for non-performance of the award of the umpire. Where the arbitration bonds were conditioned for the performance of the award of the arbitrators, or of the umpirage of such persons as the arbitrators should jointly choose between the parties, and the arbitrators agreed upon several matters, but not being able to agree upon one point, they referred that point to an umpire, the award was held to be bad, as the umpire should have gone into the whole case and the arbitrators had in effect chosen an umpire between *themselves*. and not between the parties to the submission. An award is final between the parties, unless the objection is apparent on the face of it; and no objection can be taken on the ground of a mistake in point of law, unless the grounds of the objection appear on the award, or in some authentic shape before the court in which it is questioned; nor will a mere statement of facts from which it may be inferred that the award was founded upon an incorrect notion of the law of the case avail. If, however, the award be contrary to law, it may be impeached; for it would be an excess of power on the part of the arbitrator; but not unless the law upon the subject of the award be clear. An action on *assumpsit* was brought on an agreement to build a house according to certain drawings, plans, and specifications, and to the satisfaction of the plaintiff, and with the best materials; alleging as breaches that the defendant did not build the house to the satisfaction of the plaintiff; and that he did not perform the work with the best materials. The defendant pleaded—first, *non assumpsit;* secondly, that he did the works to the satisfaction of the plaintiff; thirdly, that before the breach the contract was rescinded; fourthly, leave and license; fifthly, that he deviated from the drawings by the direction of the plaintiff's architect; sixthly, a plea stating an agreement between the plaintiff and himself to build a stone wall in lieu of the wall mentioned in the original agreement; seventhly, that by command of the plaintiff he erected a stone wall instead of a brick wall. The plaintiff thereupon took issue on the first two pleas, traversed the third, sixth, and seventh, replied *de injuria* to the fourth, and demurred to the fifth. The cause was at the assizes referred to an arbitrator, the costs of the cause and reference to abide the event; and the arbitrator awarded a general verdict to be entered for the defendant. On proceedings being taken to set aside the award, it was held that it was not uncertain, inconsistent, or repugnant; and that it was not necessary for the arbitrator to assess contingent damages on the demurrer, neither party having requested him to do so, but acted as if the matter had not been submitted to him. With regard to the fifth plea—namely, that the defendant deviated from the drawings by the direction of the plaintiff's architect, it was held that it was bad on general demurrer, as the architect was not shown to be the plaintiff's agent to bind him by any deviation from the approved drawings. Any arbitration or umpirage procured by corruption or undue means, shall be adjudged and esteemed void of none effect, and shall be set aside by the court on complaint made before the last day of the next term after it is made and published to the parties. An award upon a general reference cannot be impeached for erroneous judgment upon facts, but it may for excess of power or mistake admitted by the arbitrators, as well as for corruption or misbehaviour. There must, however, be satisfactory evidence against the arbitrators to induce the court to interfere. With regard to the fees and remuneration of an arbitrator, it may be desirable to observe that the court has no general jurisdiction over arbitrators as to the amount of fees charged by them, whether the reference be under a rule of court or not; nor over the attorney who prepares the award; the remedy would appear to be by action for money had and received; but to give the court jurisdiction in the matter, a clear intention of the parties to the arbitration must at all events be shown. Where, however, there is an express promise to pay arbitrators the costs of their award, a joint action for their recovery will lie against the parties liable, even though no demand for payment of the costs may have been previously made; and where a party to an arbitration is compelled to pay a lay arbitrator an exorbitant sum in order to take up the award, he may maintain an action for money had and received, to recover the excess beyond what is a proper remuneration for the arbitrator's services.

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* The Law of Contracts. By W. C. Glen. London: Atchley and Co.

THE MUNSTER MODEL FARM, CORK.

ABOUT ten years ago, a committee, consisting of the most influential landed proprietors in the vicinity of Cork, contemplated attaching a considerable extent of land to the Queen's College, with the view of affording the students an opportunity of applying theoretic teaching in agriculture to practical farming. Accordingly, an area of 127 statute acres of choice arable land, at a convenient distance from the college, was rented from his Grace the Duke of Devonshire, at a rent of about 34s. per statute acre. The plan was attempted to be carried out shortly after the opening of the college; and it was expected that a sum of £5,000, out of the "Reproductive Loan Fund" granted by the government for the purpose of improving agriculture in the province of Munster, could have been got for this purpose by the local committee. In this they were disappointed, and the scheme fell through for a time. Ultimately, the Commissioners of National Education took the matter up, became responsible to government for the application of the money to the purpose originally intended by the local committee, and, in March, 1853, they took possession of the 127 acres of land known as the "Ballygaggin Farm." The grant was immediately appropriated to the erection of the recently finished extensive range of buildings, comprising a residence, apartments, schoolrooms, dormitories, lavatories, kitchens, &c., for the agricultural teachers, matron, pupils, &c., and a commodious set of substantial farm buildings and offices for the requirements of the farm. Two years ago, the new buildings were opened for the admission of eligible agricultural boarding pupils, on payment of £8 per annum, for which they are lodged, educated, and boarded during the year, and those whose proficiency stands the test of a competitive examination are, at the end of the year, qualified for admission into the Glasnevin Institution.

The farm-steading is on the covered principle, and the advantages are most obvious here. A walled-in square may be considered as representing the outline of this portion of the premises, one side of which is occupied by the barn, straw, root, and cooking houses; another by the stable, calf, and bull houses; a third, the manure yard; and the fourth, the piggeries, sheep-pens, &c.; and in the central portion of the square, the byres for the dairy and fat cattle. The roofs are supported by upright cast iron pillars, and two opposite partition walls, running parallel with each other. The piggery and sheep-pens on the one side, and the stable and calf-pens on the other side, are separated from the byre by means of two longitudinal walls, and a direct passage communicating with each from the feeding houses in front, as well as free egress for removing the manure, &c., in the rere. Ample ventilation is secured by means of louvres and moveable windows overhead.

The dairy cows—thirty-two in number—when in the byre, face in opposite directions, and are supplied with fodder from the feeding alleys in front. A space of about four feet between the two rows of cattle is available for the removal of dung, and supplying bedding, whilst the channels behind take away all the liquid droppings to the liquid manure tank adjacent to the dung yard. All the rain water on these extensive concerns is secured by catchments leading into the hollows of the upright pillars, and thence conveyed to a cistern, and used for washing and other rough domestic purposes. This arrangement, as may be seen, is something like the old Scotch style of farm-steading, and the advantages are self-evident.

The floors of the houses for the young stock, pigs, sheep, &c., are all sparred, and the liquid droppings conveyed, by means of conducting channels, to the tank, where they are afterwards applied, either to the grass, as artificial watering, or to the damping of the dung previous to application. The piggeries are tenanted by excellent specimens of the pure York and Berkshire breeds; and several of these are entered for exhibition at the forthcoming show of the Cork Agricultural Society.—*Agricultural Review.*

Eight acres of ground have been taken at Bray for cemetery purposes.

PRACTICAL OBSERVATIONS ON RAILWAY WORKS.*

THE various works necessary for the formation and completion of a well-appointed railway, may be arranged under four distinct but concurrent branches of civil engineering; viz., the general survey and levelling; second, the excavations and embankments; third, the formation of the permanent way; and, lastly, the erection of the several buildings. These works comprehend every variety of engineering practice. In ordinary cases the operations of the engineer are confined to the one locality, whereas the construction of railway works requires an intimate knowledge of the character of the whole country, and the customs of the inhabitants. A perfect command of the resources of his profession is also of the highest importance to the engineer, in order that he may meet the various difficulties which present themselves to his notice, during the prosecution of works at remote distances from each other, and which may be progressing simultaneously.

All the great lines of railway which have been constructed, or are in progress, not only throughout this kingdom, but on the continent of Europe, are constructed, with very trivial variations, upon one uniform principle. After the ground has been levelled, and the bottom properly prepared, stone blocks, measuring 18 in. to 2 ft. square, and 12 in. deep, are placed at intervals, varying from 3 to 5 ft. from centre,† according to the weight and strength of the rails intended to be used; on the centre of the upper surface of these blocks is placed a cast iron chair, having a cushion of prepared felt placed between it and the stone block, and pinned down to the block by iron pins, driven into wooden pegs, previously inserted in holes drilled in the stone: these chairs are the props, which from point to point support the rails, the stone block being the foundation of the chair. The rail is manufactured by the process of rolling in lengths, regulated by the distance between the chairs; thus, if the chairs be 3 ft. apart, rails are manufactured in lengths of 15 ft. five chairs supporting each rail; if the chairs be 4 ft. apart, the rails are rolled into 10 ft. lengths, and are supported by four chairs. The stone blocks are placed upon a firm bed of broken stone, or other well consolidated matter, so that as little yielding as possible shall take place beneath them, and that the rails shall maintain their position with the utmost practicable truth and accuracy.

"In those parts of a line where a valley or low ground is crossed by an artificial mound raised upon it, the earth of which such mound is formed requires a considerable time to become consolidated, the use of these massive stone blocks would be attended with many difficulties and much inconvenience.

"On such parts of the lines of railway, therefore, it has been customary to substitute temporary supports for the rails, by laying across the road rough beams of wood, usually formed of large timber split through the middle, the flat side being placed downwards, at the same intervals as those at which stone blocks on other parts of the lines are used. To these timbers the chairs which support the rail are pinned. This mode of construction has less stability than that already described; but as the mounds or embankment on which it is usually formed are subject, for a considerable time, to subsidence or settling, as it is called, these cross timbers are found to be capable of being packed up with much less trouble and at less expense than stone blocks.

"They are therefore adopted, and continue on the embankment until the materials of which these embankments are formed become completely consolidated, the timbers are then removed and stone blocks substituted for them, as in the other parts of the line."

The buildings on a line of railway are numerous and important, but their distribution on an extended and narrow line of road is very prejudicial to the general effect of these works. They may be classified as follows:—

Over the railway. Under ditto. Skew ditto. Viaduct ditto. Aqueduct ditto. Occupation ditto.	Bridges of iron, timber, brick and stone.
Engine stations and depots. Passenger ditto. Water ditto. Depots for goods.	Stations.
Under rivers. Through hills.	Tunnels.

To which may be added detached buildings, consisting of cottages for workmen, stationary engine-houses, lodges, coke ovens, sheds, stabling, &c., &c.

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* Designed by Mr. Frederick Darley, late architect to the Commissioners of National Education in Ireland.

* New Office Book for Architects, &c. London: Atchley and Co.

† The distance between the rails is subject to some slight variation, but the engineers are pretty well unanimous in their opinions respecting this branch of railway practice.

KILMORE CATHEDRAL.

On the 17th of July, 1860, the new cathedral of Kilmore, the subject of our present illustration, was consecrated ; it was erected to supply the place of the old building, which had become very dilapidated, and had quite lost all the distinctive features of an ecclesiastical edifice. The new building has been erected from the designsof Mr. W. Slater, of Carlton Chambers, London, architect ; the drawings having been sanctioned by the commissioners ; the builder employed being Mr. Hague, of Cavan. The majority of the sees being small, the cathedrals in this country are usually of no great size ; this building is, therefore, about the average dimensions. The object kept in view was to provide accommodation for a large congregation, and at the same time to preserve the distinctive cathedral arrangements.

The plan is cruciform, consisting ofnave and aisles, transepts, central tower and chancel; the style adopted is the second pointed. The nave has a clerestory of spherical triangles, and is separated from the aisles by an arcade of three arches ; the roof is open with arched ribs ; the west door is double with a pier in the middle ; the tympanum being filled with carving in medallions on a field of diaper. The chancel proper is two bays long, and the east window has five lights. The tower rises one stage above the roofs, and is finished by a four-sided pyramidal roof. The internal arrangements are as follows :—The nave is occupied with open moveable seats for the general congregation ; in the south transept are placed the children of the schools, in the north is the organ. The vestry is on the north side of the chancel, in which is introduced, with very good effect, the old Norman doorway of the old cathedral. The stalls for the clergy and choir are placed under the tower, the bishop's throne being on the south side—all these are of oak ; the back stalls, 10 in number, are for the clergy, and have carved ends and divisions. The stalls for the choristers have ends with a carved top and finial, the front being divided into panels, the upper part of which is also carved. The book board for the choristers is supported by columns with carved brackets. The bishop's throne has over it a canopy carried on columns with carved caps, the spandrel and cresting of the canopy is also carved ; they are executed by Mr. Forsyth, of London, from the designs of Mr. Slater. The chancel is left unencumbered with seats, so as to be available for gatherings of the diocesan clergy, ordinations, and the like. The font is placed near the west door. The pulpit stands at the north-west pier of the tower. These were executed in Dublin by Messrs. Purdy and Outhwaite, who also carried out all the stone carving. The materials used in the general construction are a dark limestone procured in the neighbourhood, with a lighter stone from Dungannon for the dressings. The external effect of the church is much increased by its very favourable position on the brow of a gentle elevation. There are at present only three stained glass windows in the church—two in the south transept, by Mr. Ward, and one in the south aisle, by Messrs. Clayton and Bell. The chancel is paved with Minton's tiles. The whole work forms a memorial to Bishop Bedell, who was born at Black Notley in Essex. He received his education at Emmanuel College, Cambridge. In 1626 he was chosen provost of the University of Dublin, at the decease of Archbishop Usher. He continued in that office only two years, being appointed Bishop of Kilmore and Ardagh in 1629. He was a man much beloved by both Protestants and Roman Catholics. His death, which was accelerated by the treatment he received during the rebellion, took place in 1641. He was buried in the graveyard of his own cathedral. The remark made by a Roman Catholic priest at his burial deserves record, as showing the deep impression the sanctity of his life had made on all who knew him —" Sit anima mea cum Bedello."

QUANTITY AND QUALITY OF VENTILATION.

It is a popular fallacy, that all the advantages of good and effective ventilation are secured by the *free* transmission of air through a building or the apartments thereof; but a wide difference in reality exists between the effect which *quantity* has on *quality* when properly diffused, and when it is not so. That vitiated or heated air ascends above the pure or colder atmosphere as oil does on water, is as easily comprehensible a theory, as that water finds its level ; and yet from this simple fact not being sufficiently borne in mind in the arrangement of buildings, much defective ventilation is prevalent. Our churches, theatres, concert-rooms and other halls for public assemblies are mostly built with provision through numerous corridors, opens, &c., for a never-failing supply of cold air, while but comparatively little is secured for the withdrawal of the heated, in the positions to which its nature causes it to tend, and proportionately to the quantity sure to be generated where a crowd is assembled. The consequence to the health of the frequenters is most deleterious, as the vitiated air vainly seeking vent at the highest level of the apartment, being forcibly pushed up by the heavier element, is cast downwards to be *re*breathed alike by the healthy and the unhealthy into the sources from which it was emitted ; and could we but analyse this heterogeneous mixture, what a variety of poisonous ingredients would be found therein. But to bring the subject more " home," our dwelling houses are often built in utter defiance of all sanitary principles, a current of air from the front door meets another from the back, and simultaneously uniting, they rush into the apartments, up the chimneys, up the stair-cases, and down again. Fire-places are so planned that, if their contents were sufficient " to roast an ox," the perpetual draught of biting air not only prevents the equable diffusion of heat, but the two extremes meeting treacherously affect the physical system of the occupants. The fact of a fire-place being in a bed-room is regarded as a guarantee of perfect ventilation, but this too is a mistaken notion ; for, if placed diametrically opposite the door, the air rushes to the flue with such rapidity as only to create a current from side to side without in any way serving to expel the vitiated air generated by a sleeper. The same forgetfulness of that " simple fact" also induces the opening of the lower sash of a window when an apartment becomes heated, but the consequence is, that though a volume of fresh air certainly will rush in, still the foul remains playing upwards ; and the temperature at the feet becomes suddenly changed to cold, while that at and above the head is still warm. How, under such circumstances, can sufferers from severe colds, bronchitis, &c., &c., wonder whence they originated ? The average amount of the oxygenic essential (for each individual) is 600 cubic feet, but for the better preservation of health this must be constantly changing, not in *quantity*, not by the production of currents and draughts, but by maintaining the *quality*, which can only be effected by perpetual supply of fresh, and a perpetual expulsion of the foul.

PRIZE DRAWINGS.

At the recent meeting at Leeds of the Royal Agricultural Society of England, prizes and commendations as under were awarded :—

Plans for Laborers' Cottages.

For the best plan of a double cottage, containing not less than three bedrooms in each, the cost not to exceed £220 the pair, 1st prize, £35, Messrs. Richardson and Ross, Darlington.

Highly commended, Mr. W. Blackmoor, Rotherham.

Commended, W. Wilds, Hereford ; W. Lightly, Bedford-row, London ; W. J. Price, Pimlico, London ; W. Ward, Hulme, Manchester.

For the best plan of a double cottage, containing two or three bedrooms in each, the cost not to exceed £180 the pair, 1st prize, £25, J. R. Corby, Stamford, Lincolnshire.

Highly commended, W. Blackmoor, Rotherham.

Commended, J. Trought, Acton Burnell, Shrewsbury ; J. W. Poundley, Kerry, Newton, Montgomery ; E. Foggett, Blackburn ; J. H. Brown, Upper King-street, Norwich.

For the best plan of a single cottage, the cost not to exceed £120, 1st prize, £25, Walter M. Boden, Birkenhead, and J. T. Lea.

Highly commended, A. Watson, Everton, Liverpool.

Commended, Messrs. Child and Son, Leeds ; B. Lay, Oswestry, Shropshire ; T. H. Lomas, Nottingham ; Joseph Bradley, West Heslerton, York.

The best plan of a pair of cottages, of irregular design, the cost not to exceed £210, 1st prize, £10 ; 2nd do., £5.—No prize awarded ; insufficient merit.

Plans of Farm Buildings.

For the best plan of farm buildings, adapted for a farm of not less than 500 acres, and providing for the use of steam power, £50, J. E. Watson, 22, Grey-street, Newcastle-upon-Tyne.

Highly commended, Messrs. Hicks and Isaacs, Bath ; P. D. Tuckett, London ; James Fox, Albion-street, Leeds ; and Mr. Gowthwaite.

Commended, J. Parsons, Harewood, Leeds.

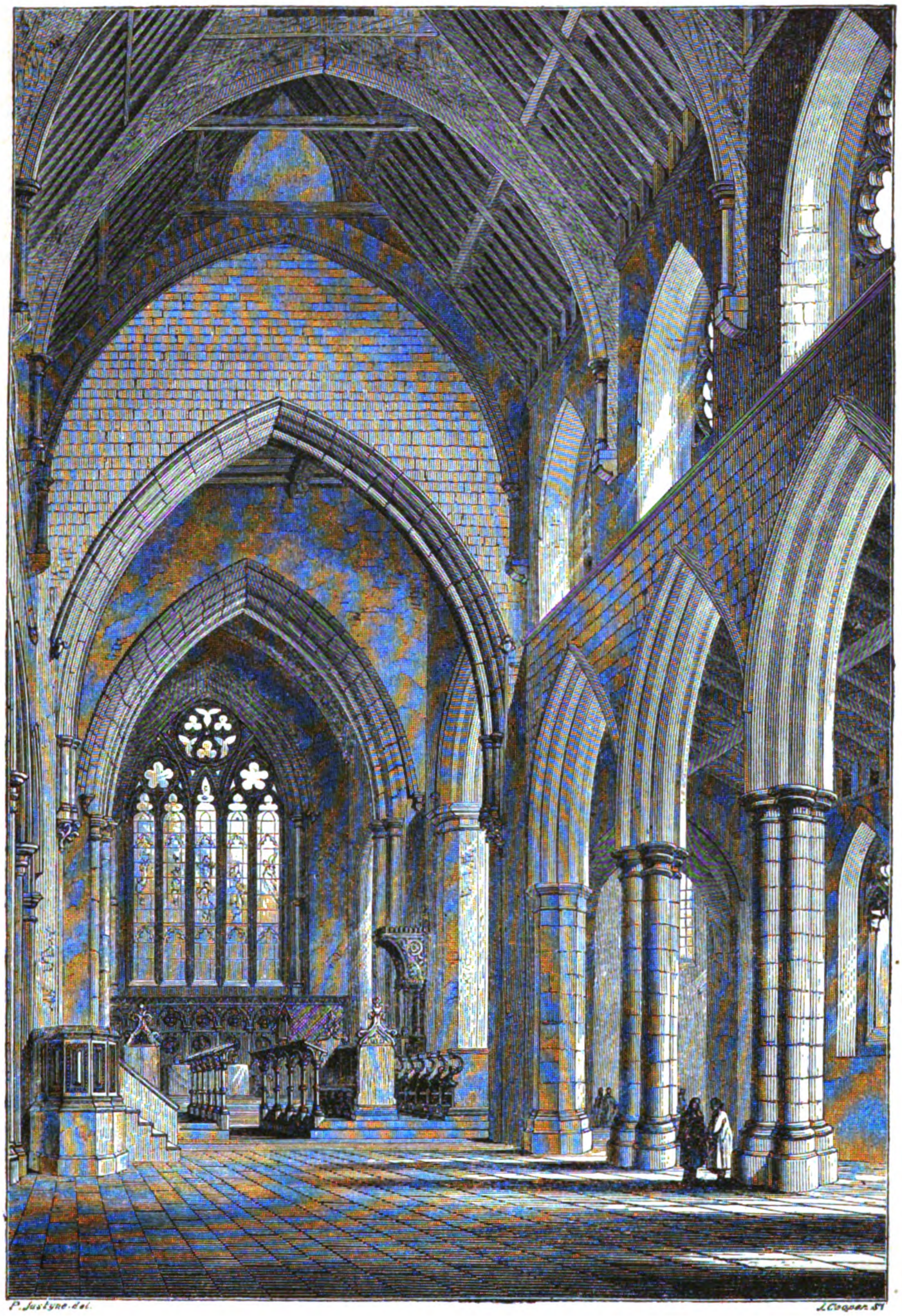
For the best plan of farm buildings, adapted for a farm of 200 acres, £25, Messrs. Hicks and Isaacs, Bath.

Commended, Frederick Chancellor, Chelmsford, Essex ; Messrs. J. Bailey, Denton, and W. Burnett, Westminster, London.

In the first class there were 27 competitors ; in second ditto, 19 ditto.

The following summary of the competitors in each class for cottages may be interesting :—

Class 1.	Double cottage not to exceed	£220	145
„ 2.	Ditto ditto	£180	72
„ 3.	Single cottage	£120	81
„ 4.	Pair of irregular cottages	£210	30
			328



KILMORE CATHEDRAL—INTERIOR.

Mr. Slater, Architect.

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NEW COLLEGE OF PHYSICIANS.

MR. WILLIAM G. MURRAY, architect, has been declared the successful candidate in the recent limited competition, and according to his designs the new college will be erected on the site of the old Kildare-street Club-house. A premium of £50 has been awarded to Mr. John M'Curdy, and we now proceed to particularise their drawings, as also those of the other competitors—Messrs. Turner and Drew, J. S. Butler, C. Geoghegan, and D. C. Ferguson, architects, respectively:—The selected plan provides a building three storeys in height, including basement—where, as in all the other plans, the culinary offices and living rooms for caretakers are situated—a façade with 61 feet frontage and about similar height, and a depth from front to rere of 83 feet, being two feet less than that defined in the instructions to competitors. The ground or principal floor is approached from the street under a tetrastyle Roman Doric portico through a semicircular-headed doorway, with smaller window opes of corresponding character in the intercolumniation at either side, and thence through a vestibule to the entrance hall, which is 18 ft. by 16 ft., and decorated with Corinthian columns and coffered ceiling. Off this apartment are a reading room, 20 ft. 3 in. by 18 ft., and a private staircase to the right (lighted from an inner area); a council room and examination hall, 20 ft. 3 in. by 18 ft., communicating with a registrar's office, 14 ft. by 13 ft. 6 in. at the left, also lighted from an area; and at the level of first lobby of principal staircase, which is central, and consists thereat of *one* spacious flight, is the college hall, 59 ft. 6 in. by 30 ft., occupying the entire rere of the building. Minor apartments, &c., are also introduced. On the first floor a library, 34 ft. by 18 ft. (with librarian's apartment behind), and a museum, 25 ft. by 18 ft. are provided in front, the double flighted staircase descending to lobby, the upper portion of the college hall, and the two small areas at rere, before described, comprehending the remainder of this storey. The façade is a classic combination of Roman Doric and Corinthian, boldly and sensibly treated. At either side of the portico, which has disengaged columns and is finished with a triglyphed entablature and blocking, is a square-headed architraved window, central between it and a broad rusticated pier over which is broken a continuous pedestal. From this level rises central, and to the extent in breadth of the portico, a pedimented projection with three quarter Corinthian columns over those below, and semicircular-headed window opes between; and at each wing are coupled antæs over the piers. The windows of this storey between centre and wings are pedimented. A main entablature, mutuled and dentilled, with a balustraded parapet, surmounts the whole. Perspective views, both of the exterior of the building and the interior of the college hall, admirably drawn and etched by Mr. Trevor Owen, afford a good idea of the effect when executed, and we have no hesitation in saying, without disparagement to the other designs, that this building will prove in every respect suitable, and an acquisition to the architecture of the city.

Mr. M'Curdy's elevation is considerably more elaborate than the foregoing, and his general arrangements more extensive and costly—indeed so much so, that he would seem to have lost sight of one of the conditions of the competition as regards expenditure. But the drawings—seven sheets in number—are very creditable, and represent such an amount of labour as the premium awarded will hardly do more than moderately requite. The ground plan shows a portico with double entrances and steps at either side, leading to a central hall, 30 feet by 20 feet, and an inner ditto, 30 feet by 16 feet, with a grand staircase of reverse arrangement to the selected one—viz., *double* flights to lobby, and *single* therefrom to first floor. A beadle's office is placed in the front, at left of hall, and the registrar's also there at the right, with a waiting-room adjoining; a general reading-room, 37 feet by 30 feet, and a committee-room, 30 feet by 20 feet, across the rere; and on the first floor a curator's room is placed over entrance hall and the library, 44 feet by 20 feet, and museum, 50 feet by 20 feet, each carried up to a great height, and with galleries above at either side; a principal hall, 58 feet by 30 feet, is over reading and committee rooms. The design for this front is also a composition of Roman Doric and Corinthian, though the ornamentation and the fenestral arrangements are Italian and Venetian. A projecting portico with three arch-headed opens highly rusticated, and a Corinthian columned superstructure above, a continuous triglyphed entablature for the basement, and a highly ornamental do. and balustraded parapet above, would seem in the description—were it not for our preliminary remark—to suggest a similarity in design to that approved. But it is not so, for the elaborateness of its ornamentation contributes a character of "Club House" architecture which the other has not; and in viewing the latter, we confess to have been temporarily transported in imagination to Pall Mall and the neighbouring district, where palatial structures abound like trees in a forest. The porch columns and triglyphed entablature being lower than that of the principal storey, the entablature of the *latter* is continued behind the balustraded parapet of the *former*, which we do not approve of. In other respects the elevation has merit.

Messrs. Turner and Drew submitted *two* sets of plans and *three* different designs for the façade; all of more or less merit, but to our mind that marked A is A *one* of the entire lot, and B equally commendable as an architectural composition, but unsuitable for the intended purpose. The application of the latter to a concert hall, arcade, or bazaar entrance would find numerous admirers of its pleasing broken outline and vigorous details. Design A, unlike any of the others, has three storeys, exclusive of basement, a distyle in Antis Roman Doric portico, with plain entablature surmounted by a coat of arms; square-headed windows with rustic piers on principal storey; a series of arches springing from entablature over coupled Ionic columns, and embracing two storeys, the second and third, with semicircular headed windows lighting the latter, a handsome bracketed and pannelled main entablature and ornamental parapet. The arrangements of both Messrs. Turner and Drew's plans are very commodious.

Mr. Geoghegan's plans present, in their general features, rather well-contrived arrangements; the principal floor comprising a central entrance hall, 19 feet by 12 feet, with inner hall and intersecting corridor, a central grand stairs with single flight; a committee room at right of hall, a registrar's office at left, and a beadle's and reading-room at rere, with minor apartments intermediately placed. On the first floor the principal hall, 56 feet by 28 feet extends across the entire front, and separated by the staircase and lobby are the museum and library, each 31 feet 8 inches by 18 feet 9 inches. Considerable labour seems to have been incurred in elaborate and various coloured patterns of tiles on the floors of hall and passages, admittedly well executed, but a superfluous work. The façade has some merit, but is too light for the purpose, though we have no wish to put the architect out of conceit of his design, which is about the best of these we have seen by him. On the basement or ground story, a central semicircular-headed ope with a projecting balcony above resting on carved trusses and metal work in the door panelling, defines the entrance, and on either side are two square-headed windows, the wall having alternately raised and sunk continuous ashlar courses surmounted by a plain moulded string course. Above this level, and lighting the "college hall," are five tall semicircular-headed arched opens with *black* stone dressings—too severe a contrast—and in the spandrils above are medallions, the whole terminated by an entablature, with a parapet over, having raised panels in the frieze, whereon are inserted the names of Æsculapius, Aristotle, &c., &c.

Mr. J. S. Butler is hardly as happy in his design for the elevation of this building as in others of his works, it being of Italian character, with coupled rusticated quoins at wings carried up full height, a narrow but highly ornamental centre-piece and two windows with small piers at either side, those of the ground floor having grouped sculpture over, and of the first segmental pediments, except the centre, which is angular, the general contour being crowded, and displaying excess of features—a fault irremediable even by the most skilful working out of detail. In the plans we have nothing special to note. Mr. D. C. Ferguson has two designs—both classic—one more expensive than the other, but seems either to have not carefully studied his subject or to have entrusted the drawings to less competent hands; in candour and with regret we must say there is not a particle of architectural merit in either. A slight similarity exists as to arrangement of the centre-piece of elevation with the adopted plan, but it merely consists in the *fact* of each author having decided on a projecting portico of two orders—Roman, Doric—below and Corinthian above, terminated by a pediment; but looking on "*that* picture and on *this*"—reversing the quotation—a marked contrast in favour of the former is palpable in the treatment of accessory features. In the abstract we cannot, with certain exceptions to be inferred from our notes above, regard the display on this occasion compared with others as respectably representing the available professional talent of our city, for such an important work.

INTERNAL DECORATION.[*]

THE philosophy of architectural ornamentation is continually being more deeply sifted, and a sound eclecticism is widening its area of choice. The application of coloured material—marble, brick, and so on—both to the main features and the decorative details of buildings, is every day coming into vogue with a fulness which never could have been compassed while the steam-engine was still unknown. A few years since those who were in the van of this movement for "polychromatic architecture," or for "constructive coloration," had to give reasons and prove opportunities; now we are almost overwhelmed with success. Architects—Gothic, Italian, Victorian, Sacred, and Profane—are all vying with each other who can produce most red brick, yellow brick, and black brick—most granite, serpentine, and encaustic tiles—over their buildings. There may be here and there exuberance, if not extravagance; but this is only the natural recoil from the malebolge of stock brick and cement in which we had been so long wandering. I have almost now to address a caution in another direction, and to remind the man who is planning a Gothic interior that there is such a thing as a paint pot, and that while "constructive coloration" may rightly be his staple, there were brave men of old who have left immortal achievements traced by their brushes in the higher branches of pictorial decoration. Mosaic—the most ancient and the most eternal system of pictorial art in Christian churches—has hitherto been a stranger to England, but mosaic pictures are in contemplation at St. Paul's. Carvers in stone and wood are ever making fresh progress, both in their own handiness and in the respect which they enjoy; workers in metals and enamellers of tiles are rising in general estimation; glass painting, which used to be reckoned amongst the lost arts, is not only found again, but found in a state of constant advance towards artistic perfection. Above all the unity of all art is beginning to be practically organised. The architect, the painter, the sculptor no longer selfishly pursue their own independent professions, as if they were rivals and antagonists, but they either of themselves borrow from time to time their neighbours' craft, or else they combine together—while each adheres to his own department—to complete those works whose failure or whose success depends upon the combination. Giotto, is at last recollected, both painted and built, and Michael Angelo was sculptor, painter, and architect. In one word, eclesiastical, and indeed all architecture in England, is at this moment working out for itself that lesson which the equalising effects of science now enable northern regions to learn to an extent which used to be only allowed to the warmer south—that of the fusion of construction and decoration in the variety of materials, natural and artificial, and the contrast of their forms and colours. It is the experimental adoption of this system which makes the broad distinction between the more meritorious new churches of the last ten years and their predecessors built within the preceding years. Accordingly I anticipate that our new cathedral will show more complete and gorgeous developments of English polychromatic architecture than we have yet beheld. I go further and say that it is to the successful working out of this element of beauty that I look in the new cathedral as the compensating æsthetic advantage for the disuse of those constructional features—those double aisles and fringing chapels of the old cathedral—which, with all their grandeur and their loveliness, can find no place in our purer and simpler system.

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[*] Beresford-Hope's English Cathedral of the 19th century. London: J. Murray.

HELIOGRAPHIC PRINTING.

Two processes, the one for "photolithography", the other for photo block printing," have been patented under the above title, by Messrs. Beatty and Alexander, in this city, some particulars of which we take from the specification as follows:—We take a sheet of paper or any other substance free from granular texture, and coat its surface evenly with the transfer medium ordinarily used for transferring drawings to stone or zinc, or take any other suitable transfer matter or composition used by lithographic artists, which answers the purpose; but we prefer the medium composed of two ounces of isinglass, quarter of an ounce of arrowroot, quarter of an ounce of gum tragacanth, and four ounces of flake, white, or washed chalk. This composition, when warm, is about the consistence of cream. We apply it in that state with a flat brush or sponge to the surface to be coated; the surface thus prepared, when dry, is hot-pressed or calendered.

In addition we use gelatine, size, dextrine in solution, arrowroot, wheat, barley, and rice flours made into jelly paste, to which may be added flake white and gamboge, lucine or vegetable albumen, and also animal albumen, either alone or covered with the transfer medium. We sometimes impregnate the paper with a composition of asphaltum dissolved in turpentine, or benzole and caoutchouc dissolved in chloroform. If the photographic proof to be reproduced be formed of delicate shading, we mix with the composition already described hard granular substances, such as fine emery powder, peroxide of iron, glass, and flint finely ground in a mortar in proportions according to judgment.

In order to make the surface so prepared capable of producing a photographic proof, we employ bichromate of potash or other chromate salt having similar properties. Further operations with it are conducted in a room from which daylight is partially excluded. A quantity of the solution is poured into an earthenware tray of the size to answer the prepared surface, and is carefully taken by the corners and its middle allowed to come in contact with the liquid, dropping the corners gradually to prevent air bubbles; if any be formed, they should be removed with a glass rod. Having allowed it to remain some minutes upon the solution, changing its position at intervals, it is lifted and allowed to drain, and primed up by one of the corners. When thoroughly dry it may be pressed or calendered if necessary; this operation of sensitizing the prepared surface may be performed a second time. By the well-known processes of photography, photographic proofs are obtained which may be negatives of the objects which we wish to make a printing surface on stone or zinc. When sufficiently lighted, the copying frame should be removed into the dark room. Upon inspection it will be found that a faint image is formed on the prepared surface.

The next operation is to utilize this property of the chemical action of the light, and to change the nature of the image in order to produce a printing surface. This we perform by an impression taken from a metal plate executed by an engraver; it may have on its surface a mezzotint or aquatint ground, or it may be a ruled plate, the lines being horizontal and diagonal, of different degrees of fineness. When the impression is dry, or partially so, it is placed up in a zinc tray containing water, in which some gum arabic is dissolved, heat being applied under the tray. The proof is allowed to remain until the water becomes heated; it is then taken up and laid face down on water at a lower temperature, when it will be found that the printed impression will leave those portions of the proof unacted on by the light. A gentle rubbing with a piece of Canton flannel or a camel-hair brush will leave the photographic proof in printer's transfer ink, in consequence of its adhesion to the insoluble lighted portions, and will retain the grain of the plate from which it was printed.

The following circular has been addressed by some of the metropolitan master builders to the editors of various publications:—

Sir—We have read the letter in the journals of the 15th inst., headed "The Builders' Strike," signed by eight gentlemen, most of whom we believe to be members of the legal profession, the avowed object of which was to obtain a hearing for the workmen. In the first place, there never was less reason to complain of want of publicity upon any question, abundant currency having been given to the statements of the workmen by the public press, and the masters have at all times been ready to discuss with their own workmen, in detail, all matters affecting their interests, but have declined to see the delegates from trades' unions.

Although it is now stated that the present movement on behalf of the men is not for what is termed the "nine hours' system," the change resulted entirely from the renewal of that agitation. Payment by the hour is intended solely to remove this cause of strife for the future, and there is no wish, nor has it ever been intended, to deprive the carpenters of their customary allowance for sharpening tools, or any other trade privileges which they have hitherto enjoyed. The assertion that masters wish the men to work longer than ten hours per day, except in cases of emergency, we emphatically deny. So contrary, indeed, is the fact, that we are frequently requested by the men to allow them to make overtime at the usual rate of wages—a request that is often on that account acceded to.

It would be manifestly unjust to submit to arbitration a question practically settled to the entire satisfaction of the great majority of the men employed in the building trades, and now only kept alive by the agitation of a few members of the trades' unions.

In justice to the men in our employment, we indignantly deny the statement that they are inferior workmen, or that they are working under protest. They have been selected for their skill and experience, and the majority of them have been with us for many years, and we are certainly at a loss to conceive by what reasoning the few men now on strike can venture to impugn the abilities of many thousands of their fellow-workmen.

In conclusion, we beg to deny, in the most explicit manner, any covert intention— a charge which has been industriously circulated—and we cannot too distinctly assert that our only object in the change was one of conciliation.

We are, Sir, your obedient servants,
Cubitt and Co., Gray's-inn-lane.
Holland and Hannen, Duke-street, Bloomsbury.
George Myers, Lambeth.
George Mansfield and Sons, Gray's-inn-lane.
George Smith, Pimlico.
Waller and Son, Lyall-street, Belgrave square.
John Kelk, South-street, Grosvenor-square.
Lucas Brothers, Lambeth.

July 18.

At a recent sale in London, the carved chair, designed by William Hogarth for David Garrick, was knocked down at 300 guineas. Miss Burdett Coutts is said to have been the purchaser.

THE INCORPORATED BRICKLAYERS OF KINGSTOWN.

This body has addressed a remonstrance to their fellow parishioners against the employment of strange hands from Dublin on the new church of St. Patrick's, at present in course of erection, alleging, and with some reason too, that "they naturally expected as the funds are to be collected solely in the parish, they should be employed in the erection of St. Patrick's church in preference to strangers. The work, however, had scarcely commenced, when, to their surprise, the members of the society—the only incorporated one in Kingstown—were disemployed, and in their place were taken strangers, and (some at least) doubtful characters; adding that they respectfully represented this to the committee, requesting that the builder should not be permitted to act in a manner so arbitrary, but finding no redress, now come with much reluctance to place the matter before the parishioners, declaring that, should this course be persisted in, they shall give no subscriptions themselves, nor hesitate to advise their friends to withhold their contributions until the affair be managed in a proper manner."

We can well understand the difficulty of a contractor's position in this question, but if an adjustment be practicable we think the appeal entitled to favourable consideration, although we should have preferred it were made on its own *merits*, without the alternative threat expressed at conclusion.

Notes of New Works.

Mr. Sykes, of Dame-street, is about erecting two houses at Rathmines.

A new front is being put to Mr. Brunker's shop, Grafton-street. J. S. Sloane, C.E., architect; Mr. Drysdale, builder.

A villa residence for sub-inspector of constabulary is about to be erected on the demesne of Caherconlish, county Limerick, for Charles M. Wilson, Esq. J. S. Sloane, architect. Probable cost, £1,250.

The restoration of the great tower of Lusk has commenced under the superintendence of J. S. Sloane, C.E., the funds having been generously supplied by the neighbouring gentry at the instance of the Rev. W. Reeves, D.D., Sec., M.R I.A.

A very beautiful and useful ornament to the town of Swords, is about being erected in the shape of a fountain (to supply the central portion of the town with water) by the governors of Swords school. Their architect, Mr. J. S. Sloane, C.E., has taken the necessary levels and surveys, and the works will shortly commence.

We understand that Messrs. Cockburn and Son have been declared contractors for the new Insurance Offices, to be erected in Upper Sackville-street, on the site of those recently occupied by the "Standard" and the "Colonial" companies. Mr. William Murray, architect.

Plans are in preparation by Mr. J. J. Lyons, architect, for five dwelling-houses of novel character, and to face the main road, to be erected at Clonskeagh, on the property of Messrs. Henshaw and Co., implement manufacturers, ironmongers, &c.

Premises have been taken in College-green and Dame-street by two Scottish insurance companies, who intend to rebuild and alter them for the requirements of their offices.

The clock turret over the dining hall of the South Dublin Union Workhouse is to be completed, according to a specification by Mr. Murray, architect.

The timber bridge, leading from Dollymount to the North Bull, is being repaired by the Ballast Board, under the direction of Mr. John Connolly, a (Buckingham-street) contractor. It has for a long time needed some improvement.

The permanent way of the Sligo Extension Line is now laid from Ballymote to the south side of the cutting at Maheraboy, and on the 1st of November the entire line from Sligo to Longford will be open for traffic. A temporary wooden terminus is being erected, and a number of hands are engaged.

It is proposed to establish a lunatic asylum for the North Riding of the county of Tipperary.

A short line of railway is proposed to be constructed from the wooden bridge of Avoca towards Collatten, and through Lord Fitzwilliam's estate.

The inhabitants of Dundalk are anxious to pave the town with the Caithness flagging now being employed in Talbot-street, in this city. The material appears to be very strong and durable.

The works on the Dublin and Meath Railway are progressing with great rapidity; Messrs. Moore, Brothers, contractors. An inspection by the directors, the engineer, Sir John Macneill, and others, was made on the 16th ult. The line is 35 miles in length, of which 23 are on the main line from Clonsilla to Navan, and 12 on the branch from Kilmessan to Athboy, and, as no considerable engineering difficulties were presented, the cost is comparatively small. Upwards of £30,000 have been expended on the latter portion.

The Ulster Banking Company have taken premises in College-green, opposite the Bank of Ireland, which will be suitably fitted up as offices, &c.

The recently erected new church of Ballintemple, Dundrum, has been consecrated.

The foundation-stone of the new Roman Catholic church at Carrickmacross has been laid.

The extensive alterations and additions for some time in course of progress at the Royal School, Enniskillen, are fully completed, as also those at Dungannon, but at this latter establishment still further extension is required, and Mr. M'Curdy, architect, has been instructed to prepare plans for same.

Sundry works are to be executed at the churches of Aghancon, King's County; Killala, county Mayo; Castletown Arra, county Tipperary; Ballylanders, county Limerick; and St. John's, city of Kilkenny.

Extensive alterations and additions are being made at Coltness House, near Glasgow, for R. Holdsworth, Esq.; Mr. Thomas Turner, architect.

An entrance, &c., is in course of erection at Montalto, Co. Down, for David S. Ker, Esq., M.P.; Turner and Drew of Belfast, architects.

Mr. H. Grissel, proprietor of the Regent's Canal Ironworks, London, has been declared contractor for the erection of the new lighthouse to be erected on the Calf Rock, South Coast of Ireland. He is assisted by Mr. Alfred Cook, C.E., and the difficulties to be surmounted being of a more than ordinary nature their combined skill will be severely tested.

Mr. Lawton has been declared contractor by the Port of Dublin Corporation for the construction of two new wharves on North Wall-quay. A project for producing the quay and other works in connection therewith is on the *tapis*.

NAAS.

Some alterations are in progress at St. David's Parish Church, Naas. Among others, an early English triplet window, 18 feet in height, is in course of erection in the chancel, to the memory of the late vicar, the Rev. Walter de Burgh. The pins have polished limestone columns with carved capitals, dog tooth, &c. The stone work and sculpture are being carried into execution by Messrs. Abbey and Harrison of Great Brunswick-street. The stained glass by Edmonson. A rearrangement of pews is being made, open ones with carved bench ends being substituted; chancels altered, passages tiled, &c. &c. Mr. Thomas Drew, architect. This church contains a few remains of the early English period; among others, a very fine and venerable font, part of which is in excellent preservation. We may mention that the liberality and good taste of some departed churchwardens have fitted it with *wooden* legs, beautifully *turned*, and that its youth has been renewed weekly by being *black-leaded*. A tower—commenced on a gigantic scale in the last century, by a defunct Lord Mayo, suggestive in its uncompleted vastness of the tower of Babel—contains a very fine bell of the 16th century, as it informs the inquirer by a Latin inscription. A very beautiful stone pulpit, lectern, &c., were erected a short time since; Messrs. Purdy and Outhwaite, sculptors.

The town of Naas presents few objects of interest and little signs of progress; within the last year or two additions have been made to the county gaol and court-house; Mr. M'Curdy, architect; and the Town Commissioners have converted the old gaol into a town-hall for public purposes. It does not call for any special remark whether viewed constructionally or artistically. The town is still unlighted with gas, and does not boast of a bank, although the assize town of the county.

To the generally uninteresting architectural character of the town, the spire of the R. C. church offers an exception. It is, we believe, the work of Mr. M'Carthy, and is of remarkable beauty; viewed from all points of the low, flat country, by which it is surrounded, whether in sunshine or storm, it presents an object on which the eye ever dwells pleasantly. *Inter alia* we may mention, that close to the town an extensive ruins of a brick building, in the Jacobean style, interesting as having been commenced by the unfortunate Strafford, and the building of which is said to have been one of the sins laid to his charge in the indictment which cost him his head.

As has been before mentioned in these columns, a mansion is in course of erection in the neighbourhood, for Richard Moore, Esq., of which Messrs. Lanyon, Lynn and Lanyon are the architects; its elevated situation, lofty tower, and uplifted gables make it a prominent feature in the landscape. Not far from this a mansion has been erected for Penthony O'Kelly, Esq., which presents some features worthy of notice.

Although scarcely falling within our province, we cannot pass by, on our way to Dublin, without noticing the extraordinary inscription which adorns the gate piers of the town burial ground, "Lord Mayo to the inhabitants of Naas has bequeathed *a lasting habitu-*

tion not made with hands.'" We will venture to say a more ludicrous use of Scripture is rarely met with, and if the statement be only borne out by facts, the "inhabitants" ought to be sincerely grateful to the long departed nobleman.

LAW NOTE.—CORK ASSIZES.

Klein v. *Boland.*—Action by Mr. Frederick Klein, a local civil engineer, against Mr. Thomas Boland, for £95, alleged to be due for work and labour. Plaintiff's case was, that in 1856 defendant presented a petition to the Landed Estates Court for the sale of his property, and employed Mr. Klein to survey it. Plaintiff surveyed the property and furnished his bill at a sum of £283 16s., which was stated to include two separate accounts, one for £100 16s, which the taxing master reduced to £35, as the proper sum; and the other for £183, for lithographic plans, which were laid before the taxing master for the purpose of determining what items should be allowed as against the estate. For the defence the case relied on was, that in point of fact the plaintiff was not employed by Mr. Boland, and never thought of demanding payment from him until claim was disallowed by the taxing officer, and that the plaintiff agreed to accept whatever the taxing officers allowed.

Verdict for defendant, with costs.

TIPPERARY ASSIZES.

Darcy v. *Malone.*—Action for £297, alleged to be due to plaintiff by defendant, a P.P., for extra works executed as contractor for the building of the parish chapel of Kildangan.

Referred to John Stephen Dwyer and Joshua Robert Minnitt, Esqrs., for arbitration and award.

Reviews.

The English Cathedral of the Nineteenth Century. By A. J. B. Beresford-Hope, M.A., D.C.L. London: John Murray.

At first glance the title of this book would seem to imply merely a history or description of the cathedral structures erected during the present century, but in truth its purpose is much more comprehensive, and embraces a general review of cathedral art, both from an ecclesiastical and an architectural point of view, the respective peculiarities of existing Roman Catholic and English church structures, the contrasts of the continental and the English styles, and an essay on internal decoration, &c., is added. Mr. Hope, whose capacity to deal in a masterly manner with any subject appertaining to architectural progress, is too well known to render comment necessary in introducing him as the author, takes exception to the deficiencies apparent in the cathedrals of the present day, and advocates the inauguration and extension of a completely reformed system of church building, commensurate with the growing requirements of the age, and especially alludes to colonial progress in this regard as compared with that at home, in the following terms:—"It is true that no cathedral has been reared in England or Wales for the use of our communion within this century. But in that great England beyond the seas—the British colonies—where the church has had to constitute itself in every particular without the material advantage of being 'established,' the cathedral system has been within the last quarter of a century evolved out of nothing as the foundation of a great creative work." Citing illustrations in support of this assertion—the justice of which, however, appears questionable in many respects—references and views are given of the proposed cathedral designed by Mr. Carpenter—a man who never had the worldly good fortune to complete a building equal to himself—for Colombo, the capital of Ceylon,[*] those of Brisbane, New South Wales, by Mr. Burgess (the well-known successful competitor for the memorial church at Constantinople); St. Kitts, West Indies, by Mr. Slater, of which an effective photograph appended to the volume illustrates the interior; and Sydney and Calcutta cathedrals, the latter of which the author pronounces to be, "though deficient in beauty and correctness of arrangement, remarkable for the massiveness and size of its construction, and for the far seeing appreciation of the true office of a cathedral, put forward as the reason for building it by a prelate no way identified, but the reverse, with any strong views of ecclesiastical organization or ritual precision." Further than to assume that this building, judging from the illustrations is "lofty, spacious, and airy," with "an ample chancel or choir," of which an uninterrupted view is afforded to all the congregation, owing to the absence of the usual arcade piers, and may consequently in a utilitarian regard answer its purpose, we cannot either admire it in its integrity as even a partially successful work, nor as presenting any features desirable for adoption as a model for cathedral architecture. The mongrel character of its "Gothic" or "Christian Style," both externally and internally, the design of a colonel of engineers, which speaks volumes, and which the author feels bound to describe as "a sort of corrupt Perpendicular," and the waggon-shaped ceiling, admitted likewise to be "in no way amenable to any law of taste," suggest a regret that even qualified praise should be given to such a work, or that as a specimen it should have found its way into a book otherwise so valuable. Sydney cathedral, which is cruciform in plan, with nave, aisles, two rather squat western towers, choir, and transepts as ill proportioned as it is almost possible to be, can only be regarded as an effort—a wretched imitation of previous works, with stiff treatment throughout—a design on the whole, like the previous one, "to be avoided." Indeed, reviewing those examples of colonial architecture, and some of the descriptive matter referring to others, we cannot quite clearly see where "the foundation of a great creative work" is to be found. The author in explaining the idea which he proposes to develope respecting "the Cathedral of the Nineteenth Century," says, "the building and the institution are to be a cathedral distinct from and opposed to a parish church and its organization; they are to be English—English, that is, both nationally and ecccelesiastically—distinct from and opposed to foreign; and last but not least, they are to be of the nineteenth century, as distinct from and opposed to one of any earlier age." From the foregoing it is easy to perceive that the purpose of the work is no mere compilation or elucidation of facts and theories collected from the previous works of others, with additions under a new dress, but a broad, comprehensive, independent, and original plan. Speaking of British cathedrals of recent date, that of St. Ninians, Perth—designed by Mr. Butterfield "in a somewhat severe variety of Middle Pointed," for the Scottish Episcopalians, and which in many regards is highly meritorious though not wholly unobjectionable in others—is placed in foremost rank, and next thereto is that at Kilmore, in Ireland, the subject of our present illustration, and fully described at page 546.

The object aimed at, as above stated, is one of unquestionable desirability, for we live in too progressive an age to be content at merely following "precedents" in the cathedral buildings of the nineteenth century; and to conduce towards the attainment and maintenance of same, there is much of theoretical argument and practical illustration to be found in this book, which throughout is highly interesting, and displays great erudition, especially in those chapters treating of the contrasts between Early English and Early French architecture, and the "features" and "uses" of cathedrals respectively, in addition to being very handsomely produced in all departments.

Church and Conventual Arrangement (illustrated). By Mackenzie E. C. Wallcott, M.A., F.S.A., of Exeter College, Oxford, London: Atchley & Co.

The almost simultaneous appearance of *two* works, by able authors devoted to the consideration of Ecclesiastical Architecture, must be regarded, both as a happy coincidence and an illustration of the reactionary tendency of the age, to revive and reform a long-neglected branch of art. The exact purpose of the book now before us, as compared with that by Mr. Hope above reviewed, must not however, be confounded, and is thus briefly explained in the preface:—"It has been threefold; *first*, to trace and delineate the gradual and successive development, and the mutual influence of various schools of early Christian and mediæval architecture; secondly, to exhibit the expansion of the early church, owing to ritual changes, national character, or the intercourse of the builders with other countries; thirdly, to show the original type of conventual arrangements with its subsequent divergencies and modifications induced by the special requirements of particular orders of religious." Accordingly the history of the various styles of church architecture, including Byzantine, Basilican, Lombardic, Continental, and British, with their several sub-divisions; and the prevailing characteristics in *conventual* and conventual *church* arrangement according to the habits and requirements of the occupying communities, are ably traced through reference in notes, to eminent authorities, so multitudinous as even at a glance to show an almost infinite amount of labour on the part of the earnest author. Passing from Continental to English architecture, he says, "The earliest English architecture of which we have any record, historical or material, was neither borrowed from France nor communicated from Germany. The Latin and Greek schools were distinguished by an apsidal east end. The Irish was equally marked by a square east end, a form adopted in England, Wales, Denmark, the north of Germany, and partially in the north of France;" and in a note adds, that "Dublin appears to have been the school of North Wales." Again, he remarks that "the connection between the church of Glastonbury, where St. Patrick was said to have been buried, and those of Ireland of similar size, according to rule, has been well pointed out by Mr. Poole (Hist. of Eng.). The Cornish churches of the fifth to the seventh centuries, built by Irish missionaries generally, were provided as in Ireland with a well; simple parallel chancel, separated by a low stone step, with a stone altar and a stone bench table." Elsewhere we quote from this work a special chapter on the architecture of Ireland. In the chapters referring to conventual church arrangement, we find that, "that of the Benedictines was uniform, a cruciform building with towers and chapels marked by great magnificence;" while that of the Cistercians displayed "extreme simplicity of outline, absence of triforium and pinnacles, a single central tower, a simple west front and plain undivided windows—for no ornament of any sort, not even of painted glass, was admitted—and a flight of stairs led from the transept into the dormitory." The churches of the friars are also alleged to have been, whether Franciscan, Dominican, or Carmelite, "oblong, of unbroken length, destitute of a triforium, and generally provided with only a single aisle or a single transept; and the general plan of the Irish Franciscan monasteries to have included an irregular quadrangle "with square cloisters in the centre, bounded by the church generally on the north side (Kilconnell, however, being an exception), and by the monastic buildings on the other three sides." Moreover, he adds, that "the architecture appears to have been copied from Italy and Spain," and that "within the pale there was an undoubted English influence." The Irish cloisters, like those of Spain and France, were never glazed, and exhibit an arcade of open arcades, supported by pillars; those of Kilconnel appearing to be a simplified arrangement of those of Huelgas and Fontevrault."

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[*] See page 573, No. 38, of this Journal.

We have, perhaps, by the foregoing remarks and quotations, without further penetration, afforded sufficient reason for conclusion, that the work is one of *some* merit; but we may, with perfect safety, go farther and assure, that it presents an invaluable and almost inexhaustible fund of reference, collected from the most unquestionable sources, comprehensively classified; and therefore its desirability of acquisition by archæologists and those either professionally or otherwise engaged in the study of the church and conventual architecture, is placed beyond question. As to its outward style of production, the name of the publishing firm is a guarantee of excellence; the illustrations, which comprise plans of various continental and British cathedrals, abbeys, monasteries, &c., being especially well executed by Mr. J. R. Jobbins, a lithographer of eminence, to the character of whose work the majority of our readers are no strangers.

Received.—Copies of recent numbers of *Old Jonathan* and the *British Workman*, both very useful and creditable publications in their way; also the August number of *The Lamp*, which seems to be progressing in merit and popularity.

Miscellaneous.

Preliminaries of the New Water Works.—The Lord Mayor called a special meeting of the Town Council together on the 30th ult., to give vitality to the bill just obtained from Parliament for the construction of the necessary works to ensure an improved supply of water to this city. Our cotemporary, the *Freeman*, which certainly has devoted itself with much ability and earnestness to the development of this project all through, and, no doubt, is prepared to share in the responsibility or the merit in the event either of failure or success, says—"the first result of this step will be the equalisation of taxation, and the removal of those impediments to sanitary improvement which the existing form of taxation has interposed. A great evil will thus be gotten rid of at once. The poor will no longer have to pay for the rich, and the introduction of a water-closet and a bath into the homely dwelling of the son of toil, who most needs an occasional bath, will no longer, as now, subject him to a tax practically prohibitory in its nature and extent. If the new act effected these two purposes alone—the equalisation of taxation, and the removing of the tax on sanitary improvement—it would be a boon worth all the cost and labour at which it was procured."

The Illustrated Sheet for June 15th.—In answer to enquirers for the illustration of St. Mary's Institute for Catholic Blind Females, Harold's Cross, which should have accompanied our number for June 15th, we beg to say that the block was accidentally and seriously damaged and has been sent to London to be repaired, *if practicable*, and an electrotype cast taken therefrom. We await its arrival to present the promised illustration; but should it not have proved possible properly to repair it, we must have another engraved, so as to perfect our volume for the current year.

The Perfection of Mechanism.—"In short, all the improvements for our convenience and comfort, dating from a state of barbarity to one of high civilisation, are but the cumulative results of inventive ingenuity; and in no instance is this more clearly seen than in the history of those beautiful inventions which have from time to time been brought to bear upon the science of Horology. Trace its history from the time of the Romans with their clepsydra or water-clock, and Alfred with his candles, from hour glasses and sun-dials, down to that miracle of ingenuity 'The Watch,' and see how improvement has succeeded improvement, until at last those now manufactured by Benson, of 33 and 34, Ludgate Hill, and 46 and 47, Cornhill, London, have been characteristically described as 'the perfection of mechanism.'"—*Standard.*

Benson's Illustrated Pamphlet, post free for two stamps, is descriptive of every construction of watch now made. Watches safe by post to all parts of the globe.

Clontarf.—By your frequent notices of this neighbourhood, you evince an interest in its welfare, but when you complain of its retrogradation, may I ask, have you remarked the filthiness of the entire strand, and the intolerable stench at the first bathing boxes, which, you very properly say, are "an outrage on decency?" All the filth of the city is here deposited, the water polluted thereby, and as black as ink, yet swarms of the lower orders luxuriate in it during summer months. Add to this the frequency of "corpses." —I mean of dogs and cats—along the shore, and certainly in a sanitary regard the investment of capital even under the most encouraging landlord, would seem to be questionable prudence.—Pedestrian.

[Our correspondent does not weigh the admitted *dis*-advantages with the advantages, and that alluded to could to a considerable extent be remedied, if the property were under the auspices suggested. —Ed.]

Pillar Letter-boxes.—One of these has been fixed at the intersection of Lower Gardiner-street and Great Britain-street as a substitute for the branch office so many years at Wyer's (stationers), in the latter-street; but on sending to be posted therein a small parcel containing four copies of the Dublin Builder, the aperture was found *too small to admit them*, and consequently they had to be forwarded to the G.P.O. In distant localities this might be attended with *great inconvenience*, and ought to be looked to at once. The actual outward size of the open is 6 inches by 3 inches, but the flap only recedes from the front, leaving a clear passage for letters, newspapers, &c., less than *an inch and a half*—quite too small.

The Late Mr. Woodward.—Propositions are being circulated by a committee, consisting, amongst others, of the Dean of Christ Church and Dr. Acland, Messrs. Holman Hunt, G. Richmond, and G. E. Street, which has been formed for obtaining subscriptions for a memorial to the late Benjamin Woodward, architect, of Oxford and Dublin. The circular speaks of the deceased as one of the gentlest and most appreciative mind, which, while it elevated his tastes and exalted his feelings, made him almost a recluse in society and greatly restricted the number of his intimate friendships. Of his singular genius it is superfluous to speak. The plan for the memorial is somewhat a novel one, comprising, first, a biographical and critical sketch, of his life and his works; secondly, a series of photographic illustrations of his principal public and private works, to accompany the above-named sketch, and to include both general views of elevations, and also numerous details, such as roofs, windows, doors, and interiors; thirdly, a bust, in marble, to be presented to the Oxford New Museum. It may be well to state that Mr. Woodward was the architect of the Crown Fire-office in Blackfriars, lately put forward in the House of Commons, and rightly so, as a fine sample of Modern Gothic Art. He also held a high position at the competition for the new Government offices.—*Athenæum.*

Architecture at the Royal Hibernian Academy.—Alluding to this department of the exhibition now open in Lower Abbey-street, the *Freeman* says—"The architectural drawings in this room comprise several beautiful and tasteful designs. The approved design for the new church of St. Andrew, by Mr. Lynn, is a perfect gem of its class. It is to be regretted that the site of the old church in St. Andrew-street, whereon the new building is intended to be erected, is not sufficiently spacious to display the noble proportions of the projected Gothic edifice. There is a handsome design for a collegiate school, and a design for a new Catholic church from the pencil of our talented townsman, Mr. Charles Geoghegan, architect of St. Joseph's Deaf and Dumb Asylum at Cabra. It may be observed that the architectural drawings and designs are of great excellence, and are arranged most judiciously in this year's exhibition, the general character of which as regards the variety and excellence of the works of art presented may be justly pronounced most creditable to Irish genius."

The New Bridge in Cork.—Having alluded in an earlier number, at some length, to the progress of this important structure and the excellent character of the work, we note with pleasure that our approval has been endorsed by that of a local journal, which says—"It will well repay a visit to any one anxious to see what superior masonry and cut stone work is to look in at the works of Patrick's Bridge, now rapidly drawing to a close—the ballustrades particularly are the most perfect specimens of chiselled work we have ever seen in limestone. Indeed the whole structure reflects the greatest credit on the architect, Sir John Benson, and the contractor, Mr. Hargrave, for the superior manner it has from the foundation up been executed."

Public Health.—At the approaching meeting of the National Association for promotion of social science, the committee in this department will comprehend Messrs. Thomas N. Deane, J. J. M'Carthy, and F. V. Ciarendon, architects; B. B. Stoney, C.E.; Doctors John Gray, J.P.; Rawdon Macnamara, W. R. Wilde, Robert Law, Joseph Lawlor, Richard Daniel, J. B. Greene, and James M. Wilson, Esqrs.

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For Notices see *Builder* and *Building News* of February 2, and the Dublin Builder of Feb. 15.

ARTHUR CATES, Hon. Sec.

9, Conduit-street, Hanover-square, W., Feb., 1861.

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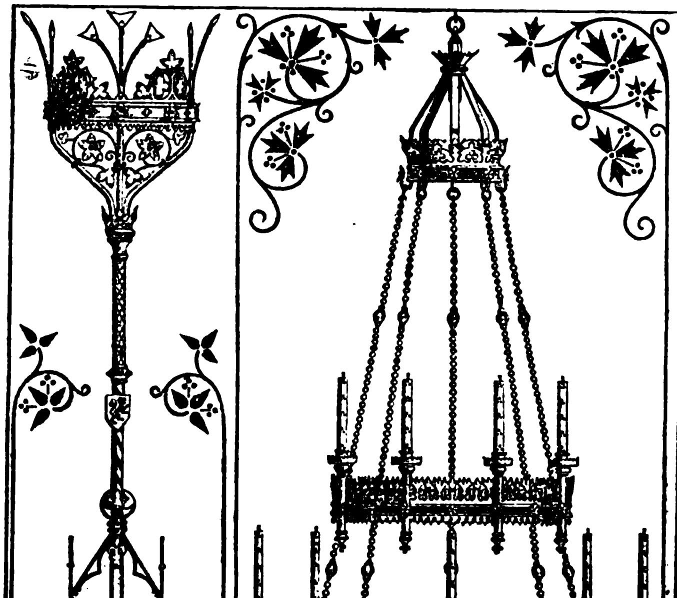

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The Dublin Builder.

Vol. III.—No. 40.

EMPLOYMENT WANTED—ARTIZAN REMONSTRANCE.

WHATEVER erroneous impressions may have gone abroad in certain quarters, respecting the actual purport of our mission, we point with confidence to that part of it so far fulfilled during the last two and a-half years, and ask for a single instance to be adduced against us wherein we have ignored the claims for consideration of "*the artizan*," and unduly identified ourselves in the interest of "*the master*." Such never *was*, nor ever *shall be* our wish, silent or expressed; and those in our confidence acquainted with circumstances to which we cannot now refer specially, will at least endorse as perfectly sincere and truthful this statement, which to remove apprehensions we feel called on to put forward *distinctly*, in reference to the subject in question. True, that common gratitude will induce a leaning towards those who in all stages of a responsible undertaking have extended a helping hand—such, indeed, as we always found ready to our grasp since this journal was established—and true also, that even into the most enlightened spirit prejudice may creep against others from whom support might have been reasonably expected, and which was partially withheld. But we should be unworthy of occupying that honourable position to which through popular favour we flatter ourselves as having succeeded, if in our conduct of this periodical, which is essentially an organ relating to scientific, artistic, and *industrial* pursuits, we yielded one tittle of independence of principle to the detriment of any of the numerous classes with whom it is associated. Our many friends and supporters — however they might openly seem to approve—would inwardly and justly despise us if we pandered to their tastes, their opinions, or their actions, praising as good that which was palpably wrong, merely from motives of individual interest, and we should doubtless ultimately reap the reward to which such unprincipled conduct would be entitled—a result directly opposite to that which we trust to attain by pursuing an *opposite*, an *honest*, and a *straightforward* course. To the point, however; we learned with much regret, through a most intelligent and respectable deputation of the regular carpenters of this city who waited on us on the eve of the advent of this number—as they were also about to do on numerous local architectural and building practitioners—that the large number of *two hundred and eighty men* of their body—the regulars and irregulars respectively—are at present out of employment in this city. Yet business is flourishing and the season has hardly yet reached its zenith. Have their masters and they disagreed? Is there a strike? A turn out? A nine hours' movement? Have "their brethren of the bench" in London, Liverpool, or elsewhere influenced them to a position of antagonism against their employers? are all questions at once suggested by such a state of things, but which are finally answered by a single negative. What then? *Machinery* has been the *indirect* medium of usurpation on their established rights; that which was formerly accomplished by their hardy hands, with "the sweat of toil" upon their brows, and their jack planes, bench cramps, chisels, and various other manual appliances at their side, is now effected for the most part by "steam" as a motive power; the driving shaft and endless strap, the circular, the band, and log cutting saws, the mortise knife, &c., supplanting the place of the former. Nevertheless the joiners' craft cannot be dispensed with; component parts must be fitted together, mouldings cleaned off and mitred, affording ample work for *all;* and still there are 280 *skilled hands* out of employment in this branch of trade alone. However deplorable the result, it would be as fallacious on our part to advocate the practicability "of stopping the tide with a pitchfork"—to use a vulgar but popular and expressive phrase—as to denounce in this progressive age the employment of machinery, which, in connection with steam, has been not inaptly designated "the great pioneer of modern civilization;" but, as we stated above, it is in this instance the *in*direct, not the *di*rect cause. What is the latter? The words of the deputation answer the query—"the importation into an extensive saw mill in this city, from England and Scotland, of a quantity of carpenters and joiners at unequal wages, ranging from 12s. to 34s. per week, to do work which we *offered* to do—but were refused even a trial—at our regular rates of wages. We do not object to machinery; we are willing 'to fit' carpentry so prepared, but we, as local artizans, have a prior claim for employment." This is the simple substance of the case as laid before us, the very limited time that elapsed prior to publication rendering a thorough investigation of *all* particulars impracticable. However, we give it, that the parties who feel aggrieved may have the opportunity of making their views public through our pages, which are also freely thrown open to any discussion that may be elicited on the subject. Before concluding, we must make passing reference to a statement that has also reached us, to the effect that the rights of architects who exclusively should furnish designs for timber constructions are also being infringed on, by the volunteered gratuitous supply of ready "cut and dry" drawings, or the preparing of such to suit circumstances. This is treading "dangerous ground," and we cannot too strongly—on behalf of the architectural practitioners of Ireland, who will unquestionably to a man unite in the sentiment—deprecate such a course, which, if interest alone be consulted, it would seem most prudent to discontinue. We sincerely hope the breach will be repaired, so as to prevent the necessity of further remarks on our part.

Somewhat touching the above subject, the *Irishman* has the following able remarks, to which, by the deputation, we are referred:—

"It would be an insult to the intelligence of the members composing those trades' unions to suppose that they attempted to battle with, or beat down, the employment of machinery in their respective branches, by clamour or combination. The men are willing to work with, and alongside, it; but, at the same time, they are anxious to participate in the obvious advantages which are accruing wholly to the benefit of the capitalist, by the present expedition of the work—the less number of hands required, and the consequent saving of time. Invoke the aid of machinery, say they, we don't object, for we know objection is futile. If you take the labour from the many, and if the many suffer by the transaction in the meantime, why not the many seek for some slight benefit, if possible, by the transaction—or make whatever resources that is left them subservient to compensation for loss endured? Man is a self-propelling machine; food is the fuel by which he is enabled to keep his parts in motion. Sleep is necessary to the system, that it may not relax or go out of repair; and, being a living entity, and not an artificial one, he is susceptible to suffering or a break-down of any of his parts. The injuries he may sustain might paralyse his efforts; and his working gear, of the body or mind, when once broken, or injured, seldom admits of a permanent mending. The loss sustained therefore may be a crush—protracted, final, and irremediable.

"By the introduction of machinery into many of the branches of trade, and latterly by its more extensive adaptation to purposes of the building art, a transitionary state is caused in those branches of trade, and like all other revolutions, whether in the matter of commerce, or science, or trade, a time is required for the settling down to a level again; of making good the breaks occasioned, and the changes necessitated. During those phases of change, the interests of large bodies of men are seriously affected. The diminution in the usual number of hands employed on the old system, and the consequent hardships to be endured by the surplus number being obliged to work for less, emigrate, or seek what is most difficult and betimes impossible—a new means of employment. In the face of so many disadvantages, and against great odds, men seek for a relaxation. They argue that machinery should be for the benefit of all—to shorten the hours of labour, to seek some respite from continuous and all-absorbing toil—to have some time for recreation—as a moiety of compensation for the ordeal endured. Some boon, as a set off against the obvious blessings, and benefits, and huge profits pocketed by the capitalist, the workman claims this respite and relaxation; and his claims seem just."

LORD BROUGHAM'S INAUGURAL ADDRESS.

ALLUSION is made elsewhere to the proceedings of the Social Science Association and the address of the President, Lord Brougham—a masterpiece of eloquence—delivered on yesterday evening in presence of a most distinguished and numerous assembly, the substance of which will be found in the following, our limited space unfortunately precluding its publication *in extenso*.

His lordship, after paying a most graceful compliment to Ireland and the Irish, especially "the great capital" which he pronounced to be "renowned for having given to the world men illustrious in all departments of science and of art, as well as of arms," and referring to the transcendant genius of Grattan, Plunket, Wellington, Wellesley—the great patriot, the consummate orator, the first of warriors and foremost among statesmen—all of whom he had been doomed to outlive—said—It now becomes my duty to note the progress which social science has made during the last year, and its present state and prospects. We are met again by the complaint that few of the plans proposed by us have been accomplished, and that, of the measures originating in our labours, many have failed to pass through the legislature. But the progress of all the sciences and arts is slow, because their improvement is necessarily gradual. Our limited faculties can never reach at once the utmost excellence of which they are capable, and their exercise can never complete suddenly any great work, but must proceed by steps towards its accomplishment. In the whole circle of science you find gradual progress to be the rule. Thus the vast changes which Newton made in mathematics and in physical science were effected after others had made a near approach to the same point. The calculus, in itself so great an extension of analytical science, and in its consequences producing such a revolution in all the exacter sciences, had, above a quarter of a century before its invention, been nearly discovered by Cavalleri and Roberval, and still more nearly by Fermat, and some years later most nearly of all by Barrow; while the doctrine of gravitation, and its explanation of the heavenly motions, had been approached, at any rate had the way prepared for it, by Galileo, Kepler, Huyghens, Borelli; and even his optical discoveries had been partially anticipated by Krontaud of Prague, and Antonio, Bishop of Spelatro. The science of chemistry, from the dreams of the alchymists to the erroneous theory of Stahl, made slow progress, and by successive improvements was freed from those errors, and grew into the science which Black, Priestly, Lavoisier, and Davy brought to its present state. The great rule of gradual progress governs the moral sciences as well as the natural. Before the foundations of political economy were laid by Hume and Smith, the French economists had made a great step towards it, and Turgot had himself worked, and as a minister had patronised, the labours of others in the same direction. Again, in constitutional policy, see by what slow degrees the great discovery of representative government has been made from its first rude elements—the attendance of feudal tenants at their lord's court, and the summons of burghers to grant supplies of money. Far from being impatient at this slow progress, we ought rather to reflect that the sure advance of all the sciences depends in a great measure upon its being gradual. But the common law of our nature, which forbids the sudden and rapid leaping forward, and decrees that each successive step prepared by the last shall facilitate the next, is in an especial manner of importance and of value in the social sciences, which so nearly affect the highest interests of mankind. Here our course, to be safe, must be guided by the result of experience, and must always be of a tentative kind. We must even be prepared to change our direction and our pace, and to retrace our steps when we find we have gone too far in a wrong direction. The skilful navigator, when steering on an unknown coast, after taking all precautions to obtain information respecting it, having no chart, or none that can be relied on, proceeds with the lead ever in his hand, and the glass at his eye, lies to, when he can, at night or in a fog, and has his sails and his helm always ready to change his course on the least indication of peril. The safety of his ship and crew depends upon such precautions; and the safety of the community depends upon all proposed improvements, which are changes, being first most maturely considered, and, when adopted, being carried into execution by such advances as shall give time for correcting errors, or stopping short, or altering the course pursued, when actual experience proves it to be wrong."

His lordship then referred at considerable length to the great change that had taken place in our jurisprudence, and then to the change in the economy and management of estates by owners of property in these terms—"The improvements in agriculture have obliged landlords to make a great outlay upon draining and farm buildings, highly beneficial no doubt to themselves, and therefore well bestowed; but in most instances so difficult as to require the help of loans. Yet, at the same time, they have generally contributed in a degree formerly unknown to what could afford no pecuniary benefit, the building and support of schools, improving the dwellings of the poor, and the building and repair of churches, thus spending most upon these excellent objects when they had least to spare. Nothing can be more delightful than to contemplate this progress in classes, generally speaking, the most reluctant to approve of changes, because the slowest to believe in their expediency, or even safety; and it affords the strongest reason for extending to the agricultural labourers and their children the benefit of those wholesome restraints of late years imposed upon the improper employment of labour in other branches. It is a most consolatory circumstance to all friends of social improvement, and of the sound and liberal principles which insure its progress, that the reign of these principles seems to be established universally."

After a comprehensive review of the recent reforms in the matters of voting at universities, patent laws, charitable trusts, the bankruptcy and insolvency, and criminal laws, and other branches of jurisprudence, the learned lord proceeded to consider the department of "Education," the repeal of the paper duty—"that gross and glaring anomaly in our legislative, as well as our administrative proceedings"—and passing on to "Sanitary Science," remarked, "that considerable progress has been made. The Quarantine Committee have brought their labours to a close, and presented an elaborate report. The information collected, and the suggestions made, are admitted to have essentially improved the sanitary condition of our mercantile marine. The diffusion of sanitary knowledge is a most important part of the duties of this department; and as the association has from the first desired and accepted the co-operation of women, the council have had no doubt in affiliating the Ladies' Sanitary Society, which acts under the highest patronage, and spreads among the poor a knowledge of the laws of health; it being now admitted that much of debility, disease, and premature mortality in this country results from ignorance and error, and might be prevented."

Referring to the "Criminal and Reformatory Department" his lordship stated "it presents very satisfactory results, and it may be fit at this meeting that we dwell more especially on the Irish branch of the subject. The number of reformatory schools is but small, and it is devoutly to be wished that they were multiplied. But the diminution of crime in this island, of late years, is most satisfactory; and allowing that the great migration, since the famine years, has had much influence, enough of the improvement remains to reflect the greatest credit upon the instructors of youth and the ministers of religion. The decrease in the number of the people makes any comparison of the commitments for offences inconclusive, unless we regard the proportion of these to population. There were in 1856 as one to 923 of the people; in 1859, as one to 1,117; and in 1860, as one to 1,217. The number of juvenile offenders decreased in a still greater proportion."

Comparing the working of the convict system in the case of the English and the Irish respectively, his lordship said "the different results of the two systems may be gathered from the fact that at Lusk we see numerous convicts set to work, and only retained by moral restraint, without any sentinels, while at Portland we see the convicts quarrying stones for the breakwater under the guard of sentinels with muskets and bayonets, and on the breakwater itself, which is more difficult to guard, free labourers, and not convicts, are employed. Another test of the Irish system may be stated as decisive—the confidence of the public in the reality and the permanence of the reformation effected, inasmuch as discharged convicts at once find employers willing to receive them, experience proving that they may be relied upon as steady and trustworthy servants."

After alluding to other topics his lordship proceeded—"In the great department of social economy much attention was at the last congress given to the important introduction into the manufacturing districts of the co-operative system—the establishment of unions by the working classes, for the purpose of sharing in the profits on the goods consumed or used by them, as well as of preventing adulteration of those goods, and for the other purpose of carrying on branches of manufacture. In both these kinds of union the progress has been very great since last year, and in the latter those doubts which seemed to exist of the scheme's practicability have been almost altogether removed. Above 50 companies for manufacture have been established since last congress, besides many of mere stores. In these last a capital of £500,000 is invested; but in the former the manufacturing concerns represent a capital of nearly £2,000,000, exclusive of the Manchester Cotton Company (limited), whose capital is £1,000,000. The returns of Mr. Tidd Pratt show the creation of about 250 co-operative societies within the last twelve months, all enrolled under the Friendly Society Act. It is not wonderful that the members of such unions should be of an educated class, but that they should often exercise themselves in literary labours is remarkable. . . . The effect of co-operation in preventing strikes, so pernicious to the working classes and so dangerous to the peace of the community, has been everywhere felt. The late strikes at Colne may be ascribed to the want of co-operative unions in that district; but the mischiefs occasioned, and which left their deep traces behind, opened the people's eyes to their error, and the consequence has been the establishment in that district within the last three weeks of a shed with 700 looms upon the co-operative plan. It is important to observe that, with another subject anxiously dwelt upon, as well as strikes, at all our former meetings, the great cause of temperance has been intimately and most naturally connected. Not only are such of the contributors as had before been subject to intemperance weaned from their habits, but it is mainly to temperate habits that the formation of these unions may be traced. Exceptions there may, no doubt, be; but, as a rule co-operative societies are composed of sober and industrious men. It is equally consolatory to find that the improvement of health, the extirpation or mitigation of disease, everywhere keeps pace with the increased habits of temperance. But in no respect is it more gratifying than to observe the connexion of temperance with the diminution of crime. In France, it appears, from our colleague, Mr. Quetelet's statement, that no less than a fifth of all the murders during the last four years had their origin in tavern brawls. Source of disease, of poverty, of crime!—how long shall the heavy curse be suffered to afflict us? How long shall we submit to a conqueror more cruel than the armed invader—to a tyrant the most inexorable of all, which has subdued rational men, and avenged the world of unreasoning creatures for the wrongs received at his hands?

"The employment of women" was next treated of by his lordship, who said that "the printing establishment opened by Miss Faithful has gone on with increasing success," and that a volume under Her Majesty's sanction was in course of preparation at the Victoria Press. His lordship next referred to "the truly wise and benevolent plan of closing early and allowing a Saturday half holiday," also to the happy effects attendant on the addition of lectures to the libraries of great establishments, and then to the sixth department on "international subjects," which he treated most comprehensively, but being chiefly of political tendency, we must pass over to the conclusion of this most brilliant address, as follows:—

"We have been surveying the progress of the past year, and have only had time to touch the higher points in the outline, leaving of necessity much that is of importance untouched. The past lends encouragement to the future. Let us then persevere to the end. But let us not forget that all our efforts to improve the condition of our fellow-creatures, and make them worthy of their destiny, are as nothing compared with the progress in higher things. These are the great aim and end of our being. In all our pursuits, in our whole existence, an instinctive sense attends us that we are unsatisfied. The want of somewhat permanent ever haunts us. Whatever exertions we have made, whatever success had, whatever gratification received, only makes us feel how hollow it all is—how much we desire that which endures. The scenes of early days, which we revisit, now become dim from time, peopled with the forms of those whose memory they sadly recall, make us long for the bright scenes that can never fade, and for rejoining friends to part no more. The present doubt, and the struggle, and the darkness, is for the hour; the prospect is cheering, and it is for ever; and so it is with our National Association, which commands our allegiance, and justifies the hopes it inspires. Undaunted by resistance — undisturbed by faction—undismayed by real coldness or affected contempt, we persevere in our course of social labour; but we lift our views higher, to scenes far above the darkness of ignorance that shrouds one region, the mists of doubt that obscure, the storms of passions that vex another, and behold the lofty summit shining in the faith and adoration of God, glowing with universal benevolence to man. "As some tall cliff," (I gladly pronounce these noble lines in the land which gave them birth)—

> 'As some tall cliff that lifts its awful form,
> Swells from the vale, and midway leaves the storm;
> Though round its breast the rolling clouds are spread,
> Eternal sunshine settles on its head.'"

THE SHOW AT BELFAST.

If there were special evidence required of the growing prosperity of Ireland, we could scarcely find any more conclusive than that afforded in the recent show of the Royal Agricultural Society held at Belfast, which was everything that could be desired, viewing it either locally or nationally; and moreover the arrangements made for the reception both of the animals and implements exhibited, as also for the accommodation of visitors, were most complete. We must not, however, stop to expatiate on the merits of "shorthorns" or "longhorns," or "sheep," or "swine," or "poultry," however much in common with the general public we may venture silently to appreciate them, but, leaving that privilege to our agricultural cotemporaries, pass on to the stands of the manufacturers, with whom our province is more directly associated, and amongst whom we recognised some old friends, and as was but reasonable to expect, the local firms competed with great enterprise, and a laudable emulation seemed to prevail not only amongst themselves but with the Irish, English, and Scotch manufacturers, who also exhibited. This we believe to be the true secret of a nation's prosperity, and as long as competition is carried on with an honest and earnest spirit, it cannot fail to conduce thereto. With Messrs. Musgrave, Brothers, our readers have been made acquainted in our notices of their manufactures exhibited at the same society's shows in this city, and comprising stable and farm-house fittings, improved gas apparatus, stoves, garden furniture, strained wire fencing, entrance gates and railings, &c.; and their usual excellence was so well sustained at this show, that we are only permitted the opportunity of recording, as before, our unqualified approval; Messrs. Riddell and Co., and A. Macdonald, also of Belfast, and Messrs. Francis Morton and Co., of Liverpool—a firm whose manufactures we made special note of in previous numbers of this journal—Messrs. H. J. Morton and Co., of Leeds; Hernulewicz, of Edinburgh; Thomas Perry and Son, Glasgow; and Kennan and Son, of Dublin, were all exhibitors somewhat in same line, each having their own peculiar merits and features, the latter however comprehending in addition a department of workmen's requisites in the mechanical arts. The engineer exhibitors were very numerous, and comprised, besides others, the well-known houses of John Bennie and Son, Newry; Young, Ayr; Clayton, Shuttleworth, and Co., Lincoln; John Gray and Co., Glasgow; Kirby, Banbury; Richmonds and Norton, Liverpool; Barrett, Exall, and Co., Reading; Ransomes and Sims, and Turner, Ipswich; Howard, Bedford; Shekleton, Dundalk; J. Hornsby and Sons, Grantham; Riches and Watts, Norwich, &c.. Mr. Robt. Brown, of Ferguslie fire-clay works, Paisley, had a remarkably excellent collection of pipes, troughs, tiles, fire bricks, &c., and Mr. John Moore, of Ravenhill, Belfast, was an extensive exhibitor in somewhat similar character of building materials. Amongst the miscellaneous exhibitors were Mr. Kent, of London, whose knife-cleaners, egg-beaters, &c., are world-famed, and Mr. Bradford, of Cathedral-steps, Manchester, had a crowd of enquirers at his magic washing-machine. Altogether this was a highly instructive and creditable show.

SERIOUS CHARGE AGAINST A WAR DEPARTMENT OFFICIAL AND A CONTRACTOR.

On yesterday morning, the 14th inst., Mr. Hamilton Connolly, chief clerk in the Engineers' Office, Dublin Castle, and Mr. John M'Elwain, of Naas, builder, were brought before the police magistrates on charge of embezzlement and forgery. The case for the prosecution is briefly as follows—that during the last two years at least, various sums or money had been fradulently obtained through the prisoners' collusion in altering the items certified for at foot of the contractor's accounts—in one instance from £100 to £700, and in another from £271 11s. 5¾d. to £576 1s. 5d.—and in forging the initials, after erasures, of the Colonel and District Commanding Engineer, Edward W. Dunford, proved by a fellow clerk, Mr. Minty, to be in Connolly's handwriting. The secretary to the Hibernian Bank proved the payment to M'Elwain of the drafts of the Accountant General for the exaggerated sums, also the lodgment by M'Elwain of an acceptance of Connolly for over £200, that same might be discounted. Counsel for the Crown would not consent to take bail, and the prisoners were accordingly remanded to stand their trial at next sessions. Mr. Sidney, counsel for the prisoners, with Messrs. Fitzgerald sen., and Ennis, as attorneys, reserve the defence until then. We deeply deplore the unfortunate position of Mr. M'Elwain, who for many years we believed to be one of the most respectable men in his trade.

SUBTERRANEAN CHURCHES.

In a recent number of the *Building News* we find the following:—Interesting excavations are now going on in land adjoining the Presbytery of Ferrières-Haut-Clocher, near Conches, in France, department of the Eure. The origin of this exploration is curious; a cow was passing over the ground, when suddenly the earth opened and swallowed the poor creature up, as the good folks of the village declared; the cow had in fact broken in the roof of a subterranean building, and after Crummey had been rescued from her bewildering position safe and sound, and every soul in the neighbourhood had looked into the big hole, means were taken to learn something more about it. No legend told of any underground building, and the antiquarians of the vicinity have an unexpected treat presented to them. The place was soon discovered to be a vaulted chamber 8 or 9 yards in length, 7 feet high to the crown of the vaulting, and of about the same width; no pavement has yet been found, but it does not appear that the excavation is completed. The subterranean chamber is about five yards north of the Presbytery, and twenty yards from the apsis of the church, and there is no reason to doubt that there exists or did exist a communication, being the first and the last. The church was originally built in the thirteenth century, and the original tower is still standing, but the nave is the work of the sixteenth century, while the eastern portion is believed to be as old as the tower. It is well known that at times the Christians were prohibited from practising their religious ceremonies in the light of day, and that they were frequently driven to resort to subterranean places of worship like their predecessors the early Christians. Such chambers are found attached to many abbeys and other religious establishments; near the Benedictine Monastery of Jumiéres is an immense underground construction, which is said to extend for more than a mile, and which has become famous through the history of Agnes Sorel. The Abbey of Fontenelle or of St. Waudrille, near Caudebec-en-Caux, is another of these curiously interesting structures; and a third was discovered some time since by accident at Torp, a dependance of Jumières in the forest of Brothorme.

MINIATURE WHEEL OF FORTUNE.

Augustus (for that was the Christian name by which the boy Pugin preferred to be called) created great amusement by illustrating the ups-and-downs of the pupils on "a wheel of fortune." Every week the rotatory machine was sketched with great spirit, each pupil being represented standing upon a projecting bracket attached to the wheel. The favourite was always at the top, capering and laughing with pencil in hand, while the one least fortunate was seen hurled to the ground by the revolution of the wheel. Others were planted on the ascent or descent, according to the degree of favour in which they stood with their master, their doleful or joyous faces being cleverly expressed by a few spirited touches. Great amusement was produced by this humorous device; and the publication of a new wheel of fortune every week was eagerly looked for by his fellow pupils.—*Ferrey's Recollections of Pugin.*

THE BUILDERS' STRIKE AT LIVERPOOL.

The following circular, with reference to this unfortunate circumstance, has been recently issued:—

The associated master builders of Liverpool beg to inform the public that their workmen have, with a few exceptions, struck, and left the works of their respective employers; and that the building operations in the neighbourhood are, therefore, comparatively at a stand.

The changes and reductions lately made by the workmen in the hours of labour, and the consequent unequal value of the labour worked on the different days of the week, have rendered the payment of wages by the day no longer just or applicable.

With a view to rectifying the difficulties and confusion which had arisen under these circumstances, the master builders issued a signed declaration, in the form of a printed notice, to the effect that on and after the 2nd of September next they would pay wages by the hour instead of by the day.

On the 20th instant, the bricklayers and plasterers in the employ of the parties who signed the declaration struck, and left their work; and on the 27th instant the carpenters and joiners also struck, and left their work, the reason assigned for the striking being, the refusal of the masters to withdraw their names from the declaration.

The master builders *declare that their only object in the proposed change is to place the remuneration of labour on a fair and just basis;* they do not wish to reduce wages or interfere with any existing privilege or custom enjoyed by their workmen; and they have no ulterior object in view beyond the change in the mere detail of paying wages by the hour instead of by the day.

In consequence of the strike, the masters have determined to adopt the new system of payment on the 1st August instead of the 2nd September, so that their shops are now open for workmen who are willing to work under the terms proposed.

Committe-room, Clarendon-buildings, July 31, 1861.

BUILDING ACTIONS.

(Belfast Assizes.)

Stewart v. *Girdwood. Girdwood* v. *Stewart and Others.*—These were actions arising out of a building contract. Mr. Girdwood, defendant in first case, and plaintiff in second, is the proprietor of extensive print works at Old Park, near Belfast, which were burned down in 1859. Early in the following year Mr. Girdwood commenced rebuilding them with Mr. Young, of Belfast, as his architect, and Mr. Stewart, of Belfast, as the contractor and builder. An agreement was entered into between the parties incorporating the specifications and plans, and limiting the time for the completion of the works, with various clauses usual in similar contracts. The works were completed and certified for by the architect in September last, but upon the balance of this account, amounting to £406, being claimed by the builder, Mr. Girdwood declined to pay it, alleging that there were various defects and departures from the specifications, which rendered the works less perfect than the contract required. The builder brought his action for the above balance, and also for an alleged assault committed by Mr. Girdwood, in turning the builder and his men out of the works, which was stated to have happened in September last. Mr. Girdwood, after being served with the plaint in the first case, brought an action on the bond which had been given by the builder and two sureties, conditioned for the faithful performance of the works. The pleadings in each action were of considerable length, and involved questions of great intricacy. The first case having been called on, and the pleadings opened, while senior counsel was proceeding with his statement, the learned Judge suggested that the cases should both be referred to three out of six of the jury who had viewed the premises, and after some discussion, this was arranged. The award in each case to be taken as the verdict.

CARLISLE BRIDGE.

At a recent meeting of the Corporation, Alderman Reynolds gave notice that, "in September, he would move the re-appointment of a committee to report on the practicability and probable expense of rebuilding Carlisle-bridge, and stated that an attested copy of the new Westminster-bridge could be erected for £40,000.

Mr. Whelan said he would object to an iron bridge. He called attention to the memorial of the inhabitants of Merchant's-quay and Bridge-street, complaining of the narrowness of the flagways.

Mr. Bonsall observed that the memorial was before No. 1 committee. When the city engineer returned from London directions were given to have the prayer of the memorial complied with as far as possible.

Mr. Kelch said when he was a member of the South Dublin Union Board he found that £33,000, belonging to the old police authorities, were in the hands of the government. The reply to an application about that money was that when it was required it would be given. Now, in his opinion, a new bridge across the Liffey at the Custom-house was much required; and the large sum to which he alluded would defray the cost of that much-needed work.

Notes of New Works.

It is proposed to erect a new town hall at Bandon, and the Duke of Devonshire has contributed £100 towards the expense.

The Cork Waterworks Committee have received tenders for certain works to be done at No. 1 reservoir.

Ground has been taken at Bushfield-avenue by Mr. Thos. Connolly, stucco plasterer, Rathmines, for the erection of four houses, two of which are nearly completed, and have red brick fronts, granite cornice and blocking, &c. Immediately opposite are three pair of semi-detached houses in progress, one pair belonging to Mr. Carson, architect, and the others to Messrs. Woods.

A new church is to be erected in Ballinlanders, county Limerick, according to drawings by the architects to the Ecclesiastical Commissioners.

Sundry works are to be executed under same direction at Armoy, county Antrim, and Crossmolina, county Mayo.

The first sod of the Newcastle and Rathkeale Junction Railway was turned on 10th inst. by the Earl of Devon, in presence of a vast concourse of people, and with all the circumstance and *eclat* which generally attach to such interesting proceedings.

Two semi-detached dwelling-houses at Avoca-avenue, Blackrock, and of architectural character, are being completed for Mr. M'Nally, under the direction of Mr. Carson, architect; Mr. Hugh Kelly, builder, who is also completing two other houses at Oaklands, Rathgar, for Mr. Henry Todd; Mr. Ferguson, architect.

The new convent of Letterkenny has been inaugurated. It has been erected from designs by Mr. Goldie, architect, and has an elegant and spacious façade, comprising extensive and lofty halls, dormitories, for the accommodation of boarders, refectory, cells for the nuns, basement offices, chapel, with the western elevation flanked and supported by a tower surmounted by a cross. All the apartments are cheery and well ventilated, and everything has been done to consult the health and comfort of the inmates. The little chapel is exceedingly well designed and beautiful, with its stained glass window over the altar, containing the representations of our Lord, the Blessed Virgin and St. Joseph, from Messrs. Barff and Co., Dublin.

The water supply to, and drainage at, Island-bridge Barracks is to be improved. This would seem to be a result of the recent inspection by the commissioner appointed for that purpose.

A new palm house is to be erected at the Glasnevin Botanic Gardens, according to plans by the architect to Board of Public Works.

A new national school-house is to be erected at the cross roads near Clonsilla, Athlone, and Mr. Wm. N. Holton, has granted a free site.

Messrs. Patrick Kerr and George Carolin, builders, have been declared joint contractors for the additional buildings at Maynooth College, and for the new model school to be erected at Lurgan under the Board of Public Works.

A contemporary has the following:—As a proof of the interest manifested by the Countess of Glengall for the welfare and prosperity of Caher, we may mention that her ladyship has decided upon receiving no tenders for the building of her new mansion save those furnished by builders resident in that town.

Extensive Sale of Timber.—We beg to direct the attention of purchasers of timber to the extensive sale by Mr. Edwd. Chaloner, of Liverpool, advertised in this number.

Water Supply to Rathmines.—The Commissioners met on the 21st inst. to receive tenders from parties willing to supply the township with water. The present population of the township is 12,874.

INSTITUTION OF CIVIL ENGINEERS.

SUBJECTS FOR PREMIUMS, SESSION 1861–62.

THE Council invite communications on the following, as well as other subjects, for premiums:—

For a limited number of papers of distinguished merit, pecuniary awards will be made, not exceeding in each case twenty-five guineas, in addition to the honorary premiums. The subjects marked *, have been selected as those upon which, it is hoped, such communications may be received during the ensuing session. But papers on other subjects, if of adequate merit, will be taken into consideration, in the adjudication of the pecuniary awards.

1. On the principles upon which the Works for the Improvement of River Navigation should be conducted, and the effects of the works upon the Drainage and Irrigation of the District; including accounts of the systems of Moveable Dams *(Barrages Mobiles)* in Rivers on the continent.

2. On the effect of Engineering Works in causing injurious Scour, Flooding, or Silting-up, in Tidal Estuaries, or Rivers.

3. On the effect of Sluicing, in removing and preventing deposits, at the Entrances of Docks on the Coast and in Tidal Rivers

*4. On Reclaiming Land from Seas and Estuaries. (Twenty-five Guineas.)

5. On the Results of the Employment of Steam Power on Canals, and of other measures for the Improvement of Canals as a means of conveyance for heavy traffic.

6. On the Method of constructing Foundations, for large Structures, in deep water; and on the various systems of Driving Piles.

7. Description of Cast or Wrought Iron Cranes, Scaffolding and Machinery, employed in large works, in Stone Quarries, as Hoists, or Lifts on Quays, in Warehouses, &c., especially where either Steam or Water, is used as a motive power.

8. The Selection of Sites for the Construction of Docks on the course of Tidal Streams, with reference to communication with Railways, and with Inland Navigation.

9. The Selection of Sites for, and the Principles of the construction of, Breakwaters, Harbours of Refuge, Piers, Moles (whether solid, or on arches), Sea Walls, and Shore Defences; illustrated by examples of actual works.

10. On the Arrangement and Construction of Floating Landing-stages, for Passenger and other traffic.

11. The Construction of Lighthouses, their Machinery and Lighting Apparatus; with notices of the methods in use for distinguishing the different Lights.

12. On the Mechanical Methods of Boring and of Sinking large Shafts, of introducing the Tubbing and the impervious lining, and of traversing running sand and other difficult strata.

13. The Result of Contrivances for facilitating the Driving of Tunnels, or Drifts in Rock.

14. Accounts of the various modes adopted for Moving Earth in Tunnels, Cuttings, or Embankments, with the cost.

15. On the different systems of Swing, Lifting, and other Opening Bridges, with existing examples.

16. On the Construction of Suspension Bridges, with rigid platforms, and the modes of Anchoring the Stay-chains.

17. The results of a series of observations on the Flow of Water from the Ground in any large district; with accurately recorded Rain-guage Registries, in the same locality, for a period of not less than twelve months.

18. On the Construction of Catch-water Reservoirs in Mountain Districts, for the supply of Towns, or for Manufacturing purposes.

*19. Accounts of existing Waterworks; showing the methods of supply, the distribution throughout the streets of Towns, and the general practical results. (Twenty-five Guineas.)

20. The Comparative Duty performed by, and Improvements in the Construction of, modern Pumping Engines for raising Water for the Supply of Towns, or for the Drainage of Mines; noticing, in the latter case, the depth and length of the underground workings, the height of the surface above the sea, the geological formation, the contiguity of streams, &c.

21. The results of the use of bucket and rotary pumps, for lifting large quantities of water to a limited height, as at the Haarlem Meer, or at Whittlesea Mere, or for the purposes of Irrigation; with descriptions of the Machinery employed, and the application of such Machinery to the raising of the sewage of large Towns.

22. The Drainage and Sewerage of Large Towns; exemplified by accounts of the systems at present pursued, with regard to the level and position of the outfall, the form, dimensions and material of the sewers, the preventions of emanations from them, the arrangements for connecting the house drains with the public sewers, and the disposal of the sewage, whether in a liquid form, as irrigation, or in a solid form, after deodorisation.

23. On the Means of Rendering large supplies of water available for the purpose of Extinguishing Fires, and the best application of Power to the working of Fire Engines.

21. On Boiler Inspection as practised in this country and on the Continent, with remarks as to the comparative merits of the two systems.

25. On the Causes of the alleged Failure in Economising Fuel in working Steam expansively, and the probable conditions for insuring success.

26. On the results of the use of Superheated Steam, and of Surface Condensation.

27. On Substitutes for Steam, and the Causes of their failure.

*28. On the results of the use of Tubular Boilers, and of Steam at an increased pressure, for Marine Engines, noticing particularly the difference in weight and in speed, in proportion to the Horse Power and the Tonnage. (Twenty-five Guineas.)

29. On the measure of Resistance to Steam Vessels at high Velocities.

30. The Substitution of Machinery for Manual Labor, for Raising, Lowering, and Reefing the Sails, Weighing the Anchor, &c., on board ship.

31. On Steam Vessels of Light Draught for the Shallow Rivers of India, &c.

*32. On the Form and Materials for Floating Batteries and Iron-plated Ships ("Frégates blindees"), and the points requiring attention in their construction. (Twenty-five Guineas.)

33. On the Construction of Rifled and Breach-loading Artillery; and on the Initial Velocity, Range, and Penetration of Rifled Projectiles, and the influence of Atmospheric Resistance.

34. Description of Street Railways and Carriages, as used in the United States of America, in Paris, and elsewhere, with the results.

35. Improvements in the Construction of Railway Carriages and Waggons, with a view to the reduction of the gross weight of Passenger and Goods Trains; also of Railway Wheels, Axles, Bearings, Axle-Boxes, and Breaks, and of Bearing, Traction, and Buffer Springs; treating particularly their ascertained duration and their relative friction.

36. Descriptions of the various kinds of Machinery in use in the principal Shipping Ports, for the Shipment of Coal; noticing particularly those in which the greatest expedition is combined with the least amount of breakage of the Coal; and also accounts of the means of unshipping and measuring, or weighing the Coal, on its arrival in Port.

37. On the means of Utilising the products of the Distillation of Coal, so as to make Coke commercially as cheap as Coal; with descriptions of the ovens, and of the best processes used in Great Britain and on the Continent, in the manufacture of Coke.

38. The Precautions to be adopted for guarding against Accidents by Fire-damp and After-damp in Mines.

39. The Chemical Analysis, and the application to economic purposes, of the Gases generated in Iron Blast Furnaces.

40. Description of Modifications of the present systems of Smelting Iron Ores, of improvements in the conversion of cast-iron into the malleable state, and of the manufacture of iron generally, comprising the distribution and management of Iron Works.

41. Improvements in the Manufacture of Iron for Rails and Wheel Tyres, having special referenee to the increased capability of resisting lamination and abrasion; and accounts of the Machinery required for rolling heavy Rails, Shafts, and bars of Iron of large sectional area.

42. On the construction and application of Steam Hammers.

43. On the use of Steel Bars and Plates in Engine-work and Machinery, for Boilers and for Shipbuilding.

44. The process of Manufacture, and mode of treatment, of Aluminium.

45. On the Forms and Dimensions of Journals of Machine-shafts, Axles, &c.; with the best composition for the linings of bearings, and the most approved method of lubricating.

46. On the Mechanism of Astronomical Instruments.

47. On Machinery adapted for the Better Separation of the various Substances found in Combination with Metallic Productions.

48. On the Substitution of Machinery for Manual Labor in Mining Operations; and on Hydraulic Machinery in Mines.

49. On the Improvements which may be effected in the Buildings, Machinery and Apparatus for producing Sugar from the Cane in the Plantations and Sugar-works of the British Colonies, and the comparison with Beet-root, with regard to quantity, quality, and economy of manufacture.

50. Accounts of Improvements in Flax and Cotton Machinery, and in the processes for preparing those substances for manipulation.

51. An account of the mechanical means at present in use for facilitating the operation of Packing Materials and Goods, whether by Hydraulic Power, or otherwise.

52. The uses of Vulcanised, or Mineralised Caoutchouc; the means of increasing its durability, and the modes of causing its adhesion to metal.

53. On the application of Photography to Engineering.

54. On the Application of the Electric Telegraph to Railway Train Signalling.

*55. Railway Accidents—their causes and means of prevention;

showing the bearing which existing legislation has upon them. (Twenty-five Guineas.)

56. Memoirs and accounts of the Works and Inventions of any of the following Engineers:—Sir Hugh Middleton, Arthur Woolf, Jonathan Hornblower, Richard Trevithick, William Murdoch (of Soho), Alexander Nimmo, and John Rennie.

Original Papers, Reports, or Designs, of these, or other eminent individuals, are particularly valuable for the Library of the Institution.

The competition for premiums is not confined to members, or associates of the Institution, but is equally open to all persons, whether natives or foreigners.

The council will not consider themselves bound to award any premium, should the communication not be of adequate merit, but they will award more than one premium, should there be several communications on the same subject deserving this mark of distinction.

The communications must be forwarded, on or before the 1st of January, 1862, to the house of the Institution, No. 25, Great George's-street, Westminster, S.W., where copies of this paper, and any further information, may be obtained.

Charles Manby, Honorary Secretary.
James Forrest, Secretary.

25, Great George's-street, Westminster, S.W., July, 1861.

THE KILDARE-STREET NEW CLUB-HOUSE.

The resolution to build a new Club-house was taken in 1859, and the firm of Deane and Woodward received the requisite instructions to prepare the plans. Those gentlemen accordingly prepared plans for a site embracing one more house in Leinster-street, and one less in Kildare-street than are at present occupied, but the requirements of the club were such as to make it impossible to arrange the several buildings on the proposed site. The house in Leinster-street was therefore abandoned, and another taken in Kildare-street, and by this means a sufficient area was acquired for the buildings in the rear. The style adopted for the first building was Italian Gothic, but with semicircular heads to the windows like those in the New Museum building at Trinity College. We should have preferred having the windows either thus, or, better still, pointed, but it is difficult to sway the opinions of a committee, especially in the first stages of a plan, and indeed a building that looks best in execution is seldom very attractive on paper, which makes the difficulty greater. The committee rejected both pointed and circular openings. The architects, therefore, set about designing a window embracing not only good construction in the material to be used (viz., brick), but one which would afford the largest proportion of light, as it was only possible to light some of the rooms from one side. This latter consideration materially influenced their views in the design of the windows which was finally adopted. It has many advantages. 1st—A proper arch spans the opening, and yet the squareness of the frame is not sacrificed. 2nd—The smallest possible obstruction of light in so large an amount of opening occurs, two slight columns taking the place of what must otherwise have been a large pier. In this building the unpleasant effect of the usual boarding of brick and stone is avoided. The alternate long and short stone, usual in dressings, is, to our mind, very ugly. Wherever stone has been used it has either a straight or curved line of demarkation from the brickwork. The form of the ground suggested in a great measure the arrangement of the ground-plan, which is as follows:—On entering the hall in Kildare-street, you have on right and left the porters' and waiting rooms. Ascending three steps you arrive at the great central hall, opening off which on the right, with window of course facing Kildare-street, is the coffeeroom, 60 by 30, and 22 feet high. On the left, facing Leinster-street, and looking into the College-park, is the morningroom, of the same dimensions. Behind the coffeeroom, and entered from a passage (traversing its whole length, and communicating at one end with the main hall, and at the other with the members' private entrance and staircase to their bedrooms on the top storey) are the bar servants' waitingrooms, clerks' rooms, and servants' staircase. The principal hall and staircase is lighted from the top, and on the ground and upper storey an arcade with Portland and limestone columns runs round its four sides. The stairs commence in the arcade on the left as you enter from the principal entrance, pass under the floor of the upper corridor, opposite entrance, and turn again to the left by a flying flight withinside the arcade. By this means a complete corridor all round the four sides of the hall is maintained on the upper storey. The ballustrade is formed of perforated slabs of stone. The capitals, bases of columns, the ends of steps, and arch of flying flights, are carved with flowers, birds, and animals. The upper corridor is tiled in an elaborate pattern, and the floor of the hall is paved with Portland, Forest of Dean and Cumberland stone, with dots in encaustic tiles. A skirting of tile runs round the upper corridors, the hall and down the wall flights of steps. It is proposed to decorate the hall and staircase with colour and gilding. The second stairs, fire-proof throughout, is for the domestics; it is of brick and granite, and runs from attic to basement. The third is of timber, and is the members' private stairs, communicating as before with the members' bedrooms and the passage to the private entrance in Kildare-street. In the rere of the main building, on the ground floor, communicating with the corridor on three sides of a court-yard, are six dressing-rooms, water-closets, private diningroom, two billiardrooms, 32 by 20, lavatory, bathroom, and at the back of billiardrooms, a racket court, with its necessary dressingrooms, &c. The racket court is supposed to be the best that has been hitherto built. It is covered with a light iron roof, with central skylights, and bands of glass the whole length of court. The dimensions of the court are 66 by 33 feet; available playing height 44 feet. On first floor of main building the arrangements are as follows: Over the morningroom and, consequently overlooking the College park is a drawingroom 60 by 30 by 21. The bow window in this room commands one of the most beautiful views in the city. Over the coffeeroom are a writing-room, 40 by 30 by 21; and a room unappropriated at present, 30 by 25 by 21; and over the entrance hall parlour, and waitingrooms, a cardroom, 20 by 30 by 21. Off a corresponding passage to that described as at the back of the coffeeroom, are a conferenceroom, a lavatory, and a committee room. The twenty-one feet of height in the front rooms is divided in the rooms off the corridors, overlooking courtyard, into four storeys, which afford apartments for female upper servants. Over the private diningroom, and going to the courtyard, is a smoking room, 35 by 36, with open timber roof, with water-closet and a separate stairs, at the back of principal stairs. On the storey over the principal floor of main building are fifteen bedrooms for members, with bathrooms, cleaning-rooms, porters' boot, and bellroom, &c. The average size of bedrooms is fourteen by twenty-one. The basement is entirely vaulted in brickwork, and contains all the cooking requirements and bedrooms for servants, with spacious wine and beer cellars. In the decoration of the principal rooms wall painting has been mainly relied on, the funds at the disposal of the committee not being sufficient to provide what may be termed architectural embellishment to any great extent. What has, however, been done has been executed in conformity with the views of the architects—that construction should be visible, and ornament added to construction. With this idea the beams supporting floors are left exposed, and will be decoratively painted. A continuous string, or corbel of stone, projects into the room ceiling below plaster, for the ends of the joists to have secure resting place without being bedded in walls, the fear of decay being thus avoided. This string is very richly carved. Similarly, and for a similar purpose, under the beams, large and deep stone corbels are inserted in the walls, and break up the monotonous line of string course before described. These are also richly carved. The ceilings are flat between the beams, and at their junction with the upright of walls over the stone string are beautifully designed cast plaster flat enrichments. The carving of the building has been executed upon the principles adopted in the new Museums, Trinity College, and the University Museums, Oxford, which is, permitting the workmen to think for themselves and to design their own work. No drawings have been made in detail for any of the carved work in the building, a careful supervision and rough sketches, to ensure a certain character of foliage, being all that was deemed necessary. The cost of the stone carved cornices in the principal rooms is not greater than the same elaboration in plaster. The whole carving of the building, inside and out, has cost under £800. This work cannot be considered finished until the decorations of the rooms are completed, and we hope that, although it may be deferred for some time, they will be ultimately carried out under the advice of the architect. The contractors for the buildings have been the Messrs. Cockburn and Sons, who have performed their duty in the most admirable manner. The cost of the building, including fittings, will be about £25,000.—*Packet.*

Social Science Sketches.—We may now enjoy cheap railway excursion trips, "London and Paris, and back" in such a time—close carriages and suffocation—crush and squeeze—coke vapour, tunnels and smuts. Then, again, in the matter of our "local habitations" (ahem, Shakspeare) how do we stand, or rather how do they fall, in the nineteenth century? Badly enough. Will any one venture to compare the great, substantial, warm old houses, with the gingerbread structures which have usurped their place in these latter times; shams, made—like the Yankee's musket—to sell, not to last, nor to make happy? Where now are to be seen rising up those stately piles, with their solid walls, their noble porches, wide doorways, massive doors, and warm, secure apartments wherein our fathers loved to dwell? Nowhere! they have disappeared, they have been improved out of the world, and they have been succeeded by the shaky, insecure, and toy-like shells which modern builders delight to "put together;" for, alas! houses are not built now, they are merely "run up."—*Saunders.*

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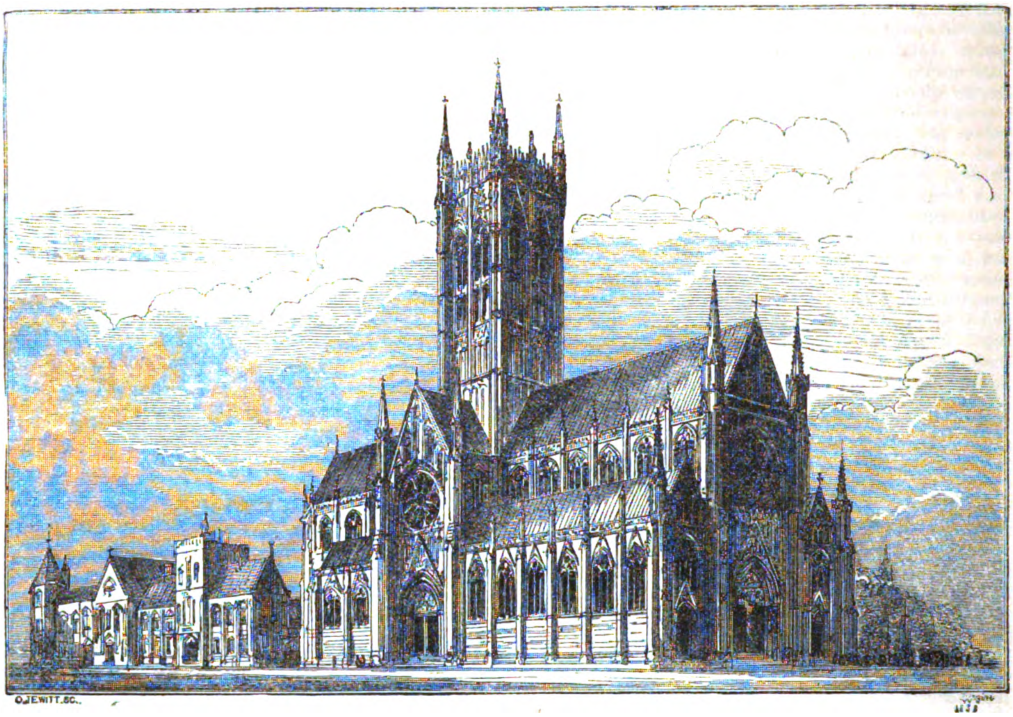
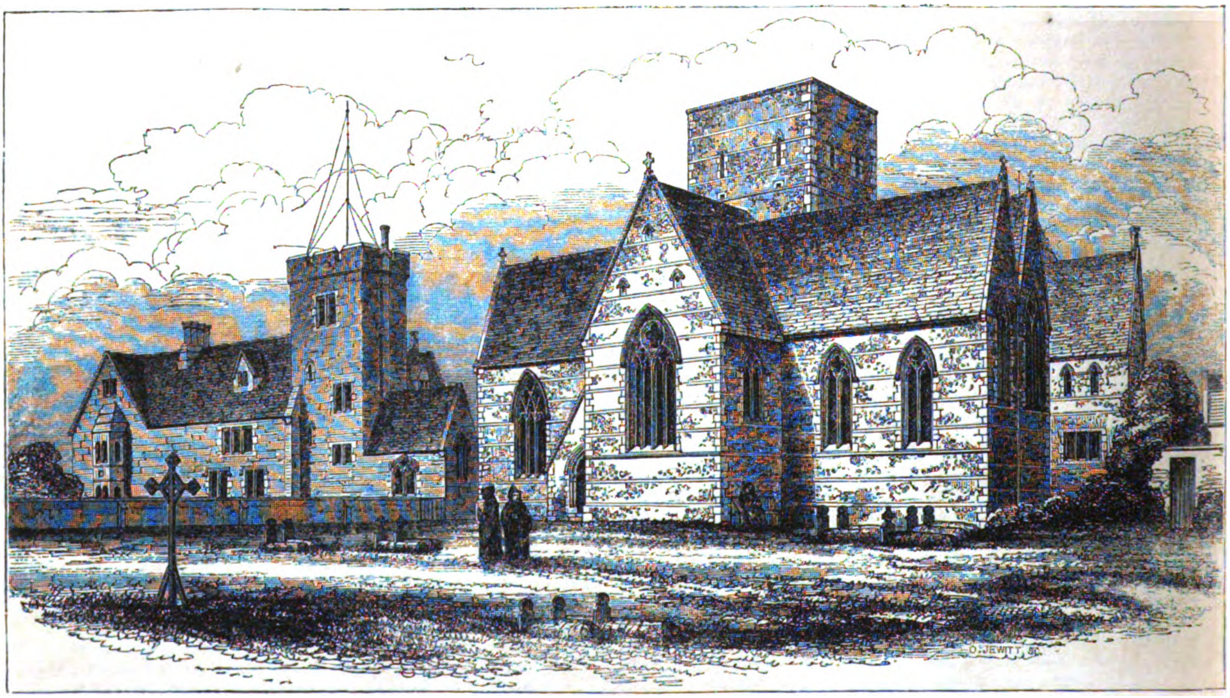


NORTH-WEST VIEW OF ST. GEORGE'S ROMAN CATHOLIC CATHEDRAL.

(As originally proposed by Pugin.)



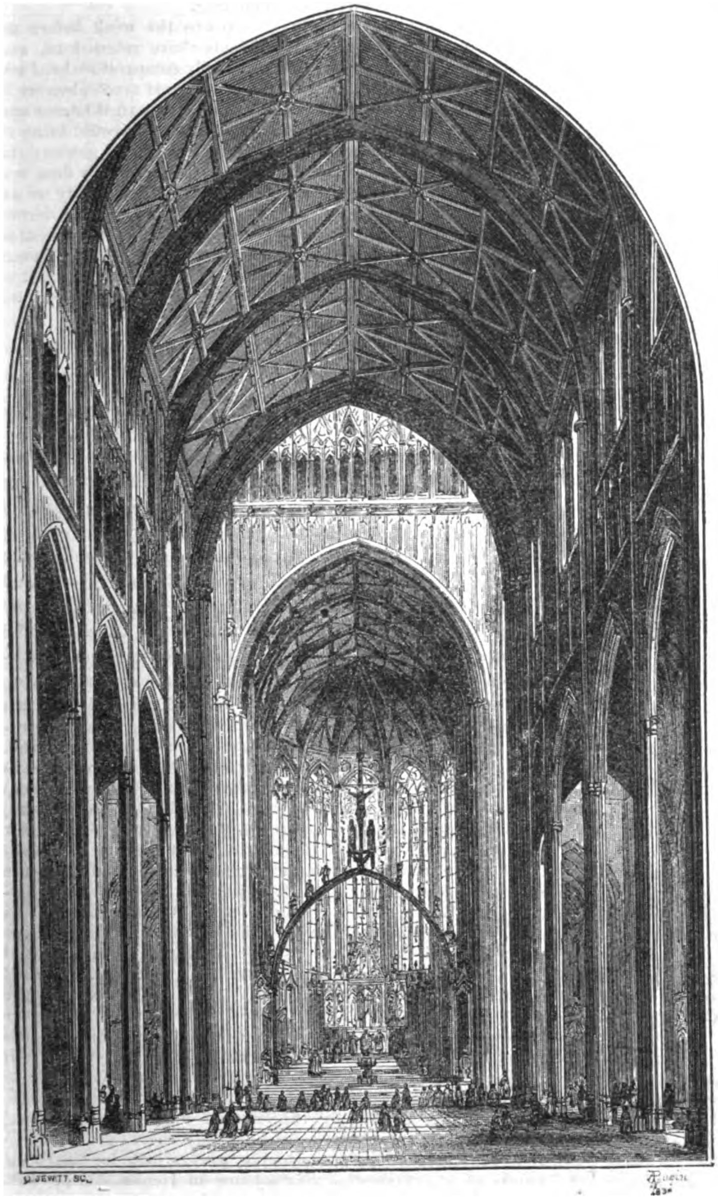
CHURCH OF ST. AUGUSTINE, WEST CLIFF, RAMSGATE (founded by Pugin).

Together with Pugin's Residence—THE GRANGE.

THE LATE A. WELBY PUGIN.

Few men have lived in modern times, with whose career events connected, have furnished more interesting material for biographical reminiscence, than did those associated with the late Augustus Welby Pugin. Like many other luminaries in the artistic and scientific hemisphere, the lustre of his great mind was hardly appreciated till withdrawal caused its loss to be keenly felt, and even then an apathetic public was slow enough in paying tribute to his memory. However, one worthy spirit, indignant that such a celebrity should sleep with name unrecorded in the annals of the age to whose progress in art he so materially contributed while living, volunteered the task of his biography, modestly declaring, that "it had been deferred from time to time, under the impression that a more competent person might undertake it." We have now the result before us in a handsome volume, entitled "Recollections of A. N. Welby Pugin and his Father, with notices of their works," by Benjamin Ferrey, architect, F.R.I.B.A. — a gentleman with whose name, as an eminent London practitioner, and the designer of the late Sydney (Lord) Herbert's church at Sandymount, near this city, our readers are doubtless familiar.

To none more than to the habitual readers of this journal can the perusal of Pugin's memoirs prove interesting, comprehending as they do a history of his professional connection with Ireland, which was by no means unimportant, his services being engaged on the new buildings at Maynooth College (which at one time proved so vexatious an affair that he tendered his resignation, and could only be induced to withdraw it by a memorial from the executive board), the cathedrals of Killarney and Enniscorthy, the churches of Gorey, and others in Co. Wexford, the convents and churches at Parsonstown and Waterford, the noble mansion of Lord Dunraven, at Adare Manor, &c.; and we may also add, that when the mental aberration which unhappily for some time preceded his death, became a topic for universal comment, none more deeply grieved for the prostration of such a giant mind than did those in this country, who had learned to appreciate its invaluable assistance, when vigorous, towards the revival and improvement of Mediæval art. In truth, Pugin effected in a few years a total revolution in architecture, and though he naturally felt chagrined at the unprincipled piracy of his designs by various architects of the day, his true love of art for its own sake induced him to be reconciled thereto, as is forcibly illustrated in the following characteristic sentiment—"I believe I design for all of them, for I see actually my own casts and figures used, and then they abuse me afterwards. These men can afford to sell cheap, for they *steal* their *brooms ready made*; however, the movement progresses, and the right sort of thing becomes general, and that is the great point." But though Augustus Welby Pugin has passed away, his fame and his precepts survive him; and we may here perhaps appropriately remark—as it is now generally known that on his son and successor, Edward Welby, has descended the mantle of the father, as did that of the father's father (also an architect of uncommon ability, and by birth a Frenchman) on him—that the most ardent aspirations of the great revivalist may even yet be consummated.



INTERIOR OF ST. GEORGE'S ROMAN CATHOLIC CATHEDRAL.
(As originally proposed by Pugin.)

Of Pugin as a mere child at school his biographer informs us, "It was remarked of him by one of the masters, that whether in Greek, Latin, Mathematics, or any other branch of education, he would learn in twenty-four hours what it took other boys many weeks to acquire; he was quick in all that he attempted, and fluent in speech, expressing his opinions in the most dogmatic manner with volubility and vehemence," also that "he had an almost intuitive talent for drawing, and as soon as he could handle a pencil commenced sketching." It is said that during the probationary period of the young Pugin's career, he, in conjunction with his fellow pupils and his father, frequently afforded aid to architects, whose acquaintance with Mediæval art was superficial in working out Gothic designs, and the author adds, "It is to be feared that the system of working by *other* people's *hands* and *wits* is not now wholly abandoned; but there is a meanness in the practice which cannot be too much reprobated, and he is unworthy the name of a conscientious architect who condescends to such surreptitious proceedings" Whatever may be adduced to controvert this, we believe it to be a truism, but which sooner or later becomes notorious, and even within a comparatively limited circle, were we inclined to describe, it many examples might be cited. The first engagement "on his own account" of Augustus Welby Pugin seems to have been the designing of plate for the celebrated goldsmiths, Rundell and Bridge, who, as is related in his memoir, "while engaged in an examination of some ancient designs for plate in the print-room of the British Museum, chanced to notice that he (Pugin) was employed in copying the prints of Albert Durer and Israel Silvester, and struck by his skill in drawing, accosted him, and soon found that he possessed just the genius his firm was seeking." This introduction led to another, that of designing for Messrs. Morel and Seddon, upholsterers, the entire furniture in the Mediæval style for the important additional buildings then in progress of erection under Sir Jeffrey Wyatville, a task entrusted by the elder to the younger Pugin, and the result is thus summed up by his biographer, "Without asserting that this work when completed was wholly successful, it may fairly be said that the furniture was remarkable for great variety of form and detail, producing an expression of fitness not to be found in any other modern attempts, and it may be doubted whether any person but Pugin could have designed such a multitude of objects with equally happy results."

Passing over a variety of incidents in the junior career of Pugin, of which his theatrical connection with the Italian Opera as scenic designer, and his maritime freak, whereby, in a return voyage from

Holland and Flanders, he lost everything he possessed, being wrecked off the Scotch coast, and narrowly escaping with his life, are not the least important, we come to the period when he may reasonably be regarded as having launched his bark on the sea of life, independent of his father. His skill in Gothic became so rapidly and extensively known, that finding himself overwhelmed with commissions from architects both to work out details from their sketches, and full sized models for foliage, he determined on taking extensive premises in Hart-street, Covent Garden, and "undertook to supply all the ornamental portions of buildings which could by possibility be executed apart from the structure, and be fixed afterwards." Here for a brief period—abruptly terminated for want of capacity to estimate the pecuniary return—the great master inculcated into the minds of a few chosen craftsmen those principles of design which subsequently, "growing with their growth," expanded into universal precedents and completed the total regeneration of mediæval art. Referring to this event his biographer says—"The failure in this business scheme fully determined Pugin henceforward to stick closely to the exercise of his profession in a regular manner, for he had sense enough to see that he was not fitted for commercial enterprise." His ardent love for his profession led him to visit every cathedral of importance in England, measuring and studying their chief features, the result of his labours being illustrated and presented to the public in his well-known standard works, and his enthusiasm in the pursuit may be readily inferred from the following characteristic expressions in a letter from Wells to a friend—"If you want to be delighted, if you want to be astonished, if you want to be half mad as I at present am, for God's sake come over to Wells. The most magnificent things for detail that can be seen, splendid remains of every style and every description of Gothic architecture. You have no conception of the magnificence of the cathedral. I am well acquainted with everything here, and have got introductions to all the most secret corners. No *artists* indeed! The figures of the west front are magnificent—splendid specimens of sculpture. Tell that to Mr. L——, and tell him that the *antique* fades away before the *ancient* Gothic for ever!" About the year 1835 he seems to have attained to a large amount of professional practice, partly attributable to the previous erection of a dwelling for himself at St. Mary's Grange in a novel adaptation of the Mediæval style to a domestic structure, as also to the publication of his well-known work, "Contrasts." In manner Pugin is described to have been brusque, and most susceptible of offence, and in dress most eccentric, various amusing anecdotes in connection therewith being graphically related in the course of the biography. One with reference to his connection with the new Roman Catholic Cathedral of St. George's, London—his original designs for which we are enabled, through the kindness of the publisher, Mr. Stanford, 6, Charing Cross, to present to our readers herewith—being especially desirable to record in the biographer's own words—"He at once prepared, with his usual skill, very beautiful designs, and the committee were duly summoned to receive him and hear his plans explained. They were of an elaborate kind, and provided for a cathedral, with chapter-house, cloisters, conventual buildings, and every usual adjunct. The drawings excited great admiration, and many questions were asked, to which Pugin gave most satisfactory replies. Indeed, all promised well, and nothing seemed likely to prevent the realization of this magnificent project, when a member present very naturally asked the amount at which he estimated the cost, also the time it would take to carry his scheme into execution. These requests met with no direct reply; entering upon that part of the subject was for the present evaded, and the conversation turned to another point. Meanwhile, Pugin, in a manner not to excite observation, swept up the several drawings which were on the table, politely asking those who were admiring the details to be good enough to hand them to him for a few minutes. Having thus collected his plans, Pugin deliberately rolled them up, took his hat, wished the gentlemen good day, and walked out of the house, leaving the committee in perfect astonishment at his inexplicable conduct. The next day, some members of the committee calling on him for an explanation, met with a rough reception. 'You asked me,' said he, 'to furnish designs upon a grand scale, I complied with the request, and supposed that I was dealing with people who knew what they wanted. The absurd questions, however, put to me soon showed my mistake. Who ever heard of a complete cathedral being built in the life of one man? If you approve my design, adopt it. and carry out all, or part, in its integrity, as the means may be forthcoming.'"

Our next illustration, for which we are indebted to similar courtesy, exhibits a view of a church and residence built at West Cliff, Ramsgate, at Pugin's own expense, the former comprising nave, chancel, centre tower, south aisles, and transept, and as an architectural composition the work speaks for itself. Respecting the circumstances attending Pugin's becoming a Roman Catholic, we must pursue our invariable rule of declining discussion of any subject with religious or political reference, and for the success of a project in all other regards so happily conceived and so ably matured, we cannot but express a regret—whatever may be our personal sympathies—for the likelihood of the extent of appreciation being curtailed, owing to the extreme views put forward by the writer of the appendix, whose admittedly eloquent pen occasionally wanders into a strain which is sure to prove unpalatable to many even of Pugin's greatest admirers. It is, however, but justice to *the* author of the work to quote his explanation of this. He says—"His family have felt that however desirous Pugin's biographer might be to do him justice, yet that the author of these pages being a member of the Anglican branch of the Church Catholic, and not a son of the Roman Catholic Church, it was impossible he could appreciate the motives which actuated Pugin in all he did, and hence might unintentionally deprive him of the halo inseparable from his labours, he has therefore, in deference to these opinions, readily admitted the contribution of the succeeding chapters, relating amongst other matters to a great dispute on the hierarchy question of 1851;" and that "he feels it incumbent on him to add that he cannot agree in some of the conclusions drawn by the writer in his notices of Pugin's published works." For some time previous to his death—which took place on the 14th September, 1852, at the early age of 40 years—the unmistakebly insane state of Pugin's mind became a matter of notoriety, and in verification of the popular saying that "a story never loses anything in its carriage," his physical misfortune was through idle and absurd reports, which temporarily gained credence—being propagated through a professional contemporary—tortured into shapes which his family took the earliest opportunity of contradicting.

For the foregoing we are chiefly indebted to the work before us, which, however, treats the various incidents above referred to, and numerous others not included in our necessarily comparative brief notice, much more comprehensively. We experienced much pleasure in its perusal; the memoir throughout is sketched with a truthfulness and earnestness such only as a sincere friend and admirer could bring to bear in paying a deserved tribute to departed worth and genius; the anecdotes are graphically related; and the whole certainly does not justify the the writer's own modest estimation of his ability as an author, above alluded to. The style of production ensures a handsome addition to the library, and of the excellence of the illustrations our readers can form an opinion by reference to those in our present number. In this department, however, we should not omit to mention that there are several *fac similes* of Pugin's own sketches, an illuminated design for his wedding card, &c., likewise.

THE SOCIAL SCIENCE ASSOCIATION MEETINGS.

Lord Brougham, the most distinguished man of the age as a lawyer, statesman, scholar, orator, and philosopher combined, arrived in this city for the first time on Monday evening last, per express boat "Telegraph," in company with his Grace the Duke of Wellington, and on yesterday evening, as President of the National Association for Promotion of Social Science, delivered his opening address in the Round Room of the Mansion-house, an epitome of which we give elsewhere. The banquet, at which our worthy and hospitable chief magistrate will entertain numerous distinguished guests, including the noblemen above named, his Excellency the Lord Lieutenant, H.R.H. the Duke of Cambridge, General Commanding-in-chief, the judges, the members of the Corporation, &c., takes place to-day, and will be on a magnificent scale. Each president of department will inaugurate the commencement of proceedings by an address in the following order:—The Right Hon. Joseph Napier, President of Department of Civil Jurisprudence, in the Solicitors'-room, Four Courts, the subsequent meeting to be held in the Court of Chancery; to-morrow, Sir John George Lefevre, K.C.B., President of second Department, "Education," in the Court of Exchequer; the Attorney-General, the Department of "Punishment and Reformatories," on Saturday, in the Court of Common Pleas; on Monday, Lord Talbot de Malahide, the fourth Department of "Public Health," in the Court of Queen's Bench; on Tuesday, Judge Longfield, the fifth Department of "Social Economy," in the Nisi Prius Court; and on Wednesday the sixth and last section, that of "Trade and International Law," M. Michel Chevalier. Reunions will take place at the Royal Dublin Society and Museum of Irish Industry, and his Excellency will receive members and associates (ladies included) at Dublin Castle on the evening of the 19th inst., at half-past nine. The grand central hall of the Four Courts building, together with the several courts above named and branching therefrom, have undergone complete decoration, most suitably effected by the eminent firm of Hardman and Co., Grafton-street. Excursions to Lusk, Malahide Castle, and to Wicklow will complete the proceedings, after which we trust that the numerous strangers who may sojourn in Ireland during this memorable period, will return to their homes impressed with a better idea of our character and position than is usually described by prejudiced organs.

THE GRAY TESTIMONIAL.

If zealous devotion to a philanthropic purpose, regardless of personal sacrifices, and combined with the exercise of singular ability and business aptitude in its accomplishment, justify public appreciation of individual merit, then indeed is the compliment about to be bestowed by the citizens of Dublin on Dr. Gray for his eminent services in connection with the improved water supply of the city—now all but *un fait accompli*—most appropriately and happily conceived. We need not remind our readers that we recorded *in extenso*, from time to time, both the proceedings in the Corporate Assembly and the evidence adduced before the Royal Commissioner and the Parliamentary Committee, and that from the embryo state of the Vartry project to its consummation, Dr. Gray's able arguments, and lucid, practical deductions in its favour, were called into requisition. Whatever may have been our misgivings at an earlier stage as regarded "capacity and cost," we confess to at least a suspicion of the possibility of error when we find in Dr. Gray—of whose mechanical genius many an engineering professional might be proud—so stedfast an adherent to this as the most desirable source, all circumstances considered, and volunteering character and everything else to aid in its development. Those who will take the trouble to glance over our past volumes and numbers for the current year, will see every reason to conclude that were it not for the immense perseverance and ability displayed by Dr. Gray, the bill now obtained for the improved supply would, in all probability, have been thrown out by the opponents to the scheme, who mustered in goodly force and from first to last presented a most determined front; add to this the personal inconvenience in attending meetings, both in London and here, experienced by an individual who has various other duties of a most responsible and arduous character to perform, and which of necessity must often have remained in abeyance to the public duty so spiritedly undertaken, and it must be allowed by all, even the most inimical to the adopted source of supply, that at least a debt of gratitude is due to Dr. Gray. Though the proposed testimonial, however important it may be, will scarcely prove commensurate with the value of the services rendered, we nevertheless hail it as a graceful tribute to merit, and have no doubt it will be modestly appreciated as such by the talented and earnest recipient.

A SLOW SUBURB REVIVING!

With a pleasure equivalent to the regret previously experienced in our frequent records of the declining condition of Clontarf neighbourhood—in many respects so highly favoured by nature—do we now take occasion to make known the symptoms of a reactionary and progressive movement, which, comparatively slight though it be, is still worthy of appreciation, as a step in the right direction. In a recent notice we alluded to "the antiquated mud and thatch structures" on the main road, particularizing certain of them, and promising, for the edification of such of our readers as have not had an opportunity of viewing them personally, to perpetuate their memory by illustration. However, the opportunity for so doing is happily passing away from us in one of the instances alluded to, owing to the speedy demolition of a block between M'Knight's, the grocer's, and St. Edmund's (Mr. Lemon's) to make way for a new and spacious thoroughfare between the Clontarf and the Howth roads, opening up on each side about half a mile frontage of most desirable building lots, and effecting "a short cut," which must prove of great convenience to the inhabitants along each route. It is but due to the promoter to state, that this improvement is being carried out on the *Howth* estate, and we sincerely trust that Mr. Vernon will even at this the eleventh hour follow a good example, and raze those abominable eyesores that present themselves on his property, as also afford something like *reasonable* encouragement to capitalists to build suitable substitutes. For the present we reserve the promised illustrations!

NEW UNITARIAN CHURCH, STEPHEN'S-GREEN.

Within the last few years an evident reaction has taken place in this city in the matter of ecclesiastical architecture, and not the least important of the recent acquisitions will be, when completed, the new Unitarian church in Stephen's-green, to be erected from designs submitted in limited competition by Messrs. Lanyon, Lynn, and Lanyon, architects. The style will be Decorated Gothic, and a façade, some 60 feet in length and of picturesque broken outline, will be presented towards the Green, parallel to which will be placed the length of the church—a one-armed transept extending at right angles thereto, and forming the letter L inverted thus ⅂. The basement comprises boys' and girls' schools, each 28 feet by 24 feet, and provided with separate entrances; a vestry or committee-room, 31 feet by 17 feet 3 inches, and other apartments, about 17 feet high from floor to floor of the church above, which is consequently elevated several feet over street level, and is approached through a porch with spacious flight of steps and lobby. The church has a nave, 55 feet 6 inches by 28 feet, separated by an arcade of three arches from an aisle 14 feet wide, and from transept by a great arch, and is to be roofed with open timber framed trusses, &c., stained and varnished. A ladies' retiring room and two staircases are situate off lobby in transept, and immediately over is the choir or organ gallery. At east end will be a large five-light elaborate traceried window, a four-light ditto in transept, and others in the nave. On elevation the transept will present a principal gable, at one extremity 62 feet high, flanked with buttresses, terminated with a floriated cross, and displaying the traceried window before described, also the entrance doorway leading to boys' school and vestry at ground level (the corresponding entrance to girls' school, with traceried window above lighting the staircase to church, being in a smaller contiguous gable, 33 feet high); and at the other extremity will be the principal porch, surmounted by a handsome traceried parapet, and having a deeply moulded and recessed cinqfoil headed doorway. Between the principal and lesser gables will rise an octagonal belfry tower in two stages, with canopied niches in the upper, and terminated by a weathered spirelet—the remaining portion of the frontage above porch showing the traceried windows lighting aisle. Granite rubble stonework of best quality will be employed for the walling throughout, and Bath stone for dressings, &c. As may be perceived by our advertising columns, tenders are being sought for.

WHY WE DO NOT PUBLISH TENDERS!

In our own justification, and in answer to a frequently submitted question, we are obliged somewhat specially to recur to this subject, and without hesitation put the saddle on the right horse. We find a general desire on the part of builders competing for contracts, that the amounts of tenders should be communicated through our medium; and in our desire to render in this, as in every other department comprehended within our province, every information, we sought to obtain them, but vainly. Now, why should this be in Ireland, whereas in England the professional organs of similar character each week contain particulars of such competitions, freely furnished by the architects or other officials concerned? Every builder who expends his time or his money, or most probably both, estimating for a certain work, whether in public or limited competition, is (if unsuccessful) at least entitled to know on what principle the adverse decision (to him) was arrived at. In the former case we should be sorry to hold that if the competition for a contract work be open to *all*, that, as a matter of course, the lowest tender should necessarily be accepted, however undesirable either as to workmanlike competency or solvency the proposer might be; but we *do* maintain that if a select few be named, that then *the lowest* only should be accepted. In either case, however, when all is straight and right, the amounts of the tenders should, in justice to the competitors, and *pro bono publico*, be published, and we must again earnestly request of professional gentlemen and the secretaries of public bodies to forward same to this office.

EMO PARK.

The extensive alterations and additions to the Earl of Portarlington's mansion at Emo Park are nearly completed—the latter comprising 16 spacious and well-ventilated bedrooms, 13 feet 6 inches high, divided by an upper and lower corridor, 80 feet in length. On the upper storey, and at right angles with the main building, is a picture-gallery 137 feet long, lighted by seven lantern lights, terminating with conservatory, the roof of which is wrought iron and circular, and through this conservatory is the entrance from the mansion into the new wing. The storey under the gallery is divided into waiting-rooms, offices, and valets' brushing-rooms; the girth of the wing measuring 600 feet.

A handsome circular saloon, 26 feet 6 inches diameter and 50 ft. high, is erected in the centre of the mansion; it is lighted from a dome, with plate glass centre, of rich and beautiful design. The ceiling of this apartment is divided into 16 panels, deeply coffered, the mouldings of which are fully enriched, and rosettes of different patterns are placed in each panel. A fully enriched Corinthian entablature is supported by eight sienna marble pilasters, resting on pedestals of the same material, with white marble bases and mouldings. The Corinthian capitals are wrought in Keene's marble cement, beautifully polished. Between the pilasters are oval and square panels, richly ornamented; a festoon of flowers, also wrought in Keene's cement, is gracefully placed and tied over the oval panels, and dropping at either side—the under compartments being filled by four doors and four niches. The architraves, pilasters, consoles, and entablatures are veined marble; the skirting all round is also of white marble, and richly moulded niches, with marble figures therein, 6 feet 6 inches high, are introduced in the walls. The floors are laid in rich parquetrie to correspond with panels in dome, the Portarlington arms being beautifully executed in centre panel. The walls, ornaments, mouldings, &c., in this saloon are finished in Keene's marble cement, and are highly polished.

The new drawingroom ceiling is most elaborately executed in stucco and richly gilt, the floors here also being laid in parquetrie, which, together with the floor of the saloon, are highly polished. The doors are solid mahogany, and all the window-sashes round the mansion are mahogany, filled with plate glass, and two panes in each. The cost of these improvements amounts to £7,000, including the gas works. Mr. William F. Caldbeck is the architect, and Mr. Thomas Connolly the contractor, who has also built the gas-house, chimney, and gas-tank, the latter 25 feet diameter by 12 feet high.

THE ORIENTAL BATH PROCESS.[*]

First, the bather leaves his clothes in a private stall, closed by a curtain, having previously given his trinkets to the bath superintendent, who is responsible for anything that may be lost. The bath costume is put on before leaving the dressing stall; and consists, for gentlemen, of a kind of coloured kilt, or large towel, fastened round the hips; and in the case of ladies a kind of toga is used, descending from the shoulders like the ordinary bathing dress, and made according to the fancy of the wearer.

As the floor is heated, it becomes necessary to put on wooden pattens before entering the next room, which is called the tepidarium, and is moderately heated. In imitation of the Turkish fashion, couches are provided in this room; but the Romans were not so luxurious, and contented themselves with sitting down. Here the bather remains until the perspiration begins to start, and then goes into the caldarium, or the hottest room, which is also called the sudatorium. Here he does not lie down, except during shampooing (or systematic kneading and pressing of the entire body). In Pompeii the caldarium was very long, and had hot-water baths at both ends, leaving an open space in the centre, for lifting weights, and going through other manly exercises; but the Turk likes to get all the exercise done for him, and accordingly never misses being shampooed. It must not be supposed, however, that this process is as necessary to an Englishman as it undoubtedly is to a Turk; although for those whose habits are unavoidably sedentary it cannot be too highly recommended. An important part of the bath is the removal of a quantity of loose scales, which the moist hot atmosphere detaches from the skin; and this is effected either by systematic hand rubbing, or (more expeditiously) by a kind of rough glove specially made for the purpose. This is done after the shampooing, and is followed by a thorough soaping with a froth of soapsuds, which is washed off by a succession of bowlfuls of warm water, mixed according to fancy in the basins of the lavatorium. Then follows a process which is not Turkish, but which is recommended for this climate, namely, cold affusion, either by water lifted with the bowls provided for the purpose, or by the spray from a rain-douche, or the column-douche for those who are robust, and possess good reaction.

When this is not used, the Turkish system of remaining a considerable time in the cooling-room must be followed in order to ensure the closing of the pores; but after a good douching no one need be afraid to go straight out of the bath, and engage in either business or pleasure, according to circumstances. I anticipate that this plan will be the most followed of all, especially by those to whom time is an object; but those who desire to go through the whole Turkish process will not be disappointed; nor can any one say that we have not met the wishes of those who have a desire for dry air at a high temperature, as a room has been specially added for medical use, which can be used by any bathers who desire it, after their own fashion; but the company do not hold themselves responsible for any mode of bathing except that which they recommend.

Private rooms have also been added for the convenience of noviciates who may have prejudices against bathing in public, although we cannot understand how the frequenters of the public plunge baths of this country can have any scruples against a mode of bathing in which the bather is partially clothed during the entire process. Neither in sea-bathing nor in the public baths already established throughout the country is there anything approaching to the scrupulous delicacy which is observed in the Turkish bath. E. H.

ARCHITECTURAL ASSOCIATION.

At a special business meeting held on the 26th July, in accordance with a requisition for the purpose of considering the report of the Committee of the Institute on the question of Architectural Examinations, the following resolutions were passed:—

"That the Architectural Association expresses its general approval of the proposed regulations and curriculum as forwarded to it by the honorary secretaries of the Royal Institute of British Architects, but begs to submit that, in the opinion of its members, the following modifications in detail would, if adopted, prove improvements:—

"That the titles of ordinary proficiency and honorable distinction should be modified, and senior and junior examination be substituted.

"That, to paragraph 4 on page 1, the following words be added,—'or such other books of tables as the Examiners, upon his application, shall allow.'

"That, except under ordinary circumstances, the Examiners shall be exclusively men belonging to the architectural profession.

"That 500 marks should be deducted from History and Literature and added to Mathematics in the first examination.

"That on page 3 the words 'whose President or Secretary at the time when such distinction was adjudged shall have been a Fellow of the Institute,' be omitted.

"That the third paragraph on page 4 should be revised or omitted, as the practical result seems to be that the larger number of marks a candidate obtains for answers the worse would be his position.

"That a method should be adopted for informing the unsuccessful candidates of the subjects in which they have failed, and possibly it might be advantageous to tell them the number of marks they obtained.

"That the scale of fees should be reversed: one guinea being payable for the first and two guineas for the second examination.

"That the declaration should be modified; that the fact of a candidate discontinuing his profession, or supplying materials with the knowledge of his client, should not occasion his removal from the list of passed candidates.

"That the secretaries be requested to communicate these resolutions to the honorary secretaries of the Institute, and to the honorary secretary of the Examination Committee."

INSTITUTE OF MECHANICAL ENGINEERS.

On the 31st ult. and 1st inst. this body held at Sheffield meetings for the transaction of business. Sir William Armstrong, the inventor of the celebrated gun bearing his name, presided, and delivered an inaugural address, in the course of which he said—

"It is the iron, and not the golden age, which is the true age of civilization; and England has led the way in the march of progress, chiefly through her skill and energy in producing this metal, and applying it to mechanical purposes. Iron, unlike all other metals, has three phases of existence—cast iron, wrought iron, and steel, each equally useful, and yet so different as to be virtually separate metals. In the manufacture of steel, the town of Sheffield enjoys an unrivalled eminence, and our discussions on this occasion will naturally be directed to those various questions of peculiar interest which at present apply to that most useful product. I have hitherto spoken only of the mechanical arts as applied to the purposes of peace, but I have yet to refer to the darker side of the picture in speaking of their application to the purposes of war."

Papers were read by Alderman Brown on "The Manufacture of Steel Rails and Armour Plates;" by Mr. Bessemer on "The Manufacture of Cast Steel, and its application to Constructive Purposes;" by Mr. Vickers (Naylor, Vickers, & Co., steel bell manufacturers), on "The Effect of the Combination of Carbon with Iron in increasing or diminishing its Strength;" and by Lieut.-Colonel Kennedy on "The Construction and Erection of Iron Piers and Superstructures for Railway Bridges in Alluvial Districts." Mr. Vickers, in the course of his paper, remarked that—

"The superior strength of cast steel cannot be better illustrated than by remarking that castings of steel, without hammering, rolling, or other means of mechanical compression, show a very high degree of strength and tenacity far above that of castings of any other metal in practical use. Advantage is taken of this property of cast steel to make bells of that material, one-third lighter than bronze bells of the same diameter; and this lighter steel bell will still bear double the breaking strain of the bronze one. Another superiority of steel castings is that they are not as liable as other metal to break when subjected to concussions during intense frost, as proved by the fact that cast steel bells are rung in Russia and Canada, where the thermometer ranges below 20 degs. under zero (Fahrenheit), without the least injury, while the heavier and thicker bronze bells could not be rung in the same temperature without cracking. The same properties have led to the manufacture of cast steel railway carriage and engine disc wheels, with tyres, in one solid body."

THE CITY HALL.

Referring to the decoration of this building which our readers have already been made aware, through these columns, of being in progress, the *Freeman*, which not unfrequently, in its vigilance to record every local improvement, anticipates our intention—has the following:—

"The interior of this splendid edifice has also been for some time past undergoing extensive repairs and decorations. The great difficulty of reaching the interior of the dome, in order to decorate the ceiling, &c., has been successfully accomplished, and without accident, by Messrs. Eakins, of Upper Sackville-street. The panellings and lozenge-shaped compartments of the dome are coloured white, picked out with yellow on a blue ground. Although this colouring is pleasing in its character, it would have been more so had the tints chosen been simply blue and white, and made as much as possible to resemble the colours of the sky, which a dome in miniature represents. The windows have been cleansed and painted, and the spaces in stone work all renovated. To the credit of the Corporation must be said that no great public building has undergone such material alterations as this, with less general detriment to the plan of the architect, and if Gandon himself were alive to see the building, he could scarcely find fault with the practical uses to which a large portion of the hall has been appropriated. The statues of Grattan, George III., Lucas, O'Connell, and Drummond, which have been encased, will be uncovered in a day or two, and thoroughly cleaned. The side doors leading to the offices have been painted in oak, and the general aspect of the hall is highly pleasing. We must reserve our highest praise for the manner in which the grand staircase of this fine civic structure has been embellished. The prevailing colour of the walls is blue, of a negative tint. The lantern lights have been painted and cleaned, and the figures on the slopes are finely brought out in imitation of cameo. Had the dome been decorated in this way, the whole thing would be nearly faultless. Up stairs the committee rooms are painted in oak, and just ready for public use. Externally, the railings, barriers, gates, &c., &c., are all being newly painted. Of the council hall we have often spoken. When this contract is completed, the City Hall, both externally and internally, may be pronounced to be in a fine state of preservation."

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[*] Read by Dr. Haughton, at the Architectural Society of Liverpool, April 17, 1861.

Miscellaneous.

A Vandalism.—The attention of the authorities is requested to the progressive destruction of the remains of the old defences of Limerick. Those walls with which so many important events are associated, and so much of the renown of Limerick blent, are gradually disappearing, demolished in some instances for the meanest and most miserable ends. It is said that they are pulled down piecemeal to aid in the construction of sheds and piggeries; and that in the neighbourhood of the ever famous and ever glorious Black Battery, where the Brandenburghers fell before the native valour of Limerick men, the stones which their sacrificial blood consecrated are appropriated to the vulgar and vile uses named. There are citizens living who remember when the summit of the ramparts was as broad as a carriage drive, but now we believe scarce a footpath remains to manifest the bulk of those bravely held walls.—*Munster News.*

Export of Railway Material to India.—The activity which prevailed last year in various branches of the iron trade is to some extent explained by the immense shipments made of *materiel* to India, on account of the vast railway works now in progress. It appears from an official return that last year no less than 234,710 tons of materials were despatched to India of the collective value of £2,140,703, being the largest consignment made in any one year since the works were commenced. The proportion of *materiel* taken by each company was as follows, omitting fractions:—East India, 56,488 tons, of the value of £580,887; Madras, 88,346 tons, of the value of £296,842; Great Indian Peninsula, 25,971 tons, of the value of £236,365; Bombay, Boroda, and Central India, 32,981 tons, of the value of £335,668; Scinde, 2,056 tons, of the value of £26,582; Punjab, 24,107 tons, of the value of £251,211; Indus Steam Flotilla, 1,240 tons, of the value of £17,215; Great Southern of India, 17,139 tons, of the value of £118,574; Calcutta and South Eastern, 6,088 tons, of the value of £74,174; Eastern Bengal, 30,333 tons, of the value of £213,686.

The Census of Ireland.—Table III. presents the number of houses inhabited, uninhabited, and building in 1841, 1851, and 1861, with the decennial increase or decrease between the two latter periods. The number by which the inhabited houses had decreased for the ten years ending 31st March, 1851, was 282,616, or 21·27 per cent. less than those recorded on the 6th June, 1841; while by the present inquiry we learn that the number of inhabited houses is 993,283, and the decrease since 1851 is only 52,990, or 5·08 per cent. The number of uninhabited houses in 1851 was 65,263, while in 1861 an examination of the same item shows but 39,972. In 1841 there were 3,313 houses in process of building, in 1851 only 1,868, and in 1861, 3,047. Taking the inhabited houses in 1841, there were 1·11 families to each house; in 1851, 1·15 families; and in 1861, 1·14. The localities in which the house accommodation has decreased most are the counties of Tipperary, Kilkenny, Meath, King's, and Queen's, in which also the population has very largely decreased; while there has been an increase of inhabited houses in the towns of Belfast and Carrickfergus, the County of Dublin (chiefly in the suburban districts of the metropolis), the cities of Cork, Dublin, Waterford, and Limerick, and the counties of Antrim, Armagh, Londonderry, and Sligo.

Mechanics Wanted.—We notice placards about this city from Liverpool employers for Dublin mechanics at liberal wages. Application is directed to the Clarendon-rooms, John-street.

Re-opening of the Theatre Royal.—After a very unusually protracted recess, the doors of the Royal are about to be re-opened on the 19th inst., an engagement with Mr. Drew, an Irish comedian, of whom we have had occasion formerly to speak, being announced. On the 16th an operatic company, with powerful caste, and comprising Mddles. Titiens and Anna Whitty, Mesdames Lemaire, and Bellini, and Signori Guiglini, Delle Sedte, Fallar, Ciampi, Bossi, Bellini, Cazaboni, and Mr. Swift, will make a first appearance. The repertoire comprises some old favourite operas, and Verdi's last, "Un Ballo in Maschera."

Japanese Arts and Manufactures.—Dr. MacGowan has been delivering at the Exhibition building a series of highly interesting lectures on this subject, and illustrated them by a variety of curious articles, showing the mechanical skill and ingenuity of these people, especially in the working of metals. The lecturer also treated of those of India and China, and was most attentively listened to.

Sir John Vanbrugh.—This architect, almost equally eminent as a dramatic poet, died in 1726. He was for some time Clarencieux King of Arms, to which appointment, when he succeeded, Swift's pun, was that he might *now build houses.* He was knighted at Greenwich, September 9, 1714, appointed Comptroller of the Royal Works, January 6, 1715, and Surveyor to the Works at Greenwich, August 17, 1716. The bespattering of flippant wit with which he was loaded by Walpole and others may be properly contrasted to the opinion of Sir Joshua Reynolds, who says, "In the buildings of Vanbrugh, who was a poet as well as an architect, there is a greater display of imagination than we shall find, perhaps, in any other; and this is the ground of the effect we feel in many of his works, notwithstanding the faults with which many of them are charged. For this purpose Vanbrugh appears to have had recourse to some principles of the Gothic architecture, which, though not so ancient as the Grecian, is more so to our imagination, with which the artist is more concerned than with absolute truth. To speak of Vanbrugh in the language of a painter, he had originality of invention; he understood light and shadow, and had great skill in composition. To support his principal object, he produced his second and third groupes or masses." Again he says, "This is a tribute which a painter owes to an architect, who composed like a painter, and was defrauded of the due reward of his merit by the wits of his time, who did not understand the principles of composition in poetry better than he, and who knew little or nothing of what he understood perfectly, the general ruling principles of architecture and painting. Vanbrugh's fate was that of the great Perrault. Both were the objects of the petulant sarcasms of factious men of letters, and both have left some of the fairest monuments which, to this day, decorate their several countries; the façade of the Louvre; Blenheim and Castle Howard." Walpole, who was content to live in a barbarous den at Strawberry Hill, says of this truly great architect, "He seems to have hollowed quarries rather than to have built houses." This author also attributes St. John's Church Westminster, to Vanbrugh, in his notice of him, though at another place he assigns it to Archer.

The Austrian Engineers' Union have forwarded us their prize list for the ensuing year. They offer two prizes—one of 400 German dollars, and a second of 200 dollars—for an historical and theoretical account of the latest roofs of wood and iron, beginning at eight fathoms, up to the largest accomplished width of span. Two other prizes of like amount are offered for an historical, statistical, and critical account of the apparatus and means used for greasing railway carriages. Competitors for these prizes must send in their contributions before the end of October, 1862. Persons wishing to compete for these prizes should apply for prize lists to the *Ingenieur-Verein*, Vienna.—*Mechanics' Magazine.*

Our Coinage.—The recent inquiry of Mr. Potts, in the House of Commons, as to the appointment of a new resident engraver to her Majesty's Mint, seems to us—who have taken especial interest in matters relating to the coinage—to merit notice, and we trust that the Chancellor of the Exchequer will think so too. There is, as we have repeatedly shown, too much reason to be dissatisfied with the metallic currency of Great Britain. It is the growth of a great number of years, and presents many faults and incongruities, apart from the deterioration of age and hard work. If, now, the Chancellor of the Exchequer would only take the initiative in organizing a decimal system of coinage, and appoint an engraver to the Mint, who would be able and willing to furnish new, unique, and beautiful designs for it, of what an admirable measure of social reform would he not be the parent? Or if a committee were appointed, consisting of *savants* and practical men, empowered to examine into the defects of the existing coinage, and to suggest improvements in it, what good might not be effected? Probably, however, the hon. member for Barnstaple has other and equally good propositions to make on the subject, and we, at all events, shall await with anxious interest the next motion made by him respecting it.—*Mechanics' Magazine.*

Parisian Workmen.—The industrial population of the French capital has long held the highest rank as an aggregate of artistic workpeople, having great adaptation to their calling in consequence of natural and ancillary circumstances. The popular development of the fine arts, the schools, the daily appliance of science to industry, the neighbourhood and relation to many different works of art, form a kind of ensemble of instruction which imperceptibly penetrates the whole industrial class, and gives a notable precocity and singular vivacity of intelligence to the operative *enfans de Paris*. When able to earn high wages, the Paris artizan and his family, if possessing the natural characteristics of economy and decent deportment, are also able to accomplish much with their money. It is calculated that the ordinary rents paid by the working class in Paris are far higher, often double, than the cost of the same accommodation in London. Fuel is also about double the price, and meat much dearer. So those three items being indispensable, we can understand how it is that these metropolitan workpeople are generally reduced to a decidedly lower scale of subsistence, comfort, and enjoyment, than their English competitors. Everything in the way of clothing is likewise higher in price, as also are coffee, sugar, and some other little necessary luxuries. Tea is unknown, and the entry duty on provisions raises the price considerably. Here we doubtless find the cause why fabrication of articles of luxury, requiring artistic manipulation, and yielding more gain to their makers than articles of necessity, forms the vast and most profitable department of Parisian industry.—*Dublin University Magazine.*

Brief Letters.—The poet Rogers used to tell a story of the brevity of Talleyrand's correspondence; for once a lady wrote to him in high-flown terms of grief, informing him of the death of her husband, and expecting a letter of condolence in return; but the only answer was:

"Helas, Madame!
Votre affectionne, etc.,
Talleyrand."

In less than a year the same lady wrote that she had married again, to which the laconic reply was:

"Oh, ho, Madame!
Votre affectionne, etc.,
Talleyrand."

Equally laconic, and more kindly, were the letters that passed between Garrick's widow and Edmund Kean, after the old lady had seen the latter's performance of a part in which her husband was matchless:—"My dear sir: You can't play Abel Drugger. Yours faithfully, C. Garrick." "My dear madame: I know it. Yours faithfully, Edmund Kean."

Labourers' Dwellings.—The only new feature connected with the administration of the Land Improvement Acts during the year has been the passing of the Act 23 Vic., c. 19, authorising loans for the erection of dwellings for the labouring classes in Ireland. On the passing of this act the instructions for the guidance of the commissioners were approved by your lordships. On receiving their lordships' approval the Board designed four sets of suggestive plans, and framed a general specification of works for the information of applicants, showing the mode of erection which they considered most suitable, and the cost of which was not likely to exceed the amount sanctioned by your lordships in paragraph 3 of the instructions. Although their plans, specifications, and estimates, together with the instructions, have been printed and extensively distributed thraughout the country, only twelve applications for loans for the erection of labourers' dwellings have as yet been received by the Board; but probably several, in addition, may still be applied for during the present year.

Farm Buildings.—The several totals comprehend 299 loans, amounting to a sum of £80,360, which have been sanctioned to proprietors for the erection of farm-buildings, of which 182 loans, amounting to £61,660, have been completed in the undermentioned counties, viz.:—Antrim, £1,050; Carlow, £1,200; Cavan, £1,200; Cork, £7,200; Clare, £950; Donegal, £650; Down, £1,000; Dublin, £2,400; Fermanagh, £100; Galway, £2,900; Kerry, £1,650; Kildare, £2,980; Kilkenny, £1,040; King's County, £350; Limerick, £4,500; Longford, £1,000; Louth, £1,100; Londonderry, £1,150; Mayo, £5,840; Meath, £1,200; Queen's County, £2,050; Roscommon, £4,730; Sligo, £1,890; Tipperary, £6,230; Tyrone, £950; Westmeath, £850; Wexford, £550, Wicklow, £900. Total, £57,610. Of the remaining 47 loans for farm buildings which have been sanctioned, 14, amounting to £4,850, have not been proceeded with, and do not, therefore, appear in the table, which includes 15 loans, amounting to £4,850, for buildings commenced during the year 1860. The other loans stated therein have reference to works of previous years.

Public Testimonials and Statues.—The number of public statues and testimonials, either proposed or in progress at the present moment, to the memory of public men recently deceased is more remarkable than at any other period. Among those in progress to commemorate the services of distinguished statesmen may be mentioned one to the memory of Lord Melbourne in marble to be erected on the north side of St. Paul's; another of the late Lord Macaulay at Cambridge; a literary institute and statue to Earl Dalhousie at Calcutta; a statue to Lord Elphinstone, and a memorial to Count Cavour. A military statue and trophy to the Duke of Wellington, twelve feet high, in bronze, will shortly surmount the Wellington column, erected for the purpose at Liverpool, and statues to Havelock and in honour of Sir Hope Grant, are proposed in the places where they were born. Statues to the eminent engineers Robert Stephenson and Isambard Brunel are being executed by Baron Marochetti, to be placed opposite Palace-yard. Another statue, in addition to the one at the Euston station, is about to be erected to George Stephenson at Newcastle, and one is talked of to the late Mr. J. Locke Sir Charles Barry, the architect of the Houses of Parliament, is to have an effigy in Westminster Abbey. An architects' travelling fund is to be established in honour of the late Mr. Pugin. In the religious world two commemorative monuments have just been inaugurated to Dr. Watts and James Montgomery, and another is dedicated to Bunyan. Sir Hugh Myddleton, the projector of the wealthy New River Company, and who is said to have died in penury, is to have a drinking fountain erected to his memory at Islington. Dr. Baily, the late physician to the court, is also to have a statue. Among the most recently proposed testimonials, apart from statues, are those of the Right Hon. Milner Gibson and Mr. Braidwood.

The Builders' Strike.—Wednesday, the 7th inst., the period of two years expired for which the master builders had entered into their bond of association, leaving them free either to cease or renew their connexion with the association. A deputation from the masons' committee accordingly waited on following day upon the firm of Messrs Waller & Son, the extensive contractors of King's-road, Chelsea, to ascertain the final decision of the firm upon the question of the compromise. The result of this interview was the abandonment of the hour system, and the unconditional acceptance of the terms of the compromise by that firm, the only stipulation on their part being that as far as possible they should receive back their old workmen. This firm require the services of about ninety masons, sixty of whom will commence work this day, and the remainder in a few days. The Society of Amalgamated Engineers yesterday paid in their first trade gift to the strike committee, and considerable sums were received from other societies.

The Broken Pane.—M. Bastiat, a French political economist, writes amusingly on the indiscretion of capital. He takes the case of a broken pane of glass by way of example. Jacques Bonhomme, as he calls him, is the sufferer. One day the son of this worthy citizen breaks a pane of glass, and he is very angry in consequence; but the neighbours hasten to make the consoling reflection that "it is an ill wind that blows nobody good." Such accidents do good to industry. Everybody must live. What would become of glaziers if windows were not broken? Such is the form of theoretic error that taints popular reasoning. "Supposing that six francs are required to repair the damage, if it is meant that the accident brings six francs to the glazier, and encourages his industry to the extent of six francs, I grant it readily; the reasoning is just. The glazier comes, he finishes the job, he pockets six francs, rubs his hands, and in his heart blesses the mischievous urchin. *This is what is seen.* But if, by way of inference, it be concluded, as it is too often, that it is a good thing to break windows—that it makes money circulate—that the result is an encouragement to industry in general—I am obliged to cry *halt!* Your theory stops at *what is seen*, it takes no account of *what is not seen.* It is not seen that since our citizen has spent six francs on one thing, he cannot spend them on another. It is not seen that if he had not had that pane of glass to replace, he would have replaced, for example, his shoes now down at heel, or would have placed another book in his library. In short, he would have made of these six francs some use which now he cannot make. Let us, then, make the reckoning of industry *in general.* The pane of glass being broken, the industry of the glazier is encouraged to the extent of six francs; *that is what is seen.* If the window had not been broken, the industry of the shoemaker—or some other—would have been encouraged to the extent of six francs; *that is what is not seen.* As Jacques Bonhomme forms part of society, it must be concluded that society has lost the value of the broken pane. Hence, by a process of generalising, we arrive at the conclusion—"Society loses the value of objects uselessly destroyed; to break, to destroy, to dissipate, is not to encourage the national industry; or, more briefly destruction is not profit. The reader," proceeds Bastiat, "must try to establish clearly that there are not two persons only, but three, in the little drama to which I have called his attention. The first, Jacques Bonhomme, represents the consumer reduced by destruction to one enjoyment instead of two. The second, the glazier, shows us the producer whose industry is encouraged by the accident. The third is the shoemaker, or any other craftsman, whose industry is discouraged to the same extent by the same cause. It is the third person who is always kept in the shade, and who, personifying *what is not seen*, is a necessary element in the problem. It is he who shows us how absurd it is to see a profit in a destruction. It is he who will soon teach us that it is not less absurd to see a profit in a restriction, which is, after all, only a partial destruction."

Our Mineral Wealth.—The value of the minerals raised in 1860 was £26,404,459, against £24,226,526 in the preceding year—increase, £2,177,933. The value of the tin, copper, lead, silver, zinc, pig-iron manufactured from the ores of those metals raised during the period was £16,939,717, against £15,447,086—increase, £1,492,661; of other minerals and metals, £170,927 in 1860, against £95,000 in 1859; and of coals, £20,010,674 in 1860 against £17,994,941 in 1859, thus showing the aggregate value of our metals and minerals when brought into the ordinary commercially marketable condition to have been £37,121,318 in 1860, against £33,537,020 in the preceding year—the increase being equal to £3,584,291. Mr. Hunt's volume has this year been enriched by the appending of a general statement of the progress of British mineral industry since the publication of the statistics was commenced.—*Mining Journal.*

The Commissioners of Public Works, in preparation for her Majesty's visit, are placing on the raised portion of Carlisle Pier, immediately under the shed, a series of seats, six in number, each about two feet wide, and the riser of each about one foot above the other. They will form a concave on either side of the part left open for the gangway or landing place from the steamer, branching off to the right and left about 150 feet on either side, thus affording an excellent view to those occupying them. The portion of the railway next the usual landing place will be platformed over to the extent of 75 or 80 feet, so as to give a greater area for placing the galleries. Then immediately opposite the open space, and on the part of the pier usually employed as the place for embarking, there will be another gallery erected parallel to the coping of the railway.

A Photographic Machine.—A Lyons newspaper says that a machine has just arrived from America which is capable of printing 4,000 photographic proofs in an hour from the same negative. The paper used is said to be prepared with gelatine and impregnated with iodine of silver mixed with other substances, which endow it with extraordinary sensibility. It is then rolled on a cylinder, and unrolled, when in the machine, by clock-work, so that each portion remains about a second opposite to the negative, which during the movement on the paper is covered by a lid worked by the same machinery. The sun's rays are brought to bear upon the original in a concentrated form by means of a powerful lens. The result is said to be that photographs which, by the ordinary process, cost at least 1f. 50c. each, can be produced at the rate of a sou each.

Iron and Steel.—A process has been invented by Mr. William Longmaid for an improvement in the manufacture of iron and steel, which consists in the introduction during the operation of puddling of a small quantity of gold, which is diffused throughout the mass, and which is said to confer extraordinary durableness. If the results alleged should be substantiated by sufficient trials, there seems a probability that it will have an important influence on the manufacture of artillery, ships' plates, anchor cables, and all these portions of railway plant in which tenacity is most essential.

The Turkish Bath an Antidote to Drunkenness.—Patients suffering from the effects of that fertile source of illness—intemperance—often have recourse to the bath, and as the blood is usually the seat of disease in this case, no remedy is yet known so effective. It enables the sufferer to inhale in an increased degree the legitimate stimulant of the body, oxygen; the blood is so purified by the process, that health is restored, the craving appetite for strong drink ceases, and a relish is felt for a purer and ten times more agreeable exhilaration. The blood, having deposited the nourishment obtained from the food on the tissues of the body, receives, in returning, the impurities rendered soluble by the oxygen obtained through the lungs and skin. These effete materials are afterwards eliminated by the various organs provided for that purpose. The more complete the oxydation is, the more perfectly will these functions be performed, and the more completely will the system be rid of its impurities. But when spirits are taken, the oxygen, instead of entering into combination with the effete matter, has a greater chemical affinity for alcohol, and combines with it in preference. This being often repeated, it is easy to conceive that the system will become clogged with its impurities, and this, together with the reaction after the undue stimulus of the spirits, gives the drunkard, when sober, that horrible feeling of depression and languor, and consequent craving for fresh excitement.

Artistic Designs for Watches.—"A number of new and artistic designs for the embellishment of watches have been invented and exhibited by Mr. J. W. Benson, of 33 and 34, Ludgate Hill, and 46 and 47, Cornhill, who has exerted himself with commendable success to provide, in this particular branch of manufacture, the union of taste and usefulness so striking in the productions of the French artificers. The recent progress in the art of watchmaking in England is owing to the enterprise and industry of several gentlemen, who are now reaping a just reward for their ingenuity. Amongst these Mr. Benson holds a prominent position, and his designs may therefore be recommended to the notice of the public."—*Daily Telegraph.*

Improvements in Street Lighting.—It has been ascertained that by placing near the flame ordinary gas burners a receptacle containing coal naptha, the brilliancy of the light is much increased. An invention based upon this principle is already the subject of a patent vested in a public company. The patentees state that by the use of their process a saving of one-half may be made in the expense of lighting by gas. To test the accuracy of this assertion, experiments have just been made in London, under the authority of the Commissioners of Sewers. Moorgate-street was selected for the trial, there being in it few shops, and only one or two private lamps. The lamps experimented upon were twelve in number, six upon the western side, fitted in the ordinary way with burners, and consuming upon the average five cubic feet of gas an hour, and six upon the eastern side, fitted with burners, having attached to them the apparatus of the patentees, and consuming two and a half cubic feet an hour. The experiment extended over 30 nights. The burners without the apparatus consumed about 4·39 cubic feet per hour; while the burners with the apparatus consumed only 2·09 cubic feet per hour. The district inspector of the commission, who saw the lamps nightly, reported his opinion that the light given was perfectly equal, an opinion in which he is supported by residents of the neighbourhood. Mr. Heywood, the engineer of the commission, who principally conducted the experiments, is, however, inclined to think that the lights are not quite equal in intensity. He states that three cubic feet of gas, carburetted by means of the naptha, are equal to five cubic feet of gas not carburetted. On this assumption he shows that by the adoption of the new process, the reduction of the cost of each lamp a year would be 20s. and that there being 2,825 lamps in the city, the annual saving of £2,825 might be effected.

Barracks and Huts.—Within the last 20 years there has been expended on barrack, huts, &c.:—At Colchester, £117,757; at Pembroke, £61,241; at Shoeburyness, £84,927; at Shorncliffe, £210,292; at Hythe, £26.864; at Fleetwood, £13,380. Much further expenditure is proposed, and has been approved by the government—£50,000 for cavalry barracks at Colchester; £27,000 for additional accommodation and works and a church at Shoeburyness; £4,000 at Shorncliffe, and about the same sum at Hythe, and at Fleetwood £10,000 for purchase and alteration of bath house, &c., nearly £10,000 more for hut encampments, and in a future year £18,000 for permanent barrack and hospital.

French Photographers and the Exhibition of 1862.—The French photographers are disposed to resent warmly the proposed classification of photography. The Paris correspondent of a daily contemporary remarks:—"The French commission for the exhibition of 1862 has prepared forms of application for intending exhibitors, and has appointed seven places in Paris for their distribution. The chief office is in the Palais de l'Industrie. In connection with this subject, I may mention that the photographers here are exceedingly displeased with what they understand to be the decision of the English commission relative to the classification of their productions with the instruments by means of which they are produced. They say very pertinently that silks are not put with looms but with similar products, and therefore that photographs should be placed with engravings and lithographs. Some of the best photographers declare that they will not exhibit unless an alteration is made in the plan. Perhaps the matter only requires a little explanation, and I therefore merely report facts for the consideration of the commission."

TENDERS

For the erection and completion of a manse for the Rev. Mr. Burns, P.M., in Wexford, from designs by Mr. Richard Pierce:—

Redmond	£649	0	0
O'Connor	600	0	0
Pierce (accepted)	600	0	0
Willis	595	0	0

To Correspondents.—T. B., Thomastown (We could not undertake to wade through such a production); T. F., Blackburn (We are unable individually to recommend at present; the better course is an advertisement).

NOTICE.

Post-office Orders and Remittances should be made payable to Mr. Peter Roe, *Printer and Publisher*, 42, Mabbot-street, Dublin.

☞ *NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to* "*The Publisher of the* Dublin Builder," 42, Mabbot-street. *All other Communications should be addressed to the* "*Proprietor and Editor*," 17, Lower Gardiner-street.

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GALVANIZED WROUGHT IRON
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MADE TO ANY SHAPE
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J. EDMUNDSON AND CO. call attention to their PATENT GAS APPARATUS, by means of which Noblemen's and Gentlemen's Mansions, Out-offices, and Farm-steadings can be brilliantly lighted with Gas, at an expense much less than from oil or candles. It is also well adapted for lighting Towns, Villages, Mills, Public Establishments, &c.

The Apparatus produces more Gas from a given quantity of Coal than any other. The brilliancy of the light far exceeds that used in the principal towns of Ireland, and its purity is such as is only found in Home-made Gas.

In districts where Coal is scarce and Peat plentiful, *Gas from Peat* can be economically manufactured by J. E. and Co.'s Apparatus, which is compact, inexpensive, and so simple in construction that any labourer or farm servant of common intelligence can manage it.

J. EDMUNDSON AND CO. will have pleasure in waiting upon any gentleman who desires to know the cost of the erection of Gas Works at his residence or other establishment, and will be prepared to submit, free of expense, an estimate for the work.

Gas Engineers, Contractors, and Ironmongers,
34, 35, AND 36, CAPEL-STREET, DUBLIN.

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MESSRS. TURNER AND GIBSON, Manufacturers of IRON CONSERVATORIES, Fruit Houses, Pine Pits, etc.

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Warming & Ventilating Dwelling Houses, Prisons, Conservatories, Mills, and Public Buildings, etc.; House, Laundry, Cooking, and Steaming Apparatus.

Bridges, Girders, Iron Lattice, Bowstring, Suspension, Patent Balance Rolling, and Swivel Bridges, and Floor Girders

T. and G. beg to refer, as specimens of *their work*, to the Iron Conservatories, Heating, etc., as erected at the Royal Botanic Gardens, Kew; the Inner Circle Botanic, Regent's Park; Cheltenham: Viceregal Lodge; Glasnevin; and various Works by them throughout the United Kingdom.

WILLIAM TURNER,

OXMANTOWN FOUNDRY & IRON WORKS,
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Cast-Iron Girders, Plain and Ornamental Pillars, Moulded and Plain Gutters, Tank Plates, Gas Retorts and Pipes, Kitchen Range Work, Millwright, Castings, Balconies, Brackets, Staircase Ballusters, etc., supplied. A large variety of Models for the above in stock.

NEW Balance Rolling BRIDGE.
KENNY'S PATENT.

The undersigned beg to call the attention of Engineers and the Public to the above description of Opening Bridge, as now being constructed for the entrance to the St. George's Dock, Custom-house Quay, Dublin, for the Board of Works, which will be found superior to the ordinary Swivel Bridge, both in point of simplicity of Construction and Cost.

Plans and Specifications furnished, and Licenses granted on application to

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Proprietors and Manufacturers,
HAMMERSMITH IRON WORKS, BALL's-BRIDGE, DUBLIN.

IRON CASTINGS.—Castings of every description for Gas and Water Companies, Millwrights, Builders, Plumbers, &c., made at
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POOLEY'S PATENT WEIGHING MACHINES.—These Machines are used upon the principal railways of Great Britain, and are unrivalled for accuracy. Specimens may be seen, and every information obtained from
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Agents for Ireland,
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SHEET LEAD—in Sheets or cut to any dimensions—and Lead Pipe of the best quality. MAURICE BROOKS, Sackville-place, Dublin.

Statuary, Marbles, Cements.

Plaster of Paris.
Roman Cement.
Portland Cement.
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Keene's Patent Marble Cement.

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Also Crown, Sheet, and Plate Glass; Fire Bricks, Tiles, &c; Painters' and Plasterers' Brushes.

Gypsum for Agricultural Purposes

Steam Mills and Manufactory—CROWN-ALLEY,
Established, A.D. 1780.

TO ARCHITECTS AND GENTLEMEN HAVING MANSIONS IN COURSE OF ERECTION.

JAMES HOGAN AND SONS,
Stucco Plasterers, General Cement Workers, Modellers, &c.,
168, GREAT BRUNSWICK-STREET,

Beg leave to state that they are prepared to undertake Contracts in the above line. Ornaments for Cornices and Centre Pieces for Ceilings supplied. Fronts for Houses done in Portland or Roman Cement at first cost price. Country Orders strictly attended to, and first class workmen sent to all parts of the Kingdom.

C. WILLIAM GIBLAN, Plain and Ornamental Plasterer and Architectural Modeller, 29, GREAT BRUNSWICK-ST., DUBLIN.

This establishment is the only one in Ireland that has a variety of Colossal Statues, Groups, Busts and Vases, Basso, Mezzo, and Alto Relievo Antique Subjects; Centres, Cornices, &c.

C. W. G. has purchased the stock of the late Agent to the Patent Siliceous Stone Company.

P.S.—Men sent to all parts of the Kingdom.

BEST CEMENTS.

ROMAN CEMENT, PORTLAND CEMENT, and PLASTER PARIS STORES,
10, Sir John's-quay, Dublin.

George Holmes and Co. are constantly supplied with the above materials of genuine quality, direct from the best manufacturers. Also Sewerage Pipes, Junctions, Bends, &c.

CHIMNEY PIECES—in Italian, Belgian, Irish, and English Marble; Enamelled Slate, and Cast Iron: suitable for Drawing-rooms, Dining-rooms, Bed-rooms. &c. A very large Stock to select from. MAURICE BROOKS, Sackville-place, Dublin.

PATENT SILICA CEMENT.

ARCHITECTS and BUILDERS are requested to try this CEMENT. It carries more Sand than Portland, works with greater facility, and dries of a perfectly uniform color (that of Caen stone.) It is entirely free from the efflorescence of nitre, which disfigures work executed in Portland or Roman cements.

A specimen can be seen at No. 80, Bankside, Southwark, Messrs. J. NEWTON & CO, of whom it may be procured, or direct from the manufacturer, F. M. EDEN, Orchard House Cement Works, Blackwall, E.

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Drug, Oil, Colour, and Glass Warehouse,
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(near D'Olier-street.)

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N.B.—Every article is warranted genuine, and at the lowest price.

PLATE GLASS, Pier and Chimney Glasses, of the largest dimensions, Silvered; and all sizes, Silvered and Unsilvered, for mirrors, sashes, and shop fronts.
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UNION PLATE GLASS COMPANY.
The very beautiful article of Plate Glass, manufactured by this company, can be had at the price of the lowest in the market, shipped to any Port in Ireland.
H. SIBTHORPE AND SON,
Agents for Ireland,
11 AND 12, CORK-HILL, DUBLIN.

SHIPWRECKS—IRISH LIFE BOATS.

APPEAL TO DUBLIN.

THE Committee of Management have to state that they have recently expended nearly £7,000 on the following Irish Life-boats, viz.:

Portrush,
Groomsport,
Tyrella,
Newcastle,
Dundalk,
Drogheda,
Skerries,
Wicklow,
Arklow,
Cahore,
Wexford,
Rosslare,
Carnsore,
Tramore,
Dungarvan,
Ardmore,
Youghal,
Ballycotton,
Westport.

During the past year the Institution has also incurred expenses amounting to £10,545 on various Life-boat Establishments on different parts of the coasts of the United Kingdom.

During the same period the Society has also granted £1,108 15s. 8d., as awards for saving 499 persons from a large number of shipwrecks on our coasts; a most satisfactory result, and clearly showing how much has been accomplished by the well-directed efforts which the Life-boat Institution has brought to bear on this humane cause. This great and national work has, however, only been accomplished by the Society incurring further liabilities to the extent of £3 834.

With so sacred an object in view as the Rescue of our fellow-creatures from an appalling death by Shipwreck, it might be supposed that the National Life-boat Institution had claims which would come home to the heart of every one in this great maritime country. Such, it may be hoped, will be the case as its operations become more generally known, and thus an abundant harvest, not only of popular sympathy but of general pecuniary support, will be the permanent result.

The Committee of this Institution do not, therefore, hesitate to solicit most earnestly the support of the people of the City of Dublin and its environs, in aid of the benevolent objects of the National Life-boat Institution. They cannot but sympathise with the vigorous efforts now being made by this Society to save the lives of shipwrecked crews. Their help was never more needed than at the present time, when, through the extraordinary exertions the Society has made within the past few years, it has now One Hundred and Eight Life-boats under its management, for the maintenance of which, in a state of thorough efficiency, a large permanent annual income is absolutely needed, if its humane mission is to be perpetuated.

Contributions are thankfully received by the following Members of the Dublin Branch of the Institution:
Capt. Abbott, R.N., Hon. Secretary.
Capt. Maclean, R.N., 22, Blessington-street.
Lieut. Tully, R N., Seville-place.
Lieut. Hutchison, R.N., Harbour House, Kingstown.
P. Howell, Esq., Steam-packet Office, 12, Eden-quay.
Andrew Taylor, Esq., 44, North Wall.
John Walsh, Esq., Agent to Lloyd's, Dublin.
W. J. Egan, Esq., Steam-packet Office, 46, North Wall
H. L. Allen, Esq., Steam ship Office, 5, North Wall.

By Capt. Abbott, R.N., Ulverston-road, Dalkey, the Hon. Secretary of the Dublin Branch; by all the Dublin and London Bankers; and by Richard Lewis, Esq, Secretary of the National Life-boat Institution, John-street, Adelphi, London, W.C.; or by the Collector or Assistant Secretary, Mr. Samuel B. Taylor, No. 1 Lower Leeson street.

The Dublin Builder.

VOL. III.—NO. 41.

LONDON CLUB HOUSES.

ONE of the principal—of the multitudinous—objects of interest in the world's metropolis is the magnificent collection of club-houses at the West End, and though to us frequent visits have rendered them familiar as "household words," we each time cannot fail to contemplate them with admiration. Last week in our rambles through Pall Mall it struck us to jot down a few particulars respecting the most remarkable of these structures, judging that our readers would gratefully accept them. The subject, however, admits of more comprehensive treatment than mere technical description of the buildings, and we shall first briefly trace the origin of "the club" and its history to the present day. The earliest existence of a club is supposed to have been about the latter part of the sixteenth or beginning of the seventeenth century, that held at the Mermaid Tavern, in Friday-street, where Shakespeare, Beaumont, Fletcher, Raleigh, Selden, Donne, and other notabilities of the period assembled, perhaps being the first. Johnson wrote the "Leges Convivales" for a club held at the Devil Tavern, and Addison, in his "Spectator," describes a political association which he styles "a grand alliance." In the early part of the last century this kind of establishment became general and popular, about the most remarkable being the "Beefsteak Club" of which the famous "Mistress Peg Woffington"—the only female member—was president. At the time of the trial of the seven bishops in the reign of King James was established the celebrated "Kit Cat Club," which attained the zenith of its glory in the reign of Queen Anne. Rich, the pantomimist, in conjunction with the Lord Peterborough, established a second Beefsteak Club in 1735, and this (we believe) still exists. Various others of less important character were subsequently founded, but numbers of them were but short lived. The club system of the present day would seem to be very perfect, and provides suitable rendezvous for the respective requirements of noblemen, men of fortune, legislators, literati, professionals, commercials, &c. Amongst the most remarkable are the Reform, the Carlton, the Athenæum, the Senior and Junior United Service, the Travellers', the University, the Union, &c., and the generally highly meritorious architectural character of their features have caused them to be frequently compared to Italian palazzi. The following will serve to convey an idea of the general arrangements of these establishments, subject, of course, to modification to suit special circumstances.

Communicating with a spacious hall, whence branch corridors or passages, are reception or visitors', morning, private dining, porters' and coffee rooms, with minor apartments, billiard and smoking rooms, bar, &c., in less prominent position; principal and private staircases leading to the other storeys; and it is the custom, where practicable, to add a tennis or racquet-court for the recreation of the members. The first floor usually comprises drawing-room—where in some clubs there is a great display of luxury and expensiveness, the finest taste of the upholsterer being called into requisition—a library fitted up with every convenience, also private, retiring, and card-rooms, &c. On the upper storeys, whatever may be their number, are placed the members' bed and dressing-rooms *en suite*, together with separate accommodation for the providore and domestics; and in the basement are all the requisites for the important department of the *cuisine*, cellars, stores, &c.

To give some idea of the liberal scale on which the morning rooms are supplied with periodicals, it is recorded that even in the year 1844, when journals and serials were infinitely less numerous than at present, the sum expended by the Athenæum Club for English and foreign newspapers was £471 2s. 6d. Externally the Army and Navy Club-house is one of the most striking, designed by Messrs. Parnell and Smith, architects, somewhat after the style of the Cornaro Palace, at Venice. It is placed at the intersection of George's-street with Pall Mall—the principal entrance being in the former through three semicircular-headed arches—and presents two storeys and a mezzo, the lower consisting of a series of rusticated piers with dwarf pilasters and entablature in each square-headed open, and surmounted by a continuous modillioned cornice; the upper, a range of coupled Corinthian columns, resting on a broken pedestal, balustraded opposite the window opens, which are semicircular-headed, and surmounted by an entablature with highly enriched frieze and ornamental bracked cornice, crowned with a handsome balustraded parapet and panelled piers. The area through which light is transmitted to basement is enclosed by a balustraded wall.

The United Service Club, though first in seniority, is, when viewed in comparison with others noticed in this article, of less pretensious character architecturally than many of them, being in an Italian style generally pronounced to exhibit "incontestible evidence of insipidity and poverty." The "Athenæum," designed by Mr. Decimus Burton, is truly worthy of that eminent gentleman's ability, and presents a rusticated basement with Roman Doric portico, the ends of which are perforated with windows, surmounted by a tryglyphed entablature and balustrade, with a figure of Minerva standing on a central pedestal. The principal storey has seven windows, with access to a balcony, and ornamented with cornice and trusses. On the main entablature is a remarkably beautiful frieze, in *basso relievo*, copied from the Elgin marbles, and a bold projecting cornice Close by is one of the late Sir Charles Barry's *chef-dœuvres*, "The Traveller's" Club, and perhaps equally successful in some regards is "The Reform," by the same architect. The dimensions of some of the principal apartments in the former are as follows:—Coffee-room, 68 feet by 24 feet 9 in., and 18 feet 6 in. high; principal staircase, 45 feet by 16 feet; drawing-room, 39 feet by 23 feet 9 in., and 24 feet high; card-room, 28 feet 9 in. by 23 feet 9 in.; libraries, 48 feet by 24 feet 9 in., and 17 feet 6 in. high; reading-room, 29 feet 9 in. by 19 feet 6 in. Here is Italian architecture indeed in its integrity and purity, stamped by a dignity and poetry of expression rarely approachable even in some other examples of high excellence. "The Carlton" next claims a notice. When this building was originally proposed, Mr. Sydney Smirke and Mr. G. Basevi were to act conjointly as architects, but on the premature death of the latter, the designing and carring out of the work devolved exclusively on the former. It has a most imposing elevation, and strongly resembles the front of St. Mark's at Venice, which, we believe it is admitted, the architect adopted for his model. The frontage towards Pall Mall is 133 feet, and the height about 70 feet. Caen stone was employed for the facing of the main exterior, and polished Aberdeen granite columns and pilasters, presenting a very pleasing contrast, are introduced. The internal arrangements of this establishment are of a most comprehensive and costly scale, and some of the apartments—the coffee-room especially, which is 90 feet by 36 feet—are magnificent. By the same architect, in conjunction with his father, Sir Robert Smirke, is the University (Oxford and Cambridge) Club adjoining. This building extends 87 feet, and is about 57 feet high. A portico occupies the central position, and an entablature continued across the four Corinthian columns of same, nearly equally divides the lower from the upper storey. A handsome entablature and balustrade terminates the summit of the front elevation, and break over a central projection of equal width with the portico. Some beautiful and appropriate ornamentation is introduced throughout. All the above and various others, not forgetting "The University," in Suffolk Place, "The Union," and the new "Conservative," are well worthy of study both by those within and without the pale of the architectural profession; and at this season of the year, when such facilities are presented for an economical sojourn in the metropolis, we would commend such of our readers as are disposed to excursionizing to saunter for a while in Pall Mall.

HOUSES OF THE CHINESE.

THE distribution of their houses is perfectly uniform; and it would be improper, and even dangerous, for an individual to depart from the general mode. Le Compte tells us of a mandarin, who, having built a house higher and more beautiful than those of his neighbours, was accused before the Emperor, and, fearing the consequence, he pulled down his house, without waiting for the sovereign's decision.

The Chinese lay out more than half of the ground occupied for their houses in courts and narrow walks; those of the merchants

Canton, which are close by the water, are narrow and very long; but there is no difference in the disposition of their interior. The level ground is crossed in its length by a broad walk, passing through the middle, and stretching from the street to the river. On each side are the apartments, consisting of a saloon for receiving visits, a bed-chamber, and sometimes a study, or closet. Before each set of apartments is a court, having a fishpond, or cistern, at its extremity, containing an artificial rock in the middle, whereon grow bamboos and several other kinds of plants, all which form a miniature landscape, of picturesque appearance. Some of the fish are so familiar, that they come to the surface of the water, and allow themselves to be fed with the hand. The sides of the courts are ornamented sometimes with flower-pots, and sometimes with shrubs in flower, vines, or bamboos, forming green arbours. In the middle, upon a pedestal, a large porcelain vase is generally placed, filled with those beautiful flowers called *lien-hoa*. They also frequently keep in these little courts pheasants, bantam-hens, and other curious birds.

Instead of paintings the Chinese hang up large pieces of satin, or of paper, set in frames, and painted in imitation of marble or bamboo, on which are written, in characters of azure blue, proverbs and distichs of morality, taken from the principal Chinese philosophers. They also sometimes have leaves of white paper, quite smooth, containing large characters, traced by some skilful hand, in China ink; this ornament is much esteemed. The bottom of the drawing-room is composed of folding-doors, over which is a lattice, covered with painted gauze, for the admission of light into the bed-chamber. The doors, which are of wood, are of very neat workmanship, ornamented with different characters and figures, and sometimes richly varnished and painted red, blue, yellow, or some other colour.

In the middle of the lower part of the chamber, and above a table which contains various ornaments, a very large leaf of thick paper is frequently suspended, covered with ancient Chinese paintings of different figures, enclosed in squares. The Chinese have a great veneration for these ornaments, under the idea that the painters were inspired; and the connoisseurs pretend to distinguish the hands of the several masters, and give a very great price for such as pass for originals I have seen many of these paintings; they usually consist of landscapes or figures, drawn with China ink, on white paper. In general they are touched with spirit, but they are too incorrect, and too little finished, to deserve much attention.

The furniture of the large room consists of chairs, stools, and tables, made of rosewood, ebony, varnished wood, and sometimes simply of bamboo, which, though cheap, is very neat. When the furniture is of wood, the tops of the stools are often of marble or of porcelain; and though such seats are very hard, they are very agreeable in a climate where the heat of the summer is excessive. On small tables, or stands, four or five feet high, placed in a corner of the room, are seen dishes of citrons, and other odoriferous fruits, branches of coral in porcelain vases, and glass globes containing gold-fishes, with a kind of herb something similar to fennel. They also decorate their tables, which are made only for ornament, with small landscapes, composed of shell-work, plants, and a kind of lily that grows among pebbles covered with water. They have also artificial landscapes, made of ivory, crystal, amber, pearl, and precious stones. I have seen some that cost a thousand *taels* (more than three hundred guineas), but they are mere toys, and wretched imitations of nature. Besides these landscapes, the tables are ornamented with porcelain vases of various kinds, and small copper vessels, the latter of which are much esteemed. The forms of these vessels are generally simple and agreeable; the Chinese say they were made two thousand years ago by some of their most celebrated artists; and such as are really antique (for there are some counterfeits), sell at an excessive price; one of them sometimes costs no less than three hundred pounds. They are kept in small pasteboard boxes, and are only shown on great occasions; nobody touches them but the master, and, to keep them clean, he brushes them from time to time with a hair-pencil, made solely for the purpose.

Lamps form the most prominent ornaments of the chambers; there are generally four of them hanging from the ceiling by cords of silk. They are of various shapes, as square, octagon, &c., and are composed of an extremely fine silken stuff, decorated with very neat drawings of flowers, birds, and landscapes.

A partition of folding-doors separates the large room from the bed-chamber. I have already observed that, in warm weather, these doors are left open all night, for the admission of cool air. The chamber is very small, and has no other furniture than the bed and some varnished clothes-trunks. The beds are sometimes extremely magnificent; the bedsteads, or frames, which very much resemble those of Europe, are of rosewood engraved, or of lackered wood; the curtains are of taffety, or gauze, sometimes flowered with gold, and commonly dyed blue or purple. A band of embroidered satin, about a foot in breadth, goes round the whole top of the bed; the embroidery is in compartments, of various forms, and represents flowers, landscapes, or human figures, accompanied with moral sentences and fables, written with China ink and vermilion.

By the side of the bed-chamber is a passage, leading to the cabinet, which is also enclosed by walls, and lighted by windows. The walls are ornamented, like those of the saloon, with moral sentences and antique pictures; the furniture consists of arm-chairs, settees, and tables. The books are disposed on shelves, and on a table near the window lie the pencils, and other things necessary for writing, the instruments used for arithmetical calculations, and some select books, all laid out in great order.

Besides these apartments there are also the dining-room, the kitchen, the apartment for the domestics, the bath, the privy, the office, or counting-house, and, towards the street, the shop.

Such is the distribution of the houses of all the merchants at Canton. Those of other people only differ in having their general plan accommodated to the ground on which they are built; for the apartments, the courts, and other conveniences, have everywhere the order just described.

The *leou*, or upper storey, consists of many great halls, occupying all the breadth of the house, above the apartments of the ground floor. They are used occasionally as chambers for lodging strangers. In every house there is a number of shutters, two or three feet broad, and ten or twelve feet high. When they wish to make chambers they fix these shutters to the floor and ceiling, and in a few hours make as many apartments as they wish. Some of these shutters are cut from the top to within four feet of the ground, and the openings filled with very thin oyster-shells, which are sufficiently transparent to admit daylight. All the windows in China are made of these shells.

In one of these great halls, and commonly in that next the door, the image and altar of the domestic idol are placed, so that all who enter may see it. The rest of the second storey is divided into apartments for the family, and over the shops are the rooms for the shop-keepers.

The sides of the Chinese houses next the street, are altogether plain or employed as shops. There is no opening except the door, before which a mat is hung, or a screen is placed, to prevent passengers from looking in. The houses of the merchants of Canton have a very gay and handsome appearance towards the river.

The materials used for building are wood and brick. The latter are either simply dried in the sun, or baked in an oven. The walls of the houses are commonly about eighteen inches thick, and the bricks, which are about the size of our own, are used in the following manner: the masons place three or four beds at the foundation, entirely solid; after which they dispose their bricks alternately length and breadthwise, along the two sides of the wall, so that those laid across touch one another, and occupy the whole breadth, but those placed lengthwise have a space between them; on this layer or bed a second is laid, with all the bricks lengthwise, and the joinings of the cross-bricks in the first layer, are covered with a whole brick in this. The work is thus continued alternately to the top; and by this means the expense of work and time, as well as the weight of the wall, are very much diminished.

The tiles that cover the roofs are plain and semi-cylindrical; the latter are laid on the joinings of the former. The Chinese, like the Goths, always let the wood appear withinside the ceiling, for which reason the beams and columns are frequently made of precious wood, and sometimes they are richly inlaid with ivory, copper, and mother-of-pearl.

MARCUS' EXCURSIONS.

We take the earliest opportunity to disabuse the public mind even of a remnant of any unfavourable impression respecting the arrangement of excursions between Dublin and London, and from personal experience we can testify that in every respect those now under the direction of Mr. Marcus, the enterprising excursion caterer for the L. & N. Western Railway, are desirable, and conduce to the comfort of the passengers. Of course it would be unreasonable to expect that an excursionist who only pays his 16s. or his 20s. for a return ticket should be transmitted to and fro London with the same speed as a passenger by "Mail" or "Express" at treble the fare; nevertheless, between certain points on the line, the speed is fully as great, and there is no stoppage unless where necessary for refreshment, or to allow the through trains to pass by. The steamers, although only "cargo" boats now, were formerly the "Express" boats, and are both sea-worthy and commodious, making—when special for an excursion trip—the journey across channel to North Wall in about *five* hours. Up to and from Chester the excursionists are accompanied by a very efficient and courteous manager, Mr. Hewson, who is quite a host in himself, and there is no lack of pleasant company, for all seem bent on enjoyment, "leaving dull care behind." We notice another announced trip for the 6th inst., and if as many as on the last occasion *to* Dublin—perhaps some 300—independent of those for intermediate places—avail themselves of it, we apprehend that the success of the speculation will justify a continuance of what certainly is a great boon to the public.

WHY MANUFACTURES DO NOT SUCCEED IN IRELAND.[*]

In considering this subject I have arrived at the conclusion that, if we exclude Ulster, the manufactures which do not succeed are those requiring any considerable amount of skilled manual labour. In Dublin there are large and important breweries and distilleries, by which princely fortunes have been realised; but, when we take into account the value of the products, we find a very small portion of the expenditure goes for the wages of the workmen. In like manner all our agricultural products employ very few skilled hands, and, indeed, the tendency is rather to convert tillage land into pasture, and thus to manage with fewer workpeople; and here I would remark that, even when the wages of agricultural labourers and other similar classes were less than one shilling per day, labour, though nominally cheap, was not really so. If you observed a number of workmen in a field, you would find one-half of them loitering carelessly, while the master was equally careless in superintending them; and yet the very same men when removed across the Channel, being well supervised, did their work well, and were prized by their employers, whether on the farm or in the construction of railways; and the same causes which brought about this improvement in their circumstances, enhanced by the diminution of our population, are now producing the same effects at home. The farmer or contractor having to pay higher wages, is compelled to take care that he gets value for the increased pay, and thus the labourer is taught to be more constantly and habitually industrious. When we turn to some other branches of manufactures, such as leather, woollens, and paper, we find them languishing and even retrograding; and this notwithstanding that the raw material is produced at home. Irish tweeds and friezes are deservedly valued for their strength and texture; but the merchants cannot procure them in sufficient quantity; and not long ago one of the Dublin drapers having contracted to supply a workhouse in England with Irish frieze, finding he could not get the entire quantity in Ireland had it manufactured in Yorkshire, imported it, and then re-shipped it to the union—in fact to within a few miles of the place where it had been made; and perhaps there is not anywhere a better opening for energetic manufacturers than is presented by this branch in Ireland. In the manufacture of paper an abundant supply of water is essential for other purposes than driving power, and in this respect Ireland is better supplied than either England or Scotland. This manufacture affords suitable and healthy employment for women and girls as well as for men, and the abolition of the duty on paper will certainly give a stimulus to this branch here as well as elsewhere. One difficulty with which a papermaker has to contend here, is in the management of the women employed in cutting and sorting the rags. The moment the foreman's back is turned they get careless, and the consequence may be that a large lot of paper is spoiled from such simple cause as allowing an old India rubber suspender to get into the rag engine. The India rubber threads cannot be reduced to pulp, but are chopped up into minute pieces, which are almost invisible until in the process the web of paper has to pass between heated rollers, and then the rubber melts and produces dirty blotches. One of our most extensive manufacturers informed me lately that he had been so much annoyed, and had lost so much in this way, that after again and again dismissing the women, and finding one set no better than another, he was turning his attention to procuring materials, such as cotton waste, which required little or no preparation previous to being thrown into the rag engine. I do not consider this intractability an insuperable difficulty; on the contrary, my own experience has satisfied me, that kindly and persevering training and supervision will overcome it, and in proof of this I might adduce instances of the success of energetic individuals, such as Malcolmson, of Portlaw; but the evil does exist, and we should not shut our eyes to it, or take offence at its exposure, however unpalatable, and I apprehend it is to be thoroughly overcome only by early training at home, where tidy orderly habits should be inculcated in childhood by example as well as by precept. In prefacing these remarks I excluded Ulster, where manufactures do succeed, and where the inhabitants are more akin to the Scotch, and their domestic economy presents to their children examples of industrious frugality. I trust it is not necessary to say that I am actuated by no unkindly feeling towards the Irish working classes, or by any desire to laud one portion of the kingdom and disparage another; we can have no hesitation in allowing that the Irish possess more inherent talent and genius than either the English or Scotch, and their brilliant success at competitive examinations for Government appointments prove this and reflect the highest credit on their conductors; they carry off a fair share of prizes when they enter the lists at any public exhibition or competition, but unless they exercise more perseverance I fear they will be distanced by the indomitable energy of the English, and the steady industry of the Scotch. These qualities are more to be depended on in the battle of life, and will outstrip genius however talented. Another serious and palpable disadvantage with which manufacturing in Ireland has to contend, is the high price of coal, which has become quite indispensable; while water power, everywhere plentiful and regular, is becoming comparatively valueless on account of its inconvenient situation; the expense of conveyance to a mill in the country, and thence to a market, not being compensated by cheap water power; and thus we see flour and other mills springing up in our large cities and seaports driven entirely by steam, and where they have an advantage over country mills as regards foreign grain. Not only is the coal high in price, but the bulk of it is of inferior quality, and so far as the port of Dublin is concerned, the coal trade is in anything but a creditable state. We depend for our supplies on a fleet of small, old, unworthy sailing vessels, and the consequence is, we are every now and then running short, and the price is proportionately advanced. That I am not exaggerating when I say these vessels are unworthy, the storm of 9th February last afforded melancholy proof, when more than a dozen of ships were wrecked within the bulwarks of Kingstown harbour, into which they had run for shelter, and had made fast to moorings, but even there they were not safe from the violent cyclone. The receding wave snapped the half-rotten, inefficient cables, and in a short time some were sunk, and others literally dashed and churned to pieces, and all of them colliers from twenty or thirty to two hundred tons burthen. For such trades as mechanical engineering and shipbuilding, iron as well as coals has all to be imported, and the wages paid in these branches are generally high, most of the skilled men having to be brought over from England or Scotland, where they learned their craft. This latter disadvantage would be lessened gradually as apprentices were reared, but at present nearly all our steam engines, locomotives, and steamships have to be imported. It is sometimes urged that want of capital is the chief cause of failure, but I cannot admit this when I know that the most eminent of engineers and shipbuilders of England and Scotland have all risen from very small beginnings, and there is abundant capital in Ireland. It is, also, sometimes said that the sons of our manufacturers, or merchants, who have realised fortunes, rather despise trade or manufactures, or employment of any sort, and will not continue to carry on the same business, but this is not peculiar to Ireland. The system of education in Ireland may be open to objection in so far as amongst the classes who can afford to pay for a liberal education, more importance is attached to acquiring a knowledge of languages and the classics than to the more useful branches, and frequently when a young man enters a counting-house or bank, he is found comparatively ignorant of the simplest rules of mercantile arithmetic, and in this respect is quite inferior to boys who have been educated at National Schools. There are other causes, some of them local or temporary in their effects, and it would not at all surprise me to have very cogent means advanced in favour of directing all our attention and energy to the cultivation of our natural products, animal and vegetable, rather than to manufactures.

THE APPLICATION OF SYMBOLS TO SOCIAL SCIENCE ILLUSTRATED BY THE PROBLEM OF EDUCATION.[*]

The utility of symbolical methods in questions of a social character could not admit of any reasonable doubt. Statistical inquiries are essentially symbolical, for they present results in a brief numerical form. They sometimes even lead to the expression of empirical algebraical formulæ representing the laws of certain social phenomena. In questions where probabilities have to be estimated, the most refined analysis is frequently indispensable for the exact solution of the problems. The mode of applying symbols now adduced is far simpler, and is perhaps more analagous to their employment in chemistry and biological science. Professor Owen had communicated a paper to the British Association in 1848, in which he advocated the utility of symbols in connexion with osteology as instrumental for the compression of facts, while clearly exhibiting certain anatomical relations. The close connection between biological and social science suggests the possibility of employing symbols also in the latter department of knowledge. A specific advantage attends such an application, for the questions of social science are necessarily more or less connected with our feelings and interests, and we should, therefore, gladly avail of any circumstance that would allow us to eliminate from such discussions everything likely to excite such feelings. Statistical results, when fairly obtained, were thus not only valuable in themselves, but were also most likely to impress the minds of those against whose preconceived notions they might happen to militate. The more closely social problems approach those of exact science the more likely are we to attain the truth. One of the questions most debated in this department may furnish an illustration. I refer to the interference of the state with education. If we designate by the capital letters A, B, C, D, &c., the number of individuals belonging to the various religious denominations composing the population of a country; by *a*, *b*, *c*, *d*, *m*, the number of persons belonging to the various educational denominations, and by

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[*] Abstract of a Paper read by Mr. A. Armstrong at recent Social Science Association Meeting.

[*] Paper read by Professor Hennessy at recent Social Science Association.

u, v, w, x, &c., the number of persons belonging to the religious denominations, A, B, C, &c., who believe that a mixed or united system of education is most advisable, then it follows that $A-u=a$, $B-v=b$, $C-w=c$, $D-x=d$, &c., and $u+v+w+x+$, &c. $=m$. Each educational party is clearly defined by these expressions, and the principle of "Freedom of Education" amounts to saving that a, b, $c-m$, are all to be treated on equitable terms—all receiving a fair share of the bounty of the State, and the results of education developed in connection with all them to be received on the same footing. Another point that may be illustrated by symbols is a fallacy that frequently obscures educational discussions. It is assumed that the nature of education depends not on the teachers or the methods, but on the pupils. The distinction between symbols of operation and quantity in mathematics immediately shows the futility of such an assumption. If a number x is operated upon in any way the nature of the operation may be denoted by f, and the result $f(x)$ is classed in accordance with the operation. Thus in education its denominational or mixed character depends upon the operators (teachers and books), and not upon the objects operated upon (pupils). This view, although clearly stated, is far from being new. In a correspondence on education between the Cardinal Archbishop of Malines and M. Rogier, the Belgian Prime Minister, both the prelate and the statesman agree in this view of the nature of education. In the report of the Commissioners of the University of Dublin, several distinguished members of that body have expressed their views as to the Protestant character of the University remaining unaltered as long as the corporate body remains untouched. On this ground the Commissioners appear to have very naturally abstained from recommending any fundamental alteration in an institution so closely connected with the Established Church. Thus the Commissioners appear to acquiesce in this correct view of the nature of education. On other questions of social science besides education, it may be important to detect similar fallacy of confusion between the operating agencies and the thing operated upon.

PATENTS VIEWED INTERNATIONALLY.

Mr. K. A. Macfkk read a paper on this subject at the recent Social Science Association, in which he referred to the fact that 3,000 patents were sealed annually. He did not dispute the justice and expediency of the principle of rewarding inventions, but he thought that the advantage of patents had been probably exaggerated. The present mode of applying the principle was not consistent with free trade. British manufacturers had to compete with rivals who laboured under no restraint from patent monopolies, and had no payments to make to patentees. He would preserve existing monopolies for three years to each invention; afterwards he should have honorary or pecuniary reward. The plan of national remuneration to inventors was intimately connected with the idea of an international system for that purpose, which would require a very large contribution from each state. The author, in concluding, quoted the words of Coke, that "all monopolies are against the antient fundamental laws of the realm," and submitted that a better mode of rewarding inventions might be derived than that which already existed.

Mr. Webster said that the grant of patents was not a case to which the principles of free trade were applicable, inasmuch as no trade was in existence at the time of the grant, the object of the grant being to reward the inventor for the creation of the new trade, which, when created or established, became free, the creation of the patent being for a limited time, a time supposed to be sufficient for the creation or establishment of the trade. It was urged by Mr. Macfee and others advocating the same views that the inventor was to be rewarded. The question was reduced to the work of rewarding the inventors. Now, all nations whose attention had been directed to the subject had come to the conclusion, that the best way of rewarding the inventor was to allow him to work out his own invention, the difficulty of doing this being well known, and the greater the more valuable the invention. This subject had been under the consideration of a committee of the association, who had agreed to a series of resolutions directed mainly to two objects, the one that patents should not be granted in the manner described by Mr. Macfee as by a self-judging necessity, but only after proper inquiry to grant a license upon reasonable terms to any person requiring to use the invention. The system of compulsory license had been suggested by Mr. Macfee in his paper in the transactions of the association as a remedy for the inconveniences complained of. He (Mr. W.) thought these resolutions of the committee would be found to meet real objections to the present system. In the new patent law one step towards the attainment of international copyright had been attained—namely, the condition that the British patent for a foreign invention should have no longer animation than the foreign patent, so that the inconsistency of a treaty open to all abroad and not open here might be obviated. No matter what might be the difference of views on the subject the association were obliged to Mr. Macfee for his views on the question.

THE BUILDING STRIKE OF THE PRESENT YEAR IN LONDON.

Mr. Fredkrick Harper, M.A., read a paper on this subject, detailing the origin and progress of the movements in connection therewith.

Mr. Pollard Urquhart, M.P., said the demand of the Unionists in 1859 was a reduction from ten hours to nine, the masters, at the same time, paying the same wages as before. The men denied that this was equivalent, as was alleged, to raising the wages ten per cent.; and they insisted that it would not amount to more than an increase of two-and-a-half per cent.

Mr. Randal M'Donnell said there appeared to be some discrepancy in the statements in the papers. The working men said they had not time for relaxation, and they said, at the same time, that if it was left to themselves they would chose the long hours instead of the short ones. In the first paper it said that the nine-hours' movement was unanimously called for, notwithstanding that the men were anxious to have opportunities for improving their mentaland physical condition. It was manifest that there must have been some persons they were anxious to coerce.

Mr. Lefevre said it was desirable that there should be a uniform working day, and that it was undesirable that payment should be made by the hour, and the masters conceded that point. The great mistake, he thought, of the late strike was, that the questions of increased rate of wages and diminished day were mixed up. He was of opinion that the public thought that the ten-hours' day was better than the nine-hours' day, and that it having been so decided against the men, they should not have renewed the question.

Mr. Scott, of Belfast, always advocated, as an employer, the eight hours' movement in preference to nine or ten hours. He himself had more work performed in eight hours and a half than he formerly had done in nine or ten hours. The intelligent workmen might be said to be generally in favour of the nine hours' system, but some workmen, not alive to their moral and intellectual interests, were in favour of long hours in order to get larger pay. Every person having experience of the employment of labour know that workmen would do as much work in nine hours as in ten under the present system.

Mr. Newton, of London, said no doubt many men would work any number of hours for the sake of the wages, but if the majority of the men in an establishment were in favour of short hours it was as great an injustice that the minority, who were in favour of the employer, should control them as if the majority should control the minority.

Dr. Hancock thought there was another interest, not referred to, involved—namely, the wives and families of workmen, and that it was not a mere question of wages or contract between master and man; and in view of this third interest, he was of opinion that there was in nature an hour for labour. In every trade in Belfast, with the exception of one or two, the working hours were ten. He thought the hour system was injurious to the best interests of the men and of society.

Mr. Lushington, of London, expressed himself in favour of the limited day.

Dr. Shaw, F.T.C.D., was of opinion that the present movement on the part of the employers was to degrade their workmen to the condition of the horse. In Liverpool the men in the building trade were working harmoniously until the employers issued an ukase that they should adopt the hour system, and then after they had taken the initiative they turned round and said the men had struck.

Mr. Wright, of Birmingham, was of opinion that the limited day would have the effect of reducing the good workman to a level with the bad workman. He contended that the tendency of employers was to diminish the hours of labour.

THE SOCIAL AND SANITARY CONDITION OF THE LABOURING CLASSES OF IRELAND.

On this interesting and important subject a valuable paper was read by Dr. Fitzpatrick, after which the Rev. Mr. Brougham remarked that he had been in the north and south of Ireland and had seen the disgraceful state of the cottages, in many instances the animals in the same sleeping apartments with the inhabitants. He referred particularly to the county of Donegal, where, he said, Lord George Hill had done all in his power to advance the prosperity of his tenantry, but such was the prejudice against him they seemed determined to go contrary to his wishes.

Lord Talbot de Malahide said there was no question there was a great many dwellings of the poor in a very bad state; but at the same time he must *demur to the generality of the statements* he had heard to-day. He did not dispute that the cottages were *all* capable of improvement, and he must say that they were not *just so bad* as they were described. He had some knowledge of the peasantry in his own neighbourhood, and he must say that they were not open to the many charges which had been brought against them.

Charges had been brought against the cottages of Meath, Navan, &c., but he must certainly say that they were undeserved. The cottages were not as neat as in England, but still they *were more cleanly kept than in Scotland.* Much as they might deplore the present state of things, they could easily be remedied. There were a great many landlords anxious to improve the dwellings of the cottagers and tenants on their estates, and he must do them the justice to say that he had seen numerous instances in which the most degraded families had shown that they only wanted an opportunity to improve. He had no doubt there was a great deal of jealousy amongst the tenantry, but that could be controlled by judgment and proper management. On certain estates allowances were made to tenants to improve their dwellings, and that, of course, gave them an interest in making them comfortable—in making improvements as to dampness, better ventilation, and so forth; and he must confess, from his own experience, that he *never found them at all backward in claiming these advantages.*

PUBLIC HEALTH.

SOME of the following remarks on this subject, by Dr. Hastings, strikingly corroborate our own "On Quantity and Quality of Ventilation" at page 686:—

"He mentioned towns in England where, the science of public health being studied, the deaths were reduced 2 per cent. In a town of 20,000 inhabitants there would be a saving of 400 lives annually; and who could over-estimate the value of a science that was capable of producing such great results. In Ireland, glorious country though it was, there was sufficient wretchedness, misery, and disease to demand the attention of philanthropists, and induce them to spread information amongst the people respecting the laws that govern the body, so that they could, by their own habits, lengthen to the utmost limit their lives. Ireland was said by one of her most rising young physicians to be the natural *habitat* of typhus fever—a disease that could be completely exterminated if it was determined to do so. It had been exterminated in many places in England. The room in which they were assembled was *a striking illustration of ignorance of the law he* (Dr. Hastings) *was alluding to; it was badly constructed and badly ventilated.* It was made to hold *two thousand persons;* the *ventilation* was *imperfect;* one hundred lights were burning, each consuming as much oxygen as five persons; the carbonic gas *far above pressed upon the crowd below*, rendering them drowsy and sleepy, and when they got up the next morning they would be wondering what was the matter with them. He earnestly appealed to the meeting to study the great questions bearing upon public health, and to make their information on the subject beneficial to the community."

INTERNAL DECORATION OF, AND MONUMENTS IN, CATHEDRALS.

THE cathedral such as I have been contemplating might be constructed of the cheapest materials and with the simplest details, and yet might from its size and character be an imposing pile. But it is equally susceptible (if means and inclination are favorable) of the richest architecture and the most sumptuous decoration: and in that noble rivalry with the cathedrals of ancient days which I dare to claim for it, it can and it ought to avail itself of every aid which the science and the resources of our generation have placed at its disposal. The philosophy of architectural ornamentation is continually being more deeply sifted, and a sound eclecticism is widening its area of choice. The application of coloured material—marble, brick, and so on—both to the main features and the decorative details of buildings, is every day coming into vogue with a fulness which never could have been compassed while the steam-engine was still unknown. A few years since those who, like myself, were in the van of this movement for "polychromatic architecture," or for "constructive coloration" (according as the question was viewed from the one side or the other), had to give our reasons, and had to prove our opportunities: now we are almost overwhelmed with success. Architects, Gothic, Italian, "Victorian"—sacred and profane—are all vying with each other who can produce most red brick, and yellow brick, and black brick, most granite, serpentine, and encaustic tiles all over their buildings; while quarries at the Lizard Point and at Peterhead have become lucrative properties. It is well that it should be so. There may be here and there exuberance, if not extravagance; but this is only the natural recoil from the malebolge of stock-brick and cement in which we had been so long wandering. I have almost now to address a caution in another direction, and to remind the man who is planning a Gothic interior that there is such a thing as a paint-pot, and that, while constructive coloration may rightly be his staple, there were brave men of old who have left immortal achievements traced by their brushes in the higher branches of pictorial decoration. Mr. Dyce has shown us what fresco can do to the glory of God, at All Saints', Margaret-street, while the groined chancel-roof of the same church, adorned by his learned and skilful fancy, is a work no whit inferior to the vault of S. Jacques at Liege, or of Sta. Anastasia at Verona, and produced by a far more durable process. Mosaic—the most ancient and the most eternal system of pictorial art in Christian churches—has hitherto been a stranger to England; but mosaic pictures are in contemplation at St. Paul's. The church at Haley Hill, Halifax, due to Mr. Akroyd's munificence and to Mr. Scott's skill, is full not only of the painter's and the constructive decorator's, but of the sculptor's art, inside and out. Carvers in stone and wood are ever making fresh progress, both in their own handiness and in the respect which they enjoy; workers in metals and enamellers of tiles are rising in general estimation; glass-painting, which used to be reckoned among the lost arts, is not only found again, but found in a state of constant advance towards artistic perfection.

Above all, the unity of all art is beginning to be practically recognised. The architect, the painter, and the sculptor no longer selfishly pursue their own independent professions, as if they were rivals and antagonists, but they either of themselves borrow from time to time their neighbours' craft, or else they combine together—while each adheres to his own department—to complete those works whose failure or whose success depends upon the combination. Giotto, it is at last recollected, both painted and built; and Michael Angelo was sculptor, painter, and architect.

In one word, ecclesiastical and indeed all architecture in England is at this moment working out for itself that lesson which the equalising effects of science now enable northern regions to learn to an extent which used to be only allowed to the warmer south—that of the fusion of construction and decoration in the variety of materials, natural and artificial, and the contrast of their forms and colours. It is the experimental adoption of this system which makes the broad distinction between the more meritorious new churches of the ten last years and their predecessors built within the ten preceding years. Accordingly I anticipate that our new cathedral will show still more complete and gorgeous developments of English polychromatic architecture than we have yet beheld. I go further, and I say that it is to the successful working out of this element of beauty that I look in the new cathedral as the compensating æsthetic advantage for the disuse of those constructional features—those double aisles and fringing chapels—of the old cathedral which, with all their grandeur and their loveliness, can find no place in our purer and simpler system.

For some years there has been a strong movement in favour of memorial windows in preference to masons' tablets—a movement due in the first instance to that venerable man, still living, Mr. Markland, and to his honoured friend, now deceased, the wise and good Dean Chandler of Chichester—of which I desire to speak with the greatest respect. It has done incalculable good both in what it has checked (namely, those blisters, hideous in their form, and still more hideous in their treatment, which have encumbered so many square acres of church-wall) and in what it has produced—namely, the general restoration of painted glass throughout our churches. But there are many cases where a more solid and palpable monument is desirable—a monument which will reproduce the man himself.

I need not multiply instances in proof of my allegation. I have already hinted at the desirability of treating the nave aisles more as passages than for purposes of congregational accommodation; but even if this use of them would rather interfere with the practicability of employing them for monuments, except for such as were wholly recessed in the wall, no such objection would apply to the choir aisles; and here accordingly we have a further reason, of a most practical nature, for the adoption in our cathedrals of the chevet.—*The English Cathedral of the* 19*th century, by A. B. Beresford Hope.*

INSCRIPTION ON THE HAVELOCK STATUE.—Although the statue to the memory of General Havelock in Trafalgar-square has been up some time, the inscription has only just been placed upon the pedestal. On the front the inscription is as follows:—"To Major-General Sir Henry Havelock, K.C.B., and his brave companions during the campaign in India. "Soldiers—Your labours, your privations, your sufferings, and your valour will not be forgotten by a grateful country!—H. Havelock." The inscription on the back of the pedestal is as follows:—"The force commanded by Havelock consisted of the Staff, Cavalry, Volunteers, 12th and 13th Irregulars, 3rd Oude Irregulars; Royal Artillery—3rd Company, 8th Battalion; Bengal Artillery—2nd Company, 3rd Battalion; 1st Company, 5th Battalion; 6th Company, 9th Battalion; Bengal Engineers; Infantry—5th Fusileers, 84th Regiment, 64th Regiment, 90th Light Infantry, 78th Highlanders, 1st Madras Fusileers, Ferozepore Regiment of Sikhs.—Behnes, sculpsit" It may be mentioned that the bronze of which the statue is composed is just in the state in which it came from being cast in the furnace, but that since its exposure to the atmospheric influence it is gradually assuming the appearance of a black, instead of a bright bronze, and which will soon cause it to harmonise in colour with its companion statutes in Trafalgar-square.

COMPETITION DESIGN FOR PROPOSED UNITARIAN CHURCH.

Our chief illustration exhibits one of two designs submitted for this building, in recent competition, as previously noticed, and though not the accepted, is deemed worthy of presentation to our readers, as displaying many noteworthy features, and, on the whole, a meritorious composition.[*]

Referring to the materials proposed to be employed in its erection, the author recommends the adoption of English brick for the plain faces of the outside and interior, and Portland, or Caen, for the dressings and the piers and arches of the interior. The ground-floor to be rendered fire-proof by brick arching, but not included in the estimated expense. The accommodation to be provided is for rather more than 300; the aisles to be laid with tiles.

ESTIMATE.

For building complete,	£4,000
Painting,	100
Gas fittings,	200
Heating,	200

THE REGULAR OPERATIVE CARPENTERS.

Referring to an article that appeared in our last number, under the title of "Employment Wanted—Artizan Remonstrance," we have received the following:—

TO THE SECRETARY OF THE REGULAR OPERATIVE CARPENTERS' ASSOCIATION.

Sawing, Planing, and Moulding Mills, North-Wall, Dublin,
29th August, 1861.

Sir,—It is with extreme regret I learn by the Dublin Builder of the 15th inst., that such a number of your body are out of employment. Presuming that the allusion to a large manufactory concern has reference to mine, I take the liberty of addressing you, feeling you will set me right before the body.

1st, As to importing Englishmen and Scotchmen, I have over one hundred persons in the joinery department, two alone of whom are Englishmen, and one a Scotchman; two of these were workmen of this city before entering my employment; the remainder of my hands are Irishmen.

2nd, When a deputation of your body called upon me, I at once told them that I was most anxious to avail myself of their assistance, and to employ them with other men; but work upon these terms was refused unless I dismissed all my old hands who had faithfully served me since the commencement of the mills. When employing men I have been and am willing to engage men of your body.

Our joinery works were first established to protect our local trade from foreign importation; each week I saw mouldings, greenhouses, &c., upon our quay, so that a trade, like many others, was fast leaving the country; this has been in a great measure put an end to, but even yet I observe with regret quantities of joinery imported into other Irish seaports from England, which could be supplied at home on more favourable terms. Not alone could imports of such goods be prevented, but with the aid of the intelligent Irish artizan in conjunction with improved machinery, there is nothing to prevent our exporting to England and foreign markets.

The American States, in consequence of improved machinery, are enabled to export manufactured wood goods and furniture to all parts of the world. From the extent of trade they command, the number employed is larger, and the remuneration of the artizan much higher than here, and should the steam joinery works of this city be stopped to-morrow English work would be largely imported, to the serious loss of the workmen of Dublin.

(Signed,) Thomas S. Martin.

THE INCORPORATED BRICKLAYERS OF KINGSTOWN.

The following document has been addressed to us for publication, after having appeared repeatedly as an advertisement in a morning contemporary, a course—to say the least—*unusual*, and we might add more, but willing to assume that it was adopted through an error of judgment, we shall not further reflect on it:—

TO THE EDITOR OF THE DUBLIN BUILDER.

Sir,—We respectfully beg leave to call attention to the fact that, in your notice of our protest against the disemployment of the regular bricklayers of Kingstown at St. Patrick's Church, Monkstown, you have fallen (inadvertently, we believe) into the error of supposing us to find fault with the members of Dublin bodies. We did not at all mention or intend anything of the kind. We have too much respect for the regular bricklayers of the city to do so, because, like us, they endeavour to support the rights and respectability of trade, and admit into their societies none but competent and trustworthy tradesmen. We did, however, and do complain of the arrangements in the work referred to, and a short time will, we believe, show us justified. In the address which we issued for self defence, we confined ourselves to the most simple and moderate statement of facts, and carefully avoided any exhibition of angry feeling. Your sympathy with the contractor (if he is such) would disappear on a nearer and local view of the matter. Our men were discharged without reason, and pretenders of the trade employed; this is not all; our rules are duly registered, yet he publicly declared our society to be illegal. Now, were we disposed to malice, we might, for this and other insults, inflict legal chastisement. We decline, however, to notice the impertinence of this nameless individual, even should he occupy a contractor's position. Our forbearance is due to the fact that our desire is not to indulge in personalities, but to attend to our interests and rights as tradesmen and inhabitants of Kingstown. We shall trespass on you no longer than while we observe that tradesmen and working men generally take our view of the question, and they (being on the spot) are the best judges.

Signed on behalf of the Incorporated Bricklayers' Society, Kingstown, by

Richard O'Carroll, Chairman.
John. J. Hickie, Secretary.

Evidently there has been a very erroneous interpretation put on our remarks, inasmuch as that we made *no allusion whatever*, *direct* or *indirect*, in the article in question to the Dublin bodies; and as regards "our sympathy with the contractor," we freely confess that up to the moment of publication we do not happen to know *who* he is, or do we care to inquire. The simple matter for us to consider was, the subject of the protest—viz., "that the local men naturally expected, as the funds were to be collected solely in the parish—most probably in part from themselves and their friends—they should be employed in the erection of St. Patrick's Church in preference to strangers;" and it will be seen that, under the circumstances, we admitted they had "some reason too" to claim it, and again, that "their appeal" against "disemployment" was "entitled to consideration."

VICTORIA AND ALBERT BRIDGE.

In appropriate commemoration of her Majesty's visit to Dublin, the new bridge for some time in course of erection over the Liffey, on the site formerly occupied by the structure familiarly known as "Bloody Bridge," has been partially opened and designated as above. Her Majesty, H.R.H. the Prince Consort, and the other members of the Royal Family passed over it on the 30th ult. in their route from King's Bridge to Westland Row termini, prior to departure from Dublin. In an earlier number we gave a detailed description of this bridge, but may here remark that it is of light and handsome design in cast iron, with a single arch 100 feet span and 37 feet wide, solid granite abutments, &c. Owing to unanticipated difficulty in securing suitable foundations for the abutments, the cost at the time stated by us has been much exceeded. Mr. George Halpin, C.E.; Mr. Killen, contractor.

PURIFICATION OF THE ATMOSPHERE.

In a recent number of the *Freeman* allusion is made in the following terms to a very neat and simple, but at the same time most effective, arrangement for fumigating large rooms, saloons, the cabins of ships, and hospital wards, which has been invented by Mr. Rimmel, the celebrated perfumer of London, and which has been tested on board her Majesty's ship the Victoria and Albert. Her Majesty occasionally felt discomfort from the smell of the oil used on the bearings, which, when heated, gives off a disagreeable, and to some a not only offensive, but most sickening odour. The little arrangement we allude to has been found most effectively to overcome this smell—not by preventing the evaporation of the oil, for that would be impossible, but by causing an agreeable, but delicate, perfume to pervade the entire vessel, and thus not only counteract its effects, but so completely to mask its presence as to render it imperceptible. This arrangement has been much used by M. Silas in the London hospitals, and we have no doubt it will soon become an essential adjunct to the arrangements for all crowded assemblies of the aristocracy, and a pleasing but inexpensive luxury in the reunions of even the less affluent. The little instrument is so constructed that any of Mr. Rimmel's special perfumes may be used, and used in such amount as to impart either a strong scent or an almost imperceptibly delicate "flavour," if we may use the term, to the atmosphere. For the sick room or the boudoir of the delicate it will be found a most agreeable adjunct. The College of Surgeons in London have found it entirely to destroy all offensive smells in the peculiar "saloons" attached to the deadhouse, and have given the invention the highest recommendations after witnessing the successful experiments made by M. Silas.

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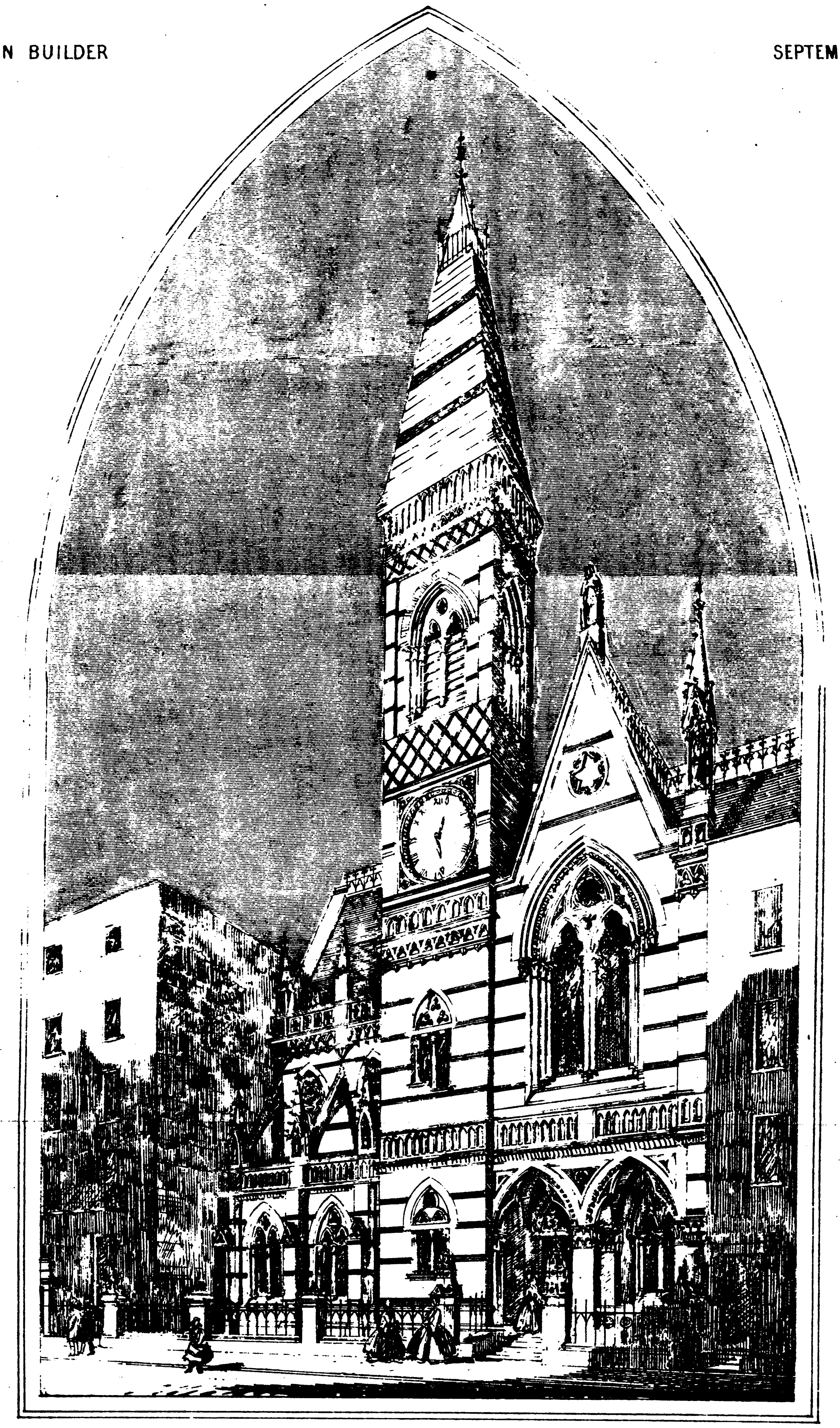
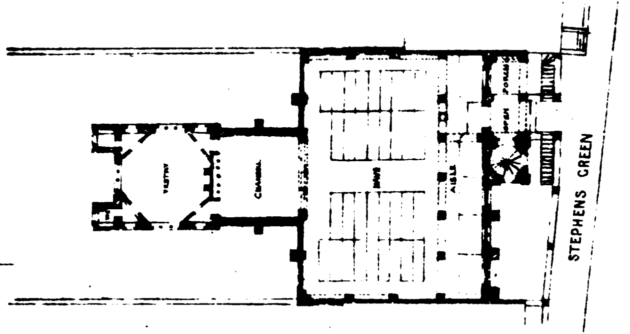
[*] In the process of transferring the drawing from the paper to the stone, an accident having occurred, the illustration is, we regret to say, unavoidably defective, but we shall endeavour to compensate for it in our next subject.



EXTERIOR VIEW

COMPETITION DESIGN FOR NEW UNITARIAN CHURCH, — DUBLIN.

Mr. Js. Bell, Jr. Archt.



GROUND PLAN

THE LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

GROUND PLAN.

GENTLEMEN'S.

A Frigidarium.
B Tepidarium.
C Caldarium.
D Laconicum.
E Lavatorium.

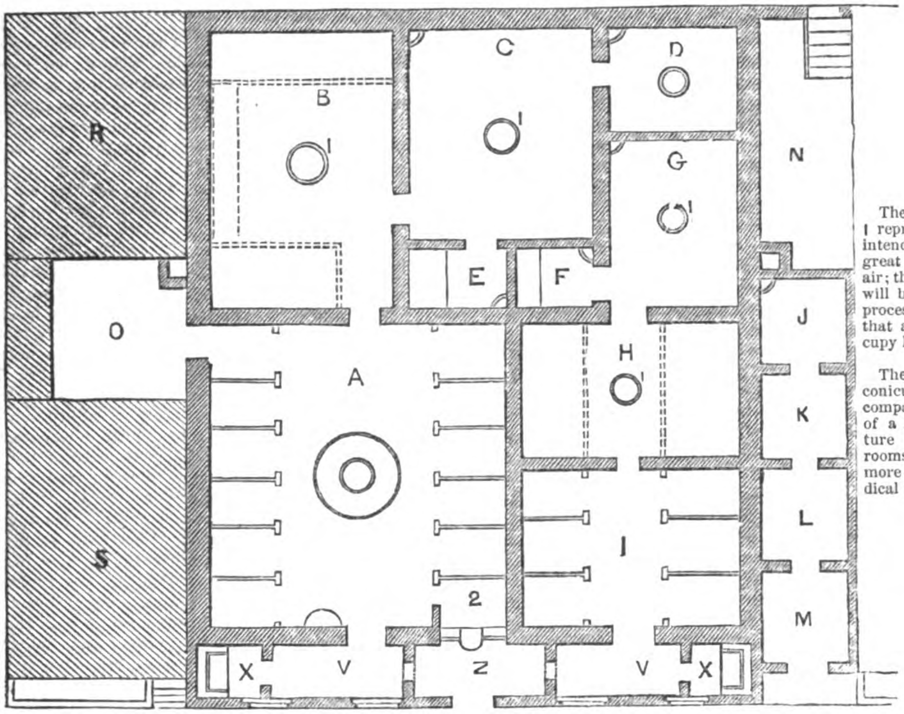
LADIES'.

F Lavatorium.
G Caldarium.
H Tepidarium.
I Frigidarium.

PRIVATE.

J Caldarium.
K Tepidarium.
L Frigidarium.
M Entrance.

N Stoking-room.
O Yard.
XX W. C.
VV Vestibule.
Z Principal Entrance.
R House.
S Do.
2 Ticket-office.

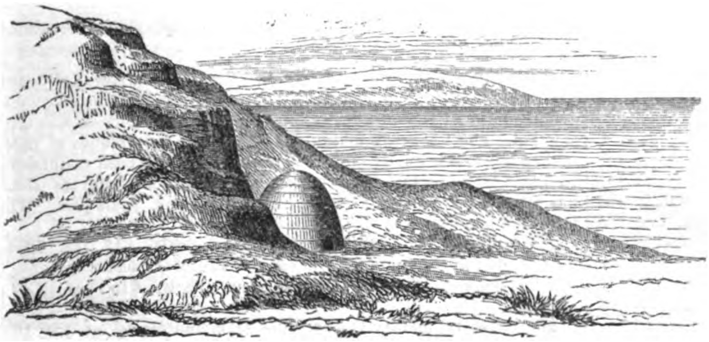


The Circles marked I represent fountains, intended to prevent too great aridity in the air; the effect of which will be to render the process more rapid, so that a bath may occupy less time.

The room D, or Laconicum, will be kept comparatively dry, and of a higher temperature than the other rooms, so as to be more suitable for medical use.

ORIENTAL BATHS, MULBERRY-STREET, LIVERPOOL—GROUND PLAN.

MOST of our readers are familiar with the principle of the Turkish Bath, and in Dublin we boast no less than three very creditable ones; but the movement for their introduction is now becoming so general that the construction of a new one would not be a matter of any importance unless it presented some difference of principle or arrangement from those already existing. We find, however, that there are improvements being introduced which are worthy of attention, and alterations of such a nature that they must be either very much better or very much worse than the ordinary methods now employed. For example, in the very handsome building recently erected in Liverpool under the superintendence of Dr. Haughton, there are some particulars in which very decided alterations have been made from the plans in ordinary use. Instead of the common curved roof, lofty domes (with moveable ventilators in the centre) have been substituted, and in the tepidaria the couches are formed of sloping benches, on which the bathers lie with their feet towards the centre of the room. The lavatories are spacious, and furnished with spray and column douches and tepid shower baths, which can be regulated to any temperature. In the cooling rooms the couches are also sloping, so as to throw up the head, and are placed in the stalls, just as those of Bray or Lincoln-place. The curtains are of crimson damask, and stained glass is used with the greatest profusion in every department. Probably the most attractive part of the building is the tiled floors, which are of the most beautiful mosaic—far superior to the tiles in any other bath in the country, at least in appearance. But if we were asked what was the greatest improvement which has been introduced by Dr. Haughton, we would refer to one of a more practical character—namely, a mode of constructing the flues so as to diminish the combustion of coal. The principle adopted is very simple, and consists in placing false flues under the real ones, so as to prevent any radiation of heat downwards, and has been found very successful. On the whole, the baths are well worthy of study by all who are interested in the subject, and our illustration will more particularly explain the general arrangements.



ANCIENT IRISH SWEATING-HOUSE, RATHLIN.

THE accompanying woodcut shows one of the crude structures still extant in Ireland, to which the Irish country people, when attacked with rheumatic pains and other diseases, have recourse; and it is said that the system is most effectual in restoring to health. The "sweat-house" is roughly put together with stones and turf, the roof being formed of some material, with a hole in the centre. A small aperture is left at bottom through which the patients enter, or not unfrequently crawl on hands and knees, and remain for some time in the interior, where the process of sweating is effected by the fumes from a turf fire previously kindled; after this operation they sometimes plunge into the sea.

THE REGULAR OPERATIVE HOUSE PAINTERS.

A NUMEROUSLY attended meeting of this body, with the co-operation of the building trades, was held in the Mechanics' Institute, on the 29th ult., at which the following resolutions were adopted:—

"That we, the legitimate House Painters of the City of Dublin, are compelled to call a Public Meeting of the different Trades of this City, in order to bring before the public how we are treated by one of our Employers—namely, Mr. James Gibson."

"That, after repeated solicitations with Mr. Gibson to come to a reasonable understanding with the legitimate Painters of the City of Dublin, we are obliged to call this meeting in order to vindicate our character, and to show that Mr. Gibson's cause of complaint is not commensurate with the working men's grievances."

"That we, the regular Operative House Painters of the City of Dublin, having endeavoured by every means to treat with Mr. Gibson, and end the dispute between himself and his men, now ask you, our brother tradesmen, to endorse our acts in resisting those attempted inroads on our character."

"That we, the Building Trades of the City of Dublin, assembled here to-night, do tender our co-operative sympathy to the Regular House Painters of the City of Dublin, as we entirely agree with them that they have acted properly in refusing to admit the individual we have heard spoken of to-night, whose character has been fully established by his committal in a police office in this City, and also for the indefatigable zeal they have evinced by every legitimate means to hold Mr. Gibson's employment, which we regret to find he has denied them."

"That we, the Regular Operative House Painters of Dublin, owe a debt of gratitude, and humbly tender it, to the various trades for their promptitude in identifying themselves with our cause."

"That the marked thanks of this meeting be given to the respectable and influential Gentlemen of the Press for their prompt attendance, as we have always found them to be the friends of Labour, and the unflinching advocates of the Regular Artizans of Dublin."

The Chairman, Mr. Ward, in opening the proceedings briefly explained the reason for which they had been called together on the present occasion, stating that for eight weeks past there had been a strike amongst the operative painters formerly employed by Mr. James Gibson, of Mary-street, and as erroneous statements had been circulated it was deemed right to call this meeting for the purpose of informing the trade and the public of the true state of the case. It should be understood that this was not a strike for higher wages or for shorter time. If it were a mere matter of wages the trade would never think of making public their disputes with a single establishment. But the matter was one which involved their character as tradesmen, and which they, therefore, felt it due to themselves to place before the public. The regular house painters in the employment of Mr. Gibson objected to work with individuals whom they did not recognise as members of the trade, inasmuch as painters, from the nature of their business, were often, as it were, entrusted with the property of noblemen and gentlemen in whose houses they worked, and they did not wish to be associated with persons on whom they could not rely. A deputation had waited on Mr. Gibson and asked him not to employ persons who were not legitimate members of the trade. Mr. Gibson's reply was that the best recommendation a tradesman could bring to him was that he did not belong to the society of the operative painters, and that if the men were not satisfied they might strike the next morning. The society, however, advised them not to strike, in the hope that an amicable arrangement might be come to. This hope proved vain. Mr. Gibson would make no concession. They had found it necessary, therefore, for the sake of their characters, to cease to work for him. He (the chairman) did not approve of strikes in general. They often proved injurious to the tradesmen who took part in them, and, even when successful in effecting their object, a bad feeling was created between employers and their men. But in the present instance the tradesmen had no other course open to them. They could not sustain their trade if they continued to work with persons such as he had referred to, and now they appealed to their brother tradesmen for their countenance and support. The society appealed to the nobility and gentry of the country to sustain them in this matter, and he trusted that appeal would be responded to. He hoped they would not aid Mr. Gibson in his effort to put down the society—a society that gave £20 to the widow of a deceased member, that fed and clothed the orphan, and gave aid to the sick and aged members of the trade when they were no longer able to earn their own living.

THE BRITISH ARCHÆOLOGICAL ASSOCIATION.

On the 21st ult. the association proceeded to Ford Abbey, where they examined the ruins of the old abbey. The church is a spacious edifice, somewhat of cathedral form, with two square towers, and at its west end is a richly ornamented chapel built by Bishop Grandison. The roof is covered with finely-wrought tracery. The interior, which for many years had been much neglected and the ornaments defaced, has been completely restored to its original beauty, at the cost of several thousand pounds, the greater portion of which was munificently contributed by the Hon. Justice Coleridge, and the various members of his family, and the remainder by subscription. There are several new and elegantly stained windows—one to the memory of the lady of the Hon. Justice Patteson, others of an obituary character given by the relatives of the deceased, or by the tradesmen of the town. This church may justly be considered the most beautiful ecclesiastical building in the county, the cathedral at Exeter alone exceeding it in size.

The party afterwards inspected Cadhay House, and then returned by rail to Exeter from Ottery-road Station at seven o'clock.

On Thursday the association left Exeter by the South Devon Railway for Newton Abbot, at which places carriages were provided to convey the party to Haccombe. Arrived there, the church was examined, and a paper read on it by Mr. W. R. Crabbe. The church, which is now under repairs, is of the early English or first pointed style, the roof being a positive copy of the original. There are a number of tombs in the church, all of the Carew family, and the effigies of two females bearing the date of the 13th century. There are also slight remains of early glass in the west window of the north aisle and nave. Thence the parties proceeded to Compton Castle, certainly a domestic building, but very strongly fortified. The kitchen is a strongly barrelled arch, as also are the rooms over it, and the chapel. The latter is apparently of the third pointed style of architecture. Over the windows and doorway are machicolations. A most valuable paper on the castle, prepared by Mr. C. Spence, was read by Mr. N. H. P. Laurence. The company then passed by Cockington, and went on to Torre Abbey, by which time the rain, which had been threatening to descend all day, came down in heavy showers, and so remained throughout the rest of the day, much to the annoyance of the archæologists and the discomfort of the ladies, who were mostly attired in lace shawls and muslins. The history of Torre Church and Abbey was briefly given by Mr. Ashworth, of Exeter. The abbey was founded in 1196 by Mr. Brewere, high sheriff, during the reign of Henry II. It was of great extent and splendour, and in Leland's time there were three "fair gateways," one of which still remains. The fabric, including the Lady Church, is about 200 feet in length. The principal remains now visible, some of which are incorporated in the mansion, are the arch which formed the entrance to the chapter-house, the tower, the gateway of the ancient foundation, the arch of the Abbey Church, the refectory, and a large grange, now covered with ivy. Of this latter there is a tragical story on record. It is said that after the destruction of the Spanish Armada a great number of prisoners were taken, who were confined here, and so neglected that some of them died of their wounds, but the greater number of them from starvation. The refectory was afterwards used as a Roman Catholic chapel. There were a mill and a large fish-pond belonging to the abbey, the latter of which was filled up with ruins on the fall of one of the gateways about eighty years ago. Subsequently to the reign of Henry VIII. the abbey passed into the possession of the Seymours, and in the sixteenth century fell into the hands of an ancestor of the Earls of Londonderry, whose family built the present house. Afterwards it became the property of Mr. John Stewell, who sold it in 1662 to the family of the Carys. The present possessor is Mr. S. S. Cary.

ST. MARY'S CATHEDRAL, LIMERICK.

We are much pleased to learn that the south transept of this venerable cathedral is about to be immediately restored, under the direction of Mr. William Slater, of London, architect. We shall take occasion to give particulars in an early number.

FARM BUILDINGS AND LABOURERS' DWELLINGS.

Amongst the present applicants for loans under the Landed Property Improvement Act are, in the former department, the Earl of Dunraven, Co. Limerick, Messrs. Stephen E. Collis and Robert A. Hickson, Co. Kerry, and in the latter the Marquis of Londonderry, Mr. Wm. B. Forde, Co. Down, and Rev. Frederick Goold, County Limerick.

TIMBER SALE.

The following is from the "Commercial Article" of the *Freeman's Journal* of 19th August:—

"Timber.—The recently established firm of William Kelly and Co., held their first public sale on Thursday, which attracted an unusually large attendance. The quantity of goods offered was considerable, and the prices obtained were much in advance of those had at the recent public sales, the biddings having been maintained by the most respectable and independent collection of buyers which has attended an auction of wood goods for many years past. The following is a summary of the sales:—

5,760 pieces 1st quality Quebec spruce deals, £17 12s. 6d. to £18 2s. 6d., averaging £17 17s. 6d. per 120 of 12 feet 9 x 3.

3,869 pieces 2nd quality Quebec spruce deals, £15 10s. to £17 2s. 6d.

969 pieces 1st quality Quebec pine deals and plank, at £30 10s.

3,224 pieces 2nd quality Quebec pine deals, £18 2s. 6d. to £22 10s.

960 pieces 2nd quality Quebec pine deals, £23 15s. to £25.

1,510 pieces Miramichi pine deals, £18 to £20 5s.

9,249 pieces St. John and Miramichi deals and battens at from £15 to £16 15s.

167 tons red pine, £3 10s. to £3 15s. per ton.

225 tons white pine, £2 15s. to £3 5s. per ton.

25 tons oak, £4 7s. 6d. and £4 10s. per ton.

40 tons Memel, at £3 10s. per ton.

12 tons elm, at £3 10s. per ton."

ANECDOTES OF A. WELBY PUGIN.

From the entertaining "Recollections," by Mr. Ferry, of this late eminent architect, we collect the following characteristic anecdotes. His mother, writing of him as a boy, says:—

"If he understood how to dress himself I should consider him an universal genius; and a most orderly good creature, if he had not had the skin of his nose twice torn off by a battle of pillows in the suite of rooms they have above, quite out of my observation; however, the second time it happened, I brought him down to a room near me. He does not dislike a little play, but he works infinitely more than he plays, while the rest play infinitely more than they work. His father calls this work of Paris 'Augustus's work,' and well he may, for he has done more than three parts of it, and made sketches and coloured them for the first time from Nature, and written some very good descriptions. *Nevertheless, the fellow cannot dress himself.* When he heard that you left Beverley without seeing the churches, he declared, had he been with you, you would have found him the most restive animal you ever posted with; nor whip, nor spurs, nor anything else would have got him on before seeing those churches."

Referring to his visit to Rochester Castle, his biographer relates:—

"There are always amusing traditions connected with these old buildings, and amongst others belonging to this castle it was supposed that treasures or plate might in emergency have been thrown down the well constructed in the inner wall of the keep. The bare reference to this as a probability only was sufficient, and Pugin at once resolved to make a careful search. He immediately obtained the necessary apparatus, and having hired men to descend the well, fearlessly placed himself in the bucket to be lowered by the windlass, so that he might direct the operations at the bottom. It had been previously ascertained that the well was considerably choked up by quantities of rubbish; and in the removal of this accumulation very little was discovered, his zeal being only rewarded by the acquisition of a few pieces of pottery and glass of Queen Elizabeth's period." . . . . .

"As before remarked, Welby Pugin was extremely delicate in youth, but his present mode of life had certainly one good effect, by giving him Herculean strength, which doubtlessly enabled him so effectually to carry out the work which he so gloriously accomplished. The life he had hitherto led was, as may be imagined, a source of much pain and anguish to his parents and friends, more especially to the refined tastes of his father, who, on meeting a friend, exclaimed with much grief, 'God bless my soul, it was but this morning I met my boy Auguste in the disguise of a common sailor, carrying on his shoulder a tub of water, which he had took from the pompe of St. Dunstan.' Few things probably could have so severely shocked the finely poised susceptibilities of the elder Pugin." . . . . .

"On his first visit, finding the house in an unfinished state, excepting the room which Pugin used as his study; Lord R——r, omitting to remove his hat, at once entered into conversation, the only reply he met with was a look of astonishment. Pugin rang the bell, and ordered his hat; placing it on his head, he said, 'Now, my lord, I am ready.' In this well-merited rebuke, Pugin resembled his father, who was very susceptible of affront, and sometimes even threatened to show people the door if proper courtesy was not shown him in conversation." . . . . .

"He was in the habit of wearing a sailor's jacket, loose pilot trousers, jack-boots, and a wide-awake hat. In such a costume, landing on one occasion from the Calais boat, he entered, as was his custom, a first-class railway carriage, and was accosted with a 'Halloa, my man, you have mistaken, I think, your carriage.' 'By Jove,' was his reply, 'I think you are right; I thought I was in the company of gentlemen.' This cutting repartee at once called forth an apology. The remainder of the journey was most agreeably passed in examining his portfolio filled with sketches just taken in Normandy." . . . . .

"To the ladies of his acquaintance, Pugin's carelessness in appearance was very distasteful; but when remonstrated with on the subject, he never condescended to give a patient hearing, but cut the matter short by saying, 'It's all very well, my dress will do perfectly.' A friend with whom he was at one time staying, after thus expostulating, retorted, with some amount of warmth, 'It is not all very well,' and thought that her remarks had made some impression; and true it was, for on the following morning he presented himself in a smart blue coat with gilt buttons, and a buff waistcoat, exclaiming, 'Well, are you satisfied now?'" . . . .

"Pugin's professional pursuits did not admit of his making many social visits, but he occasionally accepted an invitation. Lord R——r once calling at St. Marie's Grange during its erection, and desiring to make his acquaintance, asked if he would dine with him, to which Pugin assented. 'Very well then,' said his lordship, 'I'll expect you to-morrow at six o'clock.' Thither at the time Pugin repaired, and as he was admiring the stately rooms and objects of art and vertu with which they were enriched, his lordship, who was well known for his simple habits and encouragement of agricultural pursuits, observed, with perhaps generous feeling, that he would as soon live in one of the smallest cottages on his estate as in his large and magnificent mansion. Upon this, Pugin, jumping up and pacing the room in apparent excitement, exclaimed, 'The d—l you would—the d—l you would, my lord; then what is to become of me and all other artists?'" . . . . .

"After an absence of some weeks, Pugin unexpectedly called at his publisher's, who observed that his dress, which usually was untidy, appeared more strange than ever. He was enveloped in a huge pilot-coat, large enough for a man twice his size. On this strange exhibition, Mr. Weale, his publisher, remarked—

"'Why, you appear to have made a mistake, and have got a coat belonging to somebody else.'

"'Oh,' observed Pugin, 'it is of no consequence—I caught up the first garment that came in my way getting into harbour after a stiff gale off Calais; but here are the plates for my book'—at the same time pulling out a heap of copper-plates from under the ample folds of his coat. 'They are all ready for proving.'

"'But how and where did you finish the etchings?'

"'Oh,' said Pugin, 'I finished them in the boat.'

"'Impossible,' replied Mr. Weale.

"'Not a bit of it,' retorted Pugin; 'the motion of the sea makes no difference to me;' and, truly, many of the outlines illustrating the 'Apology' were etched by him under these apparently impossible circumstances." . . . . .

"The annoyance to which Pugin was subjected by applications for designs to be executed from ridiculously insufficient funds, made him at times very irritable. A story is told of his once receiving a letter from a Roman Catholic prelate, requesting designs for a new church of the following description. It was to be '*very* large—the neighbourhood being *very* populous; it must be *very* handsome—a fine new church had been built close by; it must be *very cheap*—they were very poor, in fact had only £ —; when could they expect the design?' Pugin wrote in reply—

"'My dear Lord,—Say *thirty shillings* more, and have *a tower and spire* at once. A. W. P.'"

"Curious stories are told of Pugin in reference to his independent spirit while corresponding with employers or directing their works. The following specimen is an instance of this. The late Lord Stuart de Rothesay, having found some beautiful remains of a conventual building in the south of France, and being about to build a residence on the south-east coast near Christchurch, determined to purchase the materials, have them removed to England, and use them as far as they could be made applicable to the design of a new and large mansion.

"The site chosen by his lordship was a part of the high cliff facing the Isle of Wight. Near this spot there had formerly been a house belonging to the Earl of Bute, the celebrated minister, which, owing to the encroachment of the sea on that part of the coast, was literally by degrees washed into it. Still Lord Stuart thought that by draining the land springs and taking other precautions he could prevent the spread of further mischief. Acting on this belief, he begun the erection of a stately pile at such a distance from the edge of the cliff as was thought sufficient to leave a good margin to the buildings for ages to come. But notwithstanding all precautions, the drainage has not been so effectual as to save the cliff from disruption. By the expansion of frozen land, springs, after severe frosts, and the encroachment of the sea, landslips still occasionally take place.

"Lord Stuart not being perfectly satisfied with the design of the building, which was being conducted under the superintendence of the late Mr. Donthorn, and desiring to obtain the mature judgment of Pugin, invited him to High Cliff to act as his consulting architect. He at once assented, and repaired to High Cliff to inspect the works.

"Arriving in the afternoon, he engaged himself busily in examining all that was going on; soon made himself master of his subject, and with his usual rapidity, before the close of the day had prepared sketches for Lord Stuart's approval.

"After dinner he exhibited his plans, entering into explanations, and pointing out all the alterations which he considered indispensable. His suggestions, unfortunately, did not fall on such willing ears as he expected. Lord S. had spent large sums in the work already done, and was not disposed to pull down heavy stonework just finished; and some amount of demolition was quite necessary to meet Pugin's views. After much discussion, therefore, they separated, Lord Stuart intending to resume the subject on the next morning, but in this he was disappointed. To meet Pugin's convenience, an early breakfast hour was appointed for the next day, and at the time fixed some surprise was expressed that he did not appear. Inquiry being made, it was discovered that Pugin had risen at six o'clock, taken his carpet bag in hand, walked some distance to a little wayside inn, and thence taken his departure by coach to London, without previously giving the slightest intimation of his intention to any one in the house. Thus terminated his connexion with Lord Stuart de Rothesay. All this abruptness arose from the simple circumstance that his employer did not at once adopt his recommendations. Probably this discourtesy would not have been shown at an earlier period of his career, but he had now obtained such a professional standing that he could afford to disregard giving offence."

THE CONDITION OF THE IRISH BARRACKS.

In a recent number this important question received our attention, and we promised soon to revert to it more particularly, but being forestalled in our purpose by our able and popular cotemporary, the "*Building News*," who reviews in a comprehensive series of articles the arrangement of the barracks in the kingdom as substantially recorded in the Commissioners' report published in a blue book, we quote the following therefrom :—

Referring to the Royal Barracks in this city our cotemporary remarks, that "one court enclosed by lofty buildings is entirely closed in on all sides, most of the narrow passages being between buildings of three and four storeys in height, and some entirely closed at one end. To make matters worse, the ground rises rapidly behind the barrack, so there is no free circulation of air at the back. On three sides of the Cavalry square the men's rooms are over the stables, and the rooms in the Royal and Palatine squares have no windows opening to the outer air next the squares, that side being occupied by glazed corridors. There are rooms in the corners and lower flats of the squares, dark, and incapable of ventilation, and which are hardly fit for human dwellings. Although disposed with an apparent regularity on plan, *the total disregard of sanitary principles*, evident throughout every part of this barrack, is *painful to contemplate*. It contains 184 rooms, the regulation number of men being 1,917, and there is a deficiency of accommodation for 629 men, as it would hold 1,288 men only at 600 feet each man, assuming 600 feet per man to be sufficient, but which it would not be in such a building."

Proceeding thence to the "Linen-hall barracks" they are described as being, "in fact, an old linen-hall, leased as a temporary reserve barrack. It now holds 1,094 men by regulation, in 128 rooms, or rather cells; 230 of these men have a space of less that 250 cubic feet each, 291 less than 300 feet each, 302 less than 350 feet each, 101 less than 400 feet, and 170 completing the regulation number, have less than 450 feet each. Thus it appears that of 1,094 men, over 500 have less than 300 feet each, and none have a greater space than 450 feet each. The average is 290 feet per man. As this barrack would accommodate 531 men at 600 feet each, there is the astounding deficiency of accommodation for 563 men out of a body of inmates 1,094 in number. Seeing that this building is totally unfit for barrack purposes, the commissioners considered it unnecessary to recommend any improvements to be attempted. It is enclosed among civil dwellings in one of the worst districts of Dublin, and consists of a number of small closed courts. There are only five open fireplaces in the whole building."

Again—"Arbour-hill barrack, Dublin, was once a prison, unfit for inmates; it is now a barrack for ninety-one men, and that without material alteration. A similar case will be found at Fort Elizabeth at Cork—a building originally occupied as a French prison, but now as a barrack for 180 men, although at the present day hardly anyone would consider it good enough for a prison. Indeed, as a rule, 'military prisons and many provost establishments are planned and constructed on better sanitary principles than are most barracks.' At Stirling Castle the old halls of the palace have been appropriated as barrack rooms by forming galleries round the walls, so as to have two flats of beds, one on the floor, the other on the gallery; the heads of the men in bed in the galleries being above the top of the windows, and there being no outlet for foul air from the top of the room, the only air which the occupants of the beds in the gallery have to breathe is the foul air from the soldiers who sleep on the lower tier of beds below. Barrack accommodation of the worst description is obtained in this way, and the old halls of the palace are damaged.

"May-street recruiting barrack at Belfast, for fifty men, has been converted to its present purpose from a shop or factory, with windows on one side only, opening into a blind alley with its privy, cesspool, &c.

Alluding to the Castle and Shambles barrack, at Galway, our cotemporary says—"The effect is to stagnate and pollute the air, both within and without the barrack-rooms, to obstruct light, and to predispose the men to disease.

"Castle barracks, Galway, contain 12 rooms, and 120 men: giving each man 600 feet, there would be space for 62 men only.

"The Shambles barracks have 32 rooms, contain 256 men by regulation, and have space for 168 only. Both these barracks are embedded among buildings, and have small closed courts, surrounded by high buildings, both are very bad, and both are recommended to be evacuated immediately."

COURT OF BANKRUPTCY.

In re Hugh Kelly.—Mr. D. C. Heron, Q.C., instructed by Mr. Larkin, applied to have the bankruptcy in this matter annulled. The trader was an extensive timber merchant and builder on Sir John Rogerson's-quay. After bankruptcy a composition of 12s. 6d. in the pound was offered, which his lordship, notwithstanding the opposition offered by the Messrs. Martin, accepted. The first two instalments of the composition were unsecured, the last was secured. The unsecured instalments, amounting respectively to £2,200 and £1,800 were paid, or the amounts lodged by the trader with the official assignee. The last instalment was secured, and, under these circumstances, the court was now asked to cancel the bankruptcy, and allow the trader to make use of the credit to which he was legitimately entitled.

Mr. Martin (on behalf of the Messrs. Martin, of the North-wall) opposed the application, on the ground that there was delay in adjusting their accounts.

Mr. Baptist Kernaghan, who attended for several creditors, stated that more had been realised for the creditors under the arrangement than would have been in bankruptcy. He assented to the application.

Judge Lynch said the conduct of Mr. Kelly in the matter since it came before the court had been highly honourable. By his exertions he had realised a very considerable payment for his creditors, and there could be no cause of complaint on that score. He trusted that the fact of the failure would be a useful lesson to the trader in his future dealings. He had no hesitation whatever in annulling the bankruptcy.

The bankruptcy was accordingly annulled.

Notes of New Works.

Additions are to be erected to the Law Club-house, 13, Dame-street. Tenders were received up to the 31st ult.

The new church of St. Mary and St. Peter, at Arklow, has been dedicated; Mr. Patrick Byrne, architect. Style, Gothic.

The foundation stone of the new Presbytery to be attached to Enniskerry Roman Catholic Church was laid on 25th ult., by Archbishop Cullen.

A new store is to be built by the War Department in the armoury yard, Pigeon House Fort.

Sundry works are to be executed at the churches of Aghada, Douglas, and Kilmocamogue, Co. Cork; at Clontarf, Co. Dublin; and St. Paul's, city of Dublin; according to plans, &c., by the architects to Ecclesiastical Commissioners.

Additions and alterations are to be made to Monaghan gaol, according to plans by Mr. M'Curdy, architect.

Four houses are to be built on the esplanade at Bray; Messrs. J. and W. Farrell, architects.

The works at Carlisle Fort contracted for by the Messrs. Moore have been begun under the inspection of Captain Chesney. About 800 persons are employed on them.

The committee of the Dublin Corporation intend building ten labourers' cottages at Baldoyle, and a store in the Greenhide-lane, Bonham-street.

The workshops recently erected in Dundalk for the Dundalk and Enniskillen Railway have been opened for use, and the old ones removed.

Part of the large timber viaduct over the Foyle, near Strabane, is about to be reconstructed. The design comprises iron pillars with lattice superstructure.

The three bridges required by the Board of Trade for the Cootehill Branch Railway have been erected. The passenger station at Cootehill has also been completed.

A new Roman Catholic church is to be erected at Lattin, Tipperary. Tenders to 22nd inst.

The churches of Drumtariffe, Co. Cork, and Kinawley, Co. Fermanagh, are about to be enlarged by the Ecclesiastical Commissioners.

A handsome mansion is to be erected at Caher, Co. Tipperary, for the Countess of Glengall. Messrs. Lanyon, Lynn, & Lanyon, architects.

The interior of the Centenary Methodist Chapel in Stephen's Green is being re-pewed and otherwise improved.

A handsome Gothic oak railing, with ornamental lamps, after the design of Mr. Patrick Byrne, architect, has been fixed in the arcades separating nave from aisles of the new Roman Catholic Church, St. James-street. Mr. James Freeman, builder, constructed it.

The interior of the Four Courts has been undergoing a thorough renovation and decoration, executed with much taste and judgment by Messrs. Hardman & Co., of Camden-street.

A new mansion is in progress of erection for Mr. Thomas Malcomson, under the direction of Mr. J. S. Mulvany, architect.

The Omagh extension of the Ulster Railway has been opened.

A large Roman Catholic Church has been commenced on City Quay, chiefly, we believe, for the accommodation of seamen.

It is expected that on Monday, the 2nd inst., the Newry and Armagh line will be opened for traffic. For a portion of the extension works contracted for by Mr. Gordon new tenders have been invited.

On the 10th ult. the first sod of the Rathkeale and Newcastle railway was turned by the Earl of Devon. It will run from the Rathkeale station of the Limerick and Foynes railway (two miles from Rathkeale), by the town of Rathkeale. It will be only ten miles in length, and will bring the great plain of Newcastle and the surrounding districts in connection with Limerick, and by means of the Cork and Limerick Direct Railway, now in course of construction from Charleville to Patrick's Well—a station also on the Foynes line—will open a direct communication between that district and the city and markets of Cork. The line will pass through a very rich country, the works are of an easy character, and the contract has been taken by Mr. Joshua Hargrave, Cork, for a sum of about £36,000, he taking a fair proportion of the company's stock in part payment of his contract. The engineers are Sir John Benson, of Cork, and Mr. William Barrington, of Limerick.

The works on the line from Monaghan to Clones are making steady progress, for the particulars of which the proprietors are referred to the report of the chief engineer:—

"*Extension—Clones to Cavan*—The Dundalk and Enniskillen Company report that the works are progressing favourably.

"*Extension—Dungannon to Omagh.*—The Government inspector examined this line on the 15th ult., but the opening was postponed for a short time.

"*Aughnacloy Line.*—The bill promoted by the Portadown, Dungannon and Omagh Company for an extension from Dungannon to Aughnacloy, with powers of lease by this company, has passed into law."

GAS.—The town Commissioners of Skibbereen are about lighting the town with public gas lamps, and seek for tenders. The Tullow gas works are to be let.

GAS-LIGHTING OF CASTLEDERG.—Gas works are now being erected at Castlederg, and gas pipes laid down in the streets of the town. The church, hotel, and principal shops have been fitted with gas pipes and burners, Messrs. J. Edmundson & Co., gas engineers, of Capel-street, in this city, having been employed to execute the entire work.

CLONTARF IMPROVEMENT.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—There is opposite the Crescent a portion of strand, bounded on one side by the Drogheda railway, and on the other by the Wharf road, Annesley-bridge, and Clontarf road, which, when the tide is out, is a dirty slob, alike disagreeable in appearance and smell, but when the tide covers it a wonderful difference is felt. The ugly strand is converted into a fresh and pleasant little lake, with an average depth of water of about five feet. Now, to retain say half of the water when the tide ebbs would be a great *desiderutum*; and the simplest way to accomplish this would be to build a broad and low wall about half tide high under each of the three railway arches—the cost would be very trifling. Over these low walls the tide would flow, changing the water twice in twenty-four hours, and at the ebb enough would be left to prevent the disgusting and unwholesome miasma from arising; its appearance would be greatly improved, the youngsters of the neighbourhood would have an opportunity of getting up small boat races during the summer, and in winter would be presented a magnificent and perfectly safe skating ground. Should the inhabitants and landlords of the locality think the matter worth taking up, merely on sanitary grounds, and that subscriptions be necessary to carry out the project. I shall be most happy to contribute my share. A. N.

Review.

The Illustrated Dublin Journal. James Duffy, Wellington-quay.

A NEW claimant for favour in the literary world has appeared, and his *debut* has been attended with acclamation. Most critics regard penny publications as trash, and in very many instances they are so, and more of a demoralizing than instructive character, but we are just turning a point in the revolution of the age when we may reasonably expect more for a penny than hitherto, and in the little production before us we find a highly profitable return for that *important* investment. Were we even to hazard a surmise as to the probable worth of a publication without seeing it, the fact of its emanating from the establishment of the eminent and enterprising publisher, James Duffy, would sufficiently justify us in anticipating favourably, nor are we disappointed in judging the reality. A pleasing tale in three chapters, entitled, "The Miller of Mohill," by no less distinguished a writer than William Carleton, commences the front page. "A chat about Oysters" is somewhat stale, though served up in a palatable style. "Needles and Needlework" is entertaing and instructive. "The Fair Maid of Killarney" enlists many admirers, and the following description of Ross Castle, accompanied by an illustration, is appropriately introduced:—

"The exact date of the erection of Ross Castle has not been ascertained, but, from the peculiar style of the architecture, it may be ascribed to the close of the fourteenth or the early portion of the fifteenth centuries. It was for ages the ancestral residence of the Lords of the Lakes of Killarney, whose martial achievements are still the fertile source of many a popular local tradition. The castle consisted of a lofty square keep, with embattled parapets, based upon a rock of limestone. It was defended on the land side by a massive unornamental buttress, while each corner of the portion directly facing the lake was enflanked by two machiolated defences; the domestic divisions of the fortress were attached to the square tower, and were surrounded by extensive outworks. The interior of the castle evidently contained many well proportioned apartments, and a spiral stone cut staircase still exists, which leads to the summit of the tower, from which many beautiful views of the surrounding scenery may be obtained. Ross Castle was originally a place of great strength, and underwent numerous sieges, the principal of which was the celebrated attack upon it in 1652, by General Ludlow, at the head of the Parliamentary forces. Upon the defeat of the Irish troops, in that year, under Lord Muskerry, at the battle of Knockniclashy, in the county of Cork, by Lord Broghill, the English General, the former withdrew to Ross Castle, where he entrenched himself and whither he was promptly followed by Ludlow. There was an ancient prophecy existing among the peasantry, that the castle was impregnable, and could never be taken until a vessel of war was seen to float upon the lake. Whether Ludlow had heard of the tradition does not appear, certain it is, however, that, considering the natural advantages of the place, and the length of time he might be compelled to remain before it, he resolved to attack it simultaneously by land and water. The English fleet was just then anchored in the Bay of Castlemaine, or Dingle, and, four days after arrival, with incredible energy and perseverance he successfully transported some of the smaller vessels, by mere manual labour, through a country nearly impassable from bogs and woods, and brought them up the intricate and difficult river Laune. The garrison was electrified and intimidated, and immediately capitulated on honourable terms. Smith, in his "History of Kerry," relates that at the time he wrote there was an old man named Hopkins, then sexton of Swords, in the vicinity of Dublin, who was amongst those engaged in drawing Ludlow's vessels into the lake. This Ludlow is said to have lived to the patriarchal age of one hundred and fifteen years. At the commencement of the last century a barrack was erected in connection with Ross Castle, but has long been dismantled, and its walls are now as ivy-mantled as those of the castle itself. Immediately beneath the castle several fine echoes are very distinctly heard; amongst them the famous one of "Paddy Blake," who, when an inquiry is made after his health, is said to answer, "Pretty well I thank ye!"

"A Retrospect of the Dublin Stage," though presenting little of anecdote that was not known before through other channels, is comprehensive and pleasingly written, terminating with the following:—

"The annals of the Crow-street establishment, which was opened in 1758, are, however, too voluminous and interesting to be noticed in a hurried manner, and we therefore reserve them for a future paper, in the compilation of which we shall have frequent opportunities of referring to a work which, for its masterly scholarship, and genial gossipping style, has never been excelled by any emanation from the Irish press; we allude to Gilbert's 'History of the City of Dublin.' The present Theatre-Royal, in Hawkins street, was erected by Samuel Beazley, Esq., in 1820, and the first performance took place on Thursday, January 18th, 1821, the pieces selected for the occasion being Shakspeare's 'Comedy of Errors,' and the farce of 'The Sleep-walker.' Previous to the commencement of the comedy an address from the pen of George Colman was delivered by Mr. Farren, then stage-manager, from which, as an historic outline at the site of the theatre, we quote the following lines:—

"'Here once a market reared its busy head,
Where sheep, instead of tragic heroes, bled;
Bright cleavers formed a band to charm the ears,
Joints dangled in the place of chandeliers;
Stout butchers, stern as critics had their day;
And cut up oxen, like a modern play—
Soon Science came; his steel the butcher drops,
Removes with awe the shambles and the shops,
And learning triumphed over mutton chops!

Then in the School, by patriotism reared,
Arts, Agriculture, Chemistry appeared,
Botanic lore—and studies all too great
For our inferior powers to emulate;
No merit we in Agriculture claim—
To cultivate your favour is our aim—
Which gained, by learned chemists we are told
It turns by playhouse alchemy to gold;
While all the Botany we dare to boast,
Lies in those plants your breath may cherish most.

Again the scene was changed, by wisdom's rule;
Want's refuge then succeeded Learning's school;
No more in streets the shiv'ring beggar stood;
Vice found correction here, and famine food;
Morality rejoiced at Sloth's defeat,
And Pity smil'd to see the hungry eat.

At length, and following these wretched elves.
Beheld another race!—we mean ourselves,
Who, leaning to our predecessors' laws,
Now *beg* most heartily for your applause—
Beg you, brave Erin's sons, and Erin's fair,
To make your Nation's Theatre your care.'"

"A Real Grievance" concludes the number. We shall be pleased to renew our acquaintance hereafter with this periodical, and note its progress.

Miscellaneous.

SIR W. G. ARMSTRONG, AND HIS WORKMEN.—On Monday evening week a most interesting *soiree* of the workmen employed on the Elswick ordnance and engine works at Newcastle-on-Tyne was held in the pattern-shop on the works. No less than 2,500 persons, consisting of the workmen, their families, and friends, sat down to tea. There are 3,000 men and boys employed upon the Elswick ordnance and engine work, and their united wages amount to more than 5,000*l.* a fortnight. The Elswick ordnance works are being largely extended. Among the more recent additions is an apparatus for the manufacture of cannon of weight and strength hitherto unheard of. An immense 300-pounder battery gun is in the course of being formed by the use of the new 10-ton steam-hammer, which can be worked up to 15 tons, and is the largest in England, and is daily wrought at from 40 to 50 strokes a minute. The anvil weighs 34 tons. The bore of the 300 pounder gun will be 10½ inches in diameter; length 14 feet; weight 12 tons. It will be a muzzle loader, and the rifling of its bore will be on the rib pattern. It is expected to be finished in four months. There is also in hand a 200-pounder breach-loading gun, to be constructed on the wedge principle. Extensive foundries are being laid out upon the works, and a test for trying the guns before they are sent up to Woolwich is being built on the south side of the Tyne. Among the orders being executed in the engine department of those works are 13 locomotives for the East Indian Railway Company.

PUBLIC INSTITUTIONS.—A Parliamentary return is published, showing the sums granted to certain public institutions—such as the British Museum, National Gallery, &c., during the last ten years. These sums are, for the year 1860, as follows:—For the British Museum—Amount voted (exclusive of sums for additional buildings, &c.,) £100,850; received from subscriptions, bequests, &c., £1,833 19s. 2d. For the National Gallery—Amount voted (exclusive of all sums for additional buildings, &c.,) £11,670. For the Royal Gardens at Kew—Amount voted (exclusive of all sums for additional buildings, &c.), £14,800 18s. (No sums have been received from subscriptions, donations, or bequests, or from the public during the period referred to.) For the Botanic Gardens at Edinburgh—Amount voted, £1,200; received from the vote of Scottish Universities, £627; annual grant from the Town Council of Edinburgh, £25. For the Natural History and Industrial Museum, Edinburgh (exclusive of sums voted for building)—Amount voted, £1,943 16s.; received from admission fees, subscriptions, &c., in the ten years, £1,523 6s. 6d. In addition to this amount upwards of 20,000 specimens have been presented to these museums, the estimated value of which is £9,144 15s. For the National Gallery, Dublin—Amount voted (in aid of the building), £5,000; received from the "Dargan Fund" (in connection with the Great Exhibition of 1853), —; received from subscriptions and donations up to 1860, £1,440 14s. For the Museum of Irish Industry—Amount voted, £4,966 16s.; fees from students, &c., £58 18s. For the Royal Dublin Society, including Botanic and Zoological Gardens Amount voted, £6,000; subscriptions, receipts from the public, &c., £6,198 1s. 8d.

GLASS CASKS.—A new kind of cask has just been invented, which is replacing, it is said, in the south of France, those now made of wood. They are made of glass, and of different sizes, to contain from five to one hundred litres. Among the advantages they possess may be mentioned that they are proof against all leakage and evaporation, and keep the liquid placed in them fresh and pure to the last. They are stronger, when kept stationary, than the wooden casks, having, in the experiments made, withstood a pressure which shattered the ordinary casks to pieces.

INDIA-RUBBER CARDS.—One of the recent uses to which India-rubber is put is that of furnishing the material for business cards. Besides the various convenient forms which may be given to the material, it may also be improved with any ornament or design suitable to any particular business. The material makes light and prettily-moulded business cards; one advantage of which is that they cannot be defaced easily, and are almost indistructible.

BANBRIDGE LISBURN AND BELFAST RAILWAY.—The following is an abstract of the report laid before the general meeting of this company. The contractors have made very considerable progress, are now in possession of all the land required, and are at work along the entire line. Favourable contracts have been made with the Rhymny Iron Company for rails, and with Messrs. J. P. Corry and Co. for sleeper-blocks. The building of stations at Hillsborough, Dromore, Mullaghfernahan, and Banbridge, has been decided on, and plans ordered from Mr. Thomas Jackson. The directors refer with much satisfaction to the advantages conferred by the passing of the Banbridge Extension and Dublin and Antrim Junction Bills, which will greatly benefit their line.

THE BUILDERS' STRIKE.—The London masons, having obtained the sanction of the executive council of their society, sitting at Bristol, have placed two propositions before the various lodges throughout the kingdom, the votes on which are now being taken, and the result of which will be officially made known on Monday next. These propositions are, 1st—"That the whole of the country jobs and works of the London employers who have not accepted the compromise be immediately struck, and the men working thereon called off; 2nd—That the men be called off the whole of the country jobs and works of Messrs. Myers." If either of these propositions is carried, the men expect it to exercise a considerable influence in favour of an early settlement of the dispute. In the event of the first proposition being adopted, about 800 men will be thrown out; if the second only is agreed to, between 300 and 400 will leave work. During the last few days, several of the Scotch masons who have been brought over to work in Messrs. Myers's yard have left their employ, and reported themselves to the masons' strike committee. Some of these men have had their expenses paid back to Scotland, and others sent to Manchester.—*Daily News.*

THE NATIONAL PORTRAIT GALLERY.—A terra-cotta bust of Oliver Cromwell has just been added to the National Portrait Gallery. It bears the impress of being a study direct from nature, and evidently served as the original model for the marble bust which Mr. Labouchere, now Lord Taunton, contributed to the Manchester Exhibition. The marble bears the name of Edward Pierce, a leading sculptor of the seventeenth century, who executed public statues for the city of London, and whose busts of Sir Christopher Wren and Sir Isaac Newton, at Oxford, rival the most successful efforts of Roubiliac at a subsequent period. In the terra-cotta bust there is a comparative profusion of hair on the head, and even the second wart on his face is lost in the fulness of the mustache. The full hair and starting eyes give a peculiarly lion-like character to the countenance. A marble bust of Lord Jeffrey, the celebrated Edinburgh Reviewer, has also been added to the collection, and the trustees have also secured a portrait of Oliver Goldsmith, which, while it corresponds with the well-known profile by Sir Joshua, has the additional interest of having belonged to Goldsmith himself.

THE SUPPLY OF WATER IN PARIS.—According to the report made by the commission of inquiry relative to the waters of the Dhuis, it appears that Paris is one of the places most poorly supplied with water, the quantity being only 90 litres per head and per day, while the normal quantity is considered to be 150. Rome is the most highly favoured in this respect, receiving 244 litres per head every day; next come in succession as regards quantity—New York, 568 litres; Carcassone, 400; Besancon, 246; Dijon, 240; Marseilles, 186; Bordeaux, 170; Genoa, 120; Glasgow, 100; London, 95. Deducting from the quantity for Paris of 90 litres the quantity for public fountains and watering streets, &c., there only remains 35 litres of potable water per day for each inhabitant.

DUBLIN IN THE YEAR 1776.—A coloured lithograph is about being published, from a drawing in the possession of a gentleman of this city, executed by Mr. William Morrisson, of Bachelors'-walk. The drawing was made by the late Mr. James Malton from a sketch taken in Grafton-street. It represents the street in the olden time, and the personages pourtrayed, either as walking or driving, in the antique coaches, were celebrities of the time, attired according to the prevailing fashions. Amongst "the characters" in the picture are Doctor Ditton, with cocked hat professional cane; also a well-known newsvender of the day, and the Wicklow Sandman, whose voice was so discordant that the citizens of Dublin rewarded him for the favour of his speedy departure from their places of abode. The lithograph will assist in showing the contrast between Grafton-street in 1776 and 1861.—*Saunders.*

IMPROVED IRON AND STEEL.—A process has been invented for an improvement in the manufacture of iron and steel. During the operation of puddling a small quantity of gold is introduced, which, by diffusing throughout the mass, is said to confer an extraordinary advantage. The process is to be applied to the manufacture of ships' plates, anchors, cables, and all those portions of railway plant in which tenacity is most essential.

GOING TO BED BY STEAM.—In the Continental Hotel, Philadelphia, there is a steam-lift for taking the guests to bed, which is said to have cost 10,000 dollars, or more than £2,000.

A prospectus has been issued by the Directors of Bray's Traction Engine Company (Limited), with a view to increasing the capital of that undertaking from £25,000 to £50,000. From the testimony of her Majesty's Government, Messrs. John Penn and Son, and other celebrated engineering and other firms in London, the principle of these engines, which is most simple and efficient, and by which they can be adapted to all roads, has been demonstrated by actual experience; and the directors state that business operations are open to the company, both for the hire and sale of engines and waggons in this country, and that a demand exists for them in all parts of the world. India is instanced as affording a wide field for their introduction in developing the resources of the great cotton and grain producing districts of that empire, while they could be employed as feeders to the railways when those main lines of transport are opened. Another feature of the prospectus is an honorary direction composed of several noblemen, who, from their scientific knowledge and position, are a guarantee of the respectability and *bona fide* nature of the undertaking. The extra capital is required to enable the directors to increase the present rolling stock and establish a factory, so that the engines may be constructed under their supervision, and the quality and nature of the work thoroughly relied on.

Eccentricities of Genius.—One of the earliest applications for space in the exhibition of 1862 was that of an inventor, who, though he does not specify the nature of the articles he intends to exhibit, requires space in every class of the industrial sections to the amount of 72,000 square feet! It must be taken, we suppose as a proof of the versatility of genius that we always find the professions and trades of those intractable inventors have not the remotest connection with their valuable mechanical, chemical, and warlike discoveries. Thus a clergyman may send breach-loaders and models of tremendously destructive shells, while the nurseryman and gardener proffers improvements in surgical instruments, and the doctor a contrivance for forwarding the ripening of fruit on walls. One grocer demands space for the exhibition of a new axle application to all carriages, a new projectile for ordnance, and a new method of propelling ships. An M.A. and F.R.G.S. has models of an invulnerable floating battery, a breach-loading gun and carriage, converting all guns of old pattern into breach-loaders, a refuge buoy, a beacon, a cork poncho mattress, a life, limb, and treasure-preserver, an unfoulable anchor, and some new screw-propeller. An accountant asks space for a model of a self-acting water-closet, with water meter and apparatus for regulating the flow of water all in one, the model of an improved theodolite, and an omnitonic flute, all to be shown together! A bookseller seems overflowing with invention. He has a plan of interminable suspension applicable to bridges, aqueducts, &c., of great span or length, and by which means to do away with the costly supports hitherto used; a target shooting protector for the safety of those employed to note the score; a new paddle-wheel, by which to secure a greater amount of power than is attainable by any other arrangement; a self acting railway signal for day and night, and bolts for gates at level crossings, whereby to prevent the gates from being opened while a train is within a quarter of a mile or any convenient distance; a safety spring mining cage to secure the safe lodging or prevent the falling of the cage in its ascent or descent when conveying men or goods up or down the mine shaft, should the rope or chain break or become disarranged; a new window-sash fastening the door-bolt, by which to attain perfect security, from the impossibility of unfastening them from the outside. A barrister wishes to exhibit two architectural designs—a pair of spring-heeled boots, and a drawing of a man equipped with ditto; diagrams of Coryton's system of fairway lighting off the coasts of Great Britain; a type-composing machine and hand-stamp; models and drawings illustrative of Cosyton's vertical wave-line system of ship construction; Coryton's atmospheric guide-propeller, and Coryton's self adjusting sails. An insurance broker has specimens of wines and other fluids fined by a new and more effective process, and model of the apparatus used; electric telegraph cables and conductors; model of an improved ship, and parts thereof; specimens of improved pavement in carriage roads; specimens of improvements in iron houses, &c.; specimens of building stone preserved by a new material; model of a machine for dressing stone; specimens of improved junctions of iron pipes to prevent breakage; specimens of a new description of embroidery; ditto of paper-hangings; ditto of an improved floorcloth. These, likewise, are all to be shown together. This list might be extended indefinitely. Another class of applicants appear to wish to exhibit, merely to say that they have exhibited. Thus, a private secretary wishes to show specimens of grape, gooseberry and rhubarb wines; and another a method of training vines. One gentleman proposes to exhibit wines, a photographic view of an organ front, designed by himself, and six large views of his fig orchard. A great many intending exhibitors, either from motives of secresy or from not comprehending the term, "Nature of the articles to be exhibited," have either omitted description altogether, or what is worse, defined them very badly. Thus, one declines to give any specification but the number of the class he wishes to exhibit in. One can only be got to admit that his inventions are Archimedean, whatever that may mean another that his "objects are geological;" while a third baffles the Commissioners with the general answer that his articles "are various." Ideas of space are, of course, of the most indefinite kind. People will do anything rather than adhere to the plain dimensions of length, breadth, and height. An organ-builder, after much correspondence, says he cannot tell how much space he will want. Another requires a horizonal space of 200 feet by 100 feet or 20,000 square feet, for the exhibition of some photographs; another wants 100 feet by 100 feet, or 10,000 square feet for carriages. The agricultural implement makers, however, carry off the palm for exorbitancy. They seem to think the building will be rather larger than Salisbury Plain, for one eminent maker demands a space of 1,500 feet by 1,500 feet, or 2,250,000 square feet, nearly three times the whole exhibition space in the building. Equally curious applications have been made in connection with the department of Fine Arts. One gentleman desires to exhibit a poem! Another wants a stand for antique bricks. A third claims space in the picture gallery for "a model room for a working shoemaker, showing sanitary arrangements and economical furniture, cooking apparatus, and bed."

Important Use for Seaweed.—M. E. Lagout has presented a report to the Paris Academy of Sciences on the employment of seaweed, applied in layers against the thin walls of habitations, to prevent sudden variations in and excess of temperature. The marine algæ, such as sea-wrack, may be termed a sea-wool, which has this advantage over ordinary wool, that it does not harbour insects, and undergoes no change by dryness or humidity, provided it be not exposed to the solar rays; from being brown and flexible, it becomes white and almost rigid. In the dark, on the contrary, it is unchangeable, unfermentable, imputrescent, uninflammable, and unattachable by insects. At first it has the objection of being hygromatic, but a single washing in fresh water removes the salt, and then its properties become so beneficial, that a celebrated architect has styled it the "flannel of health for habitations." It has been applied successfully between the tiles and ceiling of a railway station, also in a portable house intended for the use of officers at the Camp of Chalons; also double panels, the intermediate space being filled with seaweed, have been prepared for the construction of temporary barracks at the Isle of Reunion. The Consulting Committee of Public Health, the Society of Civil Engineers, the Council for Civic Structures, &c., have expressed their approval of the judicious employment of the marine algæ, and state that the popularisation of this process will be of great service in dwellings, especially in those of the humbler class, as it renders them both more agreeable and salubrious. It can be obtained for about 20s. the ton, which quantity is sufficient for upwards of a hundred square yards of roofing.

A Peep into the Office of the London "Times."—A French tourist, who has visited the office of the Thunderer, furnishes some interesting items respecting the internal economy of that vast establishment that we have not before seen mentioned. Adjoining the editorial room—which is large, well lighted, and fitted up with desks comprising every convenience for writing—is a dining-room for editors, and the archive room, where are stored all the files of the *Times* since its foundation. Next to the archive-room are the proof-readers' rooms, where are hundreds of dictionaries and encylopædies in all languages and relating to all subjects. A dozen proof-readers are employed during the day, and another dozen during the night. They have an eating-room adjoining that where they work, and their meals are provided at the expense of the establishment. The administration of the *Times* has nothing to do with the subscription to the paper. Smith, of the Strand, sees to the mailing of the papers, of which he takes thirty thousand daily. The remainder are bought by one hundred and seventy news-dealers, who pay in advance. The paper is sold to them less than cost, the proprietors looking to the advertisements for remuneration. The wear and tear produced by the perpetual motion which reigns in this immense establishment are so great that it is necessary to rebuild and strengthen once every two years the lower storeys of the building.

M. Wothly, of Aix-la-Chapelle, states that, after experiments for many years, he has succeeded in obtaining positive proofs from his photographic portraits without employing nitrate of silver or any other of the present agents of photography. These are replaced by a chemical composition much more sensible, and which renders all retouching needless when the negative is without defect.

Watches in Relation to the Fine Arts.—"Indeed, one of them has already made a very marked advance in this respect by producing artistically-ornamented watches, adapted to meet a high standard of cultivated taste. The manufacturer here alluded to is Mr. J. W. Benson, of 33 and 34, Ludgate Hill, and 46 and 47, Cornhill. In recently visiting his newly-enlarged show-rooms, we found a most rare display of highly-ornamented watches of all kinds. The watches here exhibited surpass those of any other English manufacturer, in respect to novely of design, combining artistic beauty and exquisite finish in the ornamentation. The wide reputation which Mr. Benson has gained for the perfect time-keeping qualities of his watches leaves nothing for us to say on this point. Mr. Benson can meet the views of the economic utilitarian with the same facility as he can the wishes of the most elevated. A buyer intent on securing a superior watch of good design and lasting qualities cannot fail of meeting with satisfaction at this establishment."—*Observer.*

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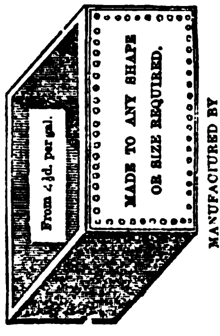
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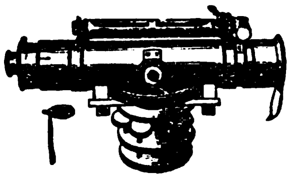

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The Dublin Builder.

Vol. III.—No. 42.

MANSIONS OF THE LONDON NOBILITY.

BRIDGEWATER HOUSE.

PURSUING our notice of some of the chief architectural objects of interest at "the west end" of London, we have for this number collected some particulars—with accompanying illustrations—of one of the purest and most beautiful specimens of Italian architecture to be found in any town in the world. Although other mansions more comprehensive and capacious may be seen in a ramble in this locality, which is literally studded with palatial structures, the subject of our sketch—viz., Bridgewater-house, the residence of Lord Ellesmere, to our mind eclipses them all; and is in every respect, whether viewed externally or internally, worthy of the great artist that conceived and matured so noble a design. We have, in our article descriptive of "London club-houses," already alluded to the "Reform" and "Travellers'" as perhaps the *chef-d'œuvres* of the late Sir Charles Barry, R.A., but we may with all justice include this too in the programme of his most successful works. The plan of the storey which we have selected for illustration of the internal arrangements, exhibits the chief apartments, and it will be seen that the block of building is a parallelogram nearly a square, measuring 112 feet 6 inches from east to west, and 122 feet from north to south. The principal entrance is at the south side through a central hall 10 feet wide, which doubtless some of our readers will judge to be rather limited for a building of such importance, this apartment being usually one of the most spacious; but a close inspection of the plan will convince that the architect used a wise discretion in adopting this dimension, so as not to interfere with the other arrangements of his plan, on a comparatively limited site. Communicating with this hall is a continuous corridor, enclosing a quadrangular area 57 feet by 33, whereby an abundance of light is obtained, and thence access is had to the several apartments on the storey, which it is unnecessary here to particularise. It will be observed that the picture gallery—which we may remark *en passant* contains a magnificent collection of works of art—is lighted from above, being consequently carried up the full height of the building. The first floor is somewhat similar in its arrangements, and comprises a suite of apartments, domestic chiefly; and on the second are numerous bed, dressing, and bath-rooms; the culinary offices and servants' rooms, &c., occupying the basement. The west elevation, although presenting less frontage than the south, is selected for our external illustration, being if possible a more perfect subject than the latter, whose general features and details however it will be obvious, to a considerable extent, correspond with the former. The entrance porch is in the centre, and is surmounted by vases of similar design to those above the balustrade, as shown. On the south front there are no wings, the extreme angles being only rusticated, but a central projection breaks the outline. Concluding our notice of this truly beautiful work, we cannot refrain from remarking—though we have no desire just now to enter into a controversy on the respective merits of the Ruskinites or the Gothicists—that the Italian style of architecture, if faithfully studied, presents all the elements for ensuring a chaste composition in every class of structure whatever it may be, without the extravagances too frequently found in the works of many of our modern architects, who sacrifice taste, judgment, and effect most unmercifully at the shrine of originality.

A beautiful drawing of Muckross House, by Mr. Stopford, of Cork, was presented by Colonel Herbert to the Queen, on the occasion of her late visit; and a drawing of Killarney House, by the same artist, was also presented to her Majesty by Lord Castlerosse.

Mr. Ruskin, it is said, is engaged on a volume of Swiss sketches.

PARIS.

The line forming the junction of the Chemin de Fer de Ceinture, with the docks of St. Ouen, is on the point of being completed; there are only a few miles of excavation till the junction is arrived at. The great difficulty encountered by this new line was the passage of the Route Militaire, which, owing to want of sufficient headway, had to be crossed on a level. The junction station is to be 500 metres long, and is to be furnished with eight sets of switches for *manœvres*.

This line of St. Ouen at present only is continued on the right "quai," but is shortly to branch off above the Route de la Revolte, with a line all along the left "quai," or platform. The execution of this railway was not the only work for carrying out the project; it was necessary to reconstruct the double lock which unites the maritime terminus with the Seine, and to do this without emptying the basin. In order to accomplish this a perfectly tight "barrage" was erected, as at the basin of the douaub in the Canal St. Martin, and another one to keep out the Seine, there to empty the inner portion, in order to reconstruct the masonry of the gates. Workmen continue their labors day and night many metres below the surfaces of the two waters. This belt railway of Paris is to commence a passenger service on the 1st April, 1862, whereas it has been exclusively devoted to the transport of merchandise or royal passengers. For goods traffic enormous engines are used, capable of running away with 400 tons, but for passengers a new and light locomotive is to be put on the rails. They are called "*coucous*," and are of moderate power, and easily brought to a stand still at any velocity. Notwithstanding these difficulties, all will be finished by the end of the year, and henceforth the boat service will have its true port in St. Ouen; cargoes will arrive by the Chemin de Fer de Ceinture to all points of the capital, and the quays of Paris will be cleared of the encumbrance of all sorts of merchandise. There will be two special services of passenger trains—one to take provincial travellers from one station to another, and another service to correspond with all the omnibusses in Paris. The stations for the latter will be—at Batignolles, Moncaux, at the Porte St. Ouen, at the Porte D'Aubervilliers (near the bifurcation of the northern line), at La Chapelle, at La Villette, at Belleville (Rue de Crimée), at Menilmontant (Rue de la Marc), à Charonne (Rue des Chemins de Fer), at St. Maudé—where the station is already built—at La Rapée, and lastly at the Ivry station.

At the Arsenal Library, as at the Palais de Justice, the vacations are profitably used to carry on the works of restoration with activity. On the side facing the river the left pavillion is being "rectified," so as to disengage the principal corps of the building. This pavillion will be set back to correspond with that on the right hand, and the interval left by the retreat will be enclosed by a railing on a plinth. As to the opposite pavillion, which had long since been subjected to a similar transformation, it had been masked by a wall now in course of demolition, to make room for a railing similar to that on the left.

On the Rue de Sully, the façade of the library is now altogether disengaged, and a prominent railing encloses the buildings on that side. They date from 1718, and are the work of Germain Bouffraud. When the new Boulevard St. Germain is opened out, the recently constructed entrance to this edifice on the extreme left will stand out, it being now hidden by a mass of buildings which are to come down.

On the façade of the ancient pavillions of the Hotel de Ville three centuries have told with a ravaging effect, though the stone was one of the hardest. The restoration has been commenced, and on the demolition of the "reliefs" of the frontage, they crumbled into dust under the hammer. Perhaps it will be necessary to reconstruct the entire façade. This portion of the hotel was commenced under Francis I. (15th July, 1533), the plan was modified under Henry II. by the Italian, Dominico Boccardo, and the building terminated under Henry IV. (1606) by André de Cercean. Consequently, it took seventy-three years to build.

The transformation of the interior ancient boulevards into a double roadway, with a promenade in the middle, is completed from Batignolles to La Chapelle; trees will be planted as soon as the season for removal arrives.

The Academy of Fine Arts of the Institue has awarded, in its sitting of the 14th September, the grand prizes for a historical landscape, having for subject the March of Silenus. They are as follows:—1st great prize, M. Paul Albert Girave, of Paris, aged 21½ years, pupil of M. Picot; 2nd great prize, M. Gustave Achille Guillaumet, de Paris, aged 21 years, pupil of MM. Picot and Abel de Pujol. Honorable mention to M. Arthur Henri Bonnefoy, de Boulogne (Pas de Calais), aged 22 years, pupil of M. Cogniat. The public exhibition of the grand architectural prizes, the subject being an "Establishment for Baths in a Town furnished with hot springs," will be held in the Imperial School of Fine Arts, Rue Bonaparte, on the 18th, 19th, 20th inst., from 10 a.m., till 4 p.m.

TUAM CATHEDRAL.

The dean and chapter, with the parochial clergy of the diocese of Tuam, having resolved to take steps for making the cathedral worthy of the importance of its situation, invited several architects of eminence to give the matter consideration, and to submit such sketches as would illustrate their views of the best method of accomplishing this desirable object. After careful consideration, the sketches sent in by Messrs. Deane obtained their unanimous approval, and instructions have been given for making the requisite working drawings.

It will be remembered, that at the west end of the building which now serves for cathedral and parish church, stands a relic of Irish antiquity of the most interesting character - obviously the chancel with the chancel or triumphal arch (as Dr. Petrie calls it) of an abbey. This chancel at present forms the porch, and the triumphal arch the western entrance to the modern structure—the central opening of the triple window at the east end of the old chancel being cut down to the ground. This somewhat barbarous arrangement was made early in the present century. What is the precise date of the building used as cathedral it is difficult to ascertain—probably in the 17th century (when an ugly tower was also erected), the windows of a structure of the 14th century were worked up into a building which was in all likelihood intended for the choir of a future cathedral. This is the building which, as has been said, is used for Divine Service now, and is entered through the ancient chancel. It is unnecessary to describe the great beauty as well as antiquarian value of the ancient arch, as in Dr. Petrie's most valuable work it is very fully illustrated. The modern building, as may be expected from the period of its erection, is wholly unworthy of consideration, with its inserted windows, walls internally plastered and lined out to represent stone, plaster groining, and carpenter's gothic fittings, including two imitations in wood of the tracery windows. The genuine windows, moreover, are not interesting, they are of an English character, which does not appear to have been congenial with the taste of the designer. This being the condition of things, the architect had no easy task in arranging a new edifice in connection with the old buildings.

The view taken of the matter by Messrs. Deane was, that at all events the old chancel should remain, not only *in situ*, but should be restored as far as possible to its original relative position with respect to the rest of the church. This was only to be accomplished by building the new cathedral eastward of the old chancel. They propose therefore to do so, leaving the ancient chancel as the easternmost portion of the church, unrestored and untouched, except by the building up of the portion of wall removed from under the central opening of triplet. It will then form a second choir, a reredos being erected under the arch for the altar of the new choir. The old building would receive such stone roof as would thoroughly protect it, but otherwise be left to tell its own story

The modern buildings would, by this arrangement, require to be removed; and, indeed, must have been removed in any case, as without an expenditure which would be almost equal to that necessary for reconstruction, they could not be made homogenous with a new structure of any pretensions. They, however, would remain, without in any way interfering with the new works, until some portions at least of the new cathedral were ready for divine worship.

It is to be remembered, that Tuam Cathedral, besides its diocesan duties, performs also those of a parochial church. The building, therefore, will not present all the features of the old cathedral, but will include as many as are consistent with its other uses.

Messrs. Deanes' design is essentially an Irish cathedral, in plan and style: the cathedrals of Kilkenny and St. Patrick, Dublin, having served for models in many respects. The highly characteristic crenellated battlements have been adopted throughout. The church is cruciform, and consists of a choir fitted up with the bishop's throne, stalls, subcellæ, &c, extending to the eastern arch of the central tower. The choir is 43 feet long and 23 wide, transepts 29 feet wide, nave, having five arches, 23 feet wide, aisles 11 feet. There are no aisles to the choir, but on the south side are a vestry for parish purposes, and a robing-room. The organ is over the parish vestry, its pipes shewing into the choir and east side of the south transept. The choir will be separated from the nave only by a low screen, extending as far as the stalls—viz., about 4 feet at each side, the central part being entirely unscreened. The congregation will occupy four bays of the nave, the transepts, the space under tower, and the part of choir unoccupied by the members of the cathedral establishment. The pulpit would be placed near the north-east pier of the tower, so as to be perfectly visible from any part of the building.

The roofs are open timber, for economy; but it was strongly recommended to groin the choir at least. Early 13th century is the date of the style adopted.

Colonel Vandeleur, M.P., has presented to the Very Rev. T. Kelly, P.P, Kilrush, a magnificent gazalier, for the use of his chapel.

THE KILKENNY MODEL FARM.

Among the educational establishments of this country, the Kilkenny Institution and Model Farm are deserving of marked recognition. The district is naturally favorable to the success of measures designed to diffuse practical agricultural information Historically, Kilkenny, both town and county, is full of interest; and the working of these combined educational institutions but add to this interest—especially in the eyes of those who desire the advancement of the staple business of a great agricultural country.

About six years ago, the Commissioners of National Education, in compliance with the request of the local gentry, and others interested in the advancement of literary and agricultural education, rented from the late lamented Richard Smithwick, Esq., eight acres of land at a convenient distance from the Literary Model School in the city, for the purpose of a Model Farm. On this ground was erected the present extensive range of buildings, at a cost of about £6,000.

The establishment was opened some three years ago, with a staff of literary, domestic, and agricultural officers, for the reception of, and with the accommodation, in the usual style in such institutions, requisite for, ten agricultural and eight literary boarders.

Of the ten agricultural boarders, eight are admitted on payment of an annual sum of £8, and two are received gratuitously on obtaining the necessary marks of distinction at a competitive examination. All the resident pupils are educated, boarded, lodged, &c., free of any further expense, and those of the agricultural class whose acquirements enable them to pass subsequent competitive examinations, are eligible, after twelve months' preparatory training, for free admission into the parent institution at Glasnevin—a distinction which the pupils from the above establishment invariably obtain.

The literary pupils attend the agricultural instructions, but are not required to participate in the labor of the farm. Both classes are treated alike in every particular, so far as relates to the indoor arrangement of the institution—receive the same course of education in all the ordinary elementary branches, physical science, chemistry, electricity, galvanism, the use of the globes, land surveying &c.; in agriculture, the nature, composition, and peculiarities of soils, crops, and manures, drainage, &c.

The farm steading is a neatly covered structure, and includes a byre for dairy and young stock, piggeries, stables, sheep houses, cooking houses, store-room for fodder, barn, granary, dairy, cart shed, implement house, manure yard, &c. Ample sewage is secured from the different offices, and the liquid afterwards either applied to the dung previous to its application, or carted out with the liquid manure barrel and applied to the young meadows. A convenient feeding passage connects the byres, piggeries, and stables with the cooking house and store-rooms, and the feeding of the stock in these departments is attended with great economy and despatch. Sufficient ventilation is provided overhead by means of glass windows and moveable louvres, and light and cleanliness reign throughout. It is only in winter that the stock is house-fed entirely; during summer and autumn they are fed out of doors largely.—*Agricultural Review.*

PROGRESS OF IRELAND.

We quote the following remarks on our national progress from an able, and we may add in *this* instance, *just* article in a recent number of no less an authority than the *Times*:—

"There can be no doubt that, be it well or ill, Ireland is fast becoming like England. The crowded villages and town suburbs built of turf or rough stone, cemented by mud, and the innumerabl ditches and fences that cut up the land, have alike disappeared. English tenant, either English, or Scotch, or Irish, can employ a man all the year round and give him good wages. Instead of the precarious eightpence or sixpence a-day, it is now a shilling all the year round, and more at harvest. The plough now makes as long and as deep a furrow as in this country, and has to return as often before it has finished the field. There are real stacks where there used to be the weatherbeaten haycock or a few loads of wheat. There is seldom seen the waste field abandoned to the rush and the bramble. Household servants, workpeople, and tradesmen get good wages. Where a carriage could not stop without being surrounded by beggars, and where a tourist was followed by a stream of miserable objects from one point to another, such interruption is as unknown as in this country. The union workhouses are not happy places, indeed, for that they are nowhere, but they are comfort and decency compared with the former lot of the utterly destitute. Everywhere manufacture of one sort or another is cautiously creeping in. The mineral resources of Ireland, especially those useful for agriculture, are developed; coalpits that had ruined successive proprietors and companies are worked to a profit. This is no partial improvement. The whole peasantry are better off. They still adhere to their quaint national custom, the tailed coat, the frieze overcoat, with its cape, and the knee-breeches; but the materials are new and good, and the patches not so obtrusive. Even in places where the sum of the population has most fallen off, they are building large and magnificent churches. It is true that many of the estates have passed into English hands, though not so many as we apprehended. It is also true that the new comers are often distasteful to the old residents, and make friends but slowly in any class; but they are said to be a good sort of people, to mean well, and to spend money. They are making Ireland more wealthy, and a better country for a man of any class to live and be happy in."

BUILDERS' FREE TICKETS.

THE following are the conditions on which free tickets will be granted until May, 1863, by the Directors of the Dublin and Drogheda Railway Company, to parties investing capital in building along that line:—

1. For each house of the annual value of £25, unfurnished, and subject to rates and taxes, and which shall be worth at least £400, a free second class ticket; and for each house of the annual value of £50. unfurnished, and subject to rates and taxes, and which shall be worth at least £700, a free first class ticket.

2. Such tickets will be made out in favor of either of the following parties, at the option of the builder.

1st. Of himself for fifteen years.
2nd. Of the Lessee or Assignee of such house for fifteen years
3rd. Of the *bona fide* occupier for the time being, but for no period less than one month at a time. No change will be made in a Ticket when once issued.

3. The free ticket will attach to the house for fifteen years, from the date of the resolution of the directors granting it.

4. Such house must be erected on a site not more than half a statute mile by carriage road from either of the following stations:—Laytown, Balbriggan, Lusk, Donabate, Baldoyle and Sutton, Junction, or within half a statute mile on the western side, and a statute mile on the east side of Malahide, and between Skerries Station and the Strand of Skerries; or within a quarter of a statute mile north or west of Raheny Station, or on any part of the peninsula of Howth.

5. A written application for the ticket, addressed to the secretary of the Company, prior to the completion of the house, or within three months thereafter, must be left at the company's office, accompanied by a tracing or plan of the house, with the name of the architect, and a tracing of the site, showing its position in reference to the adjoining railway station.

6. A fee of twenty shillings is required to be lodged with the application, and without this fee the application cannot be presented to the Board. The fees thus received will be appropriated by the directors to the expense of inspection of the plans and houses by a competent architect, whose opinion will assist the directors when considering the application. The opinion of the directors on the eligibility of the house will be conclusive.

7. Such ticket will be called "Builders' Ticket," and will on no account be transferable. It will, if produced when required, frank the holder *once per day in each direction*, by any ordinary passenger train of the company (having the class of ticket) running over that portion of the line, between the railway station nearest to the house for which it is granted, and the *Dublin Terminus*; or on that portion of the line between said house and *Drogheda Terminus*. The first holder is to elect which terminus he prefers on the first issuing of the ticket, and his choice cannot be altered by succeeding holders during the term of fifteen years. Persons holding such tickets will be subject to the bye-laws and regulations of the company.

8. It is desirable that persons proposing to build should learn the opinion of the directors on the site and plan of the house, by sending in their application, with the aforesaid fee of twenty shillings, *before* the building is commenced. When notice of the completion of the house is given, it will be inspected by the officers of the company, without any additional fee.

The following conditions would have to be assented to, and a book containing them, must be *signed* by each holder of a builders' free ticket:—

9. I acknowledge to have received from the Dublin and Drogheda Railway Company, a builder's ticket, entitling me on the aforesaid conditions, to travel, free of exponse, on a portion of the said railway, as more particularly described in writing opposite to my signature hereto. And I further acknowledge and admit that the said ticket, and the privileges thereto appertaining, are granted to and accepted by me, on the following conditions:—that is to say—

10. That neither the said ticket, nor any interest therein, shall be transferred or transferable by me, nor shall the said ticket be lent by me to any persons to enable them to take advantage of the privileges thereof.

11. That the said ticket shall be produced by me to any officer of the said company requiring to see the same, at any and all times when I shall seek to travel on the said railway by virtue thereof.

12. That the said ticket shall not entitle me to travel daily (free of expense) more than one journey in each direction between the said stations, or any of the intermediate stations, without the sanction of the directors for that purpose previously obtained.

13. That the said company shall be exonerated from all liability for any interruption which may take place in the intercourse along the railway; and that they shall not be required to provide room expressly for my occomodation in a first or any class carriage; nor shall they be liable or accountable in any way, in the event of there not being room for my accommodation in any of the railway carriages at any of the stations.

14. That the said company shall be wholly exonerated and released from all liability whatsoever in the event of any accident happening to me on the said railway, or at any of the said stations, whilst I am in the exercise or enjoyment of any of the privileges conferred by this or any similar builder's ticket.

15. That in the event of the violation by me of any of the conditions aforesaid, the said ticket, and all the privileges attaching thereto, shall thenceforth and for ever cease to be available, or of any effect, notwithstanding the period for which this ticket is issued shall not have expired.

DISCOVERY OF THE RETREAT OF ANCIENT IRISH KINGS NEAR CLONMACNOISE.

THE following interesting facts have been communicated to *Saunders* by a correspondent at Ballinasloe, and when full particulars, as promised, are furnished to the same source, we shall not fail to record them:—

In the month of July last I sent you the particulars of some ancient regal ornaments which had been found by a countryman, and purchased from him by the Messrs. Hynes, of this town. The notice I then wrote attracted general attention throughout the country, and several parties expressed an anxiety to obtain the ornaments, which were of pure gold, and consisted of a crown and collar. An intimation was even sent through the authorities, under the regulations of Treasure Trove, demanding the ornaments, of course at their proper value. They have since been publicly exhibited in the collection of the Dublin Society, and much admired by those who relish antiquarian researches. The Messrs Hynes offered the countryman a handsome douceur if he would point out where he found the relics, but this the wily native knowingly declined to do, no doubt expecting that other articles of value might yet be discovered in the same locality. He has, however, at length divulged the particulars. The man resided at a place called Skea, near the celebrated ruins of Clonmacnoise, on the brink of the Shannon. In the course of some agricultural operations he removed a large flag which opened the passage to a spacious cavern, in which were found the crown and collar, together with some ancient bronze weapons and several utensils used for culinary purposes. The discoverer of this singular labrynth kept it concealed from the knowledge of any one for a considerable length of time, but at length he has been induced to show it to a very few individuals under a promise of secrecy; and, as he is about to leave this country for Australia, he intends for a consideration to lead the way to this curious subterranean chamber, evidently the retreat of the ancient monarchs who reigned in the locality. A friend of mine who has been in the cavern, says that he was so fortunate as to have unveiled to his astonished view the intricacies of this hidden apartment, and many singular vestiges of a defunct race. It was, no doubt, at once a fortalice and residence. The hard-pressed chieftain and his followers found in its recesses the most perfect security and concealment; for if any pursuers had the temerity to tread the tortuous windings of the entrance, certain destruction was sure to reach them ere they reached the apartments, several feet below the surface of what appears to be a limestone crag. I forgot to say that amongst other relics of bygone days are ten elaborately-ornamented slabs, of an octagonal form, and bearing long inscriptions in the Ogham character. There are few who will be able to unravel the story which these venerable records display to the eye of the curious. No doubt they will yet form the subject of study and research to the antiquary and the learned. The discovery of this wonderful cavern throws much light on the legends of Bryan O'Donoghoe, and to this means of retreat from his enemies is no doubt due the story of his compact with the Evil One, from the consequences of which the Abbot St. Kieran is said to have released him. I intend to explore this retreat of the ancient chieftains of this neighbourhood on an early day, and to supply you with a description in detail.

The following report of the pig iron market is taken from Messrs. W. Counal and Co.'s monthly circular:—The pig iron market has been very brisk during the month, and the decline of 1 per cent. in discount has tended to promote activity; but the prices, on the whole, have not improved since last report. The lowest price reached was 50s. 1½d. Cash for warrants, since which there has been a gradual advance of 1s. 6d., closing buyers at 51s. 7½d. The stock of iron in yards is 183,000 tons, against which warrants are in circulation for 178,100 tons.

BRITISH ASSOCIATION MEETING.

PRESIDENT'S INAUGURAL ADDRESS.

The address delivered by Mr. Fairbairn, C.E., F.R.S., LL.D., as president at the opening meeting of the association in the Town Hall, Manchester, on the 4th inst., was remarkably able and comprehensive. We regret that space would not admit of our giving it complete, but in the following will be found the substance of such portions thereof as refer to topics more immediately within our province:—

"Were I to enlarge on the relation of the achievements of science to the comforts and enjoyments of men, I should have to refer to the present epoch as one of the most important in the history of the world. At no former period did science contribute so much to the uses of life and the wants of society. * * * I therefore propose to offer a succinct history of these improvements, as an instance of the influence of scientific progress on the well-being of society. I shall take in review the three chief aids which engineering science has afforded to national progress—namely, canals, steam navigation, and railways; each of which has promoted an incalculable extension of the industrial resources of the country. One hundred years ago the only means for the conveyance of inland merchandise were the pack-horses and waggons on the then imperfect highways. It was reserved for Brindley, Smeaton, and others to introduce a system of canals which opened up facilities for an interchange of commodities at a cheap rate over almost every part of the country. The impetus given to industral operations by this new system of conveyance induced capitalists to embark in trade, in mining, and in the extension of manufactures in almost every district. These improvements continued for a series of years, until the whole country was intersected by canals requisite to meet the demands of a greatly extended industry. But canals, however well adapted for the transport of minerals and merchandise, were less suited for the conveyance of passengers. The speed of the canal boats seldom exceeded from two-and-a-half to three miles an hour, and in addition to this, the projectors of canals sometimes sought to take an unfair advantage of the Act of Parliament, which fixed the tariff at so much per ton per mile, by adopting circuitous routes, under the erroneous impression that mileage was a consideration of great importance in the success of such undertakings. It is in consequence of shortsighted views and imperfect legislation that we inherit the numerous curves and distortions of our canal system. These defects in construction rendered canals almost useless for the conveyance of passengers, and led to the improvement of the common roads and the system of stage coaches; so that before the year 1830 the chief public highways of the country had attained a remarkable smoothness and perfection, and the lightness of our carriages and the celerity with which they were driven still excites the admiration of those who remember them. These days of an efficiently worked system, which tasked the power and speed of the horse to the utmost, have now been succeeded by changes more wonderful than any that previously occurred in the history of the human race. Scarcely had the canal system been fully developed when a new means of propulsion was adopted—namely, steam. I need not recount to you the enterprise, skill, and labor that have been exerted in connexion with steam navigation. You have seen its results on every river and every sea, results we owe to the fruitful minds of Miller, Symington, Fulton, and Henry Bell, who were the pioneers in the great march of progress. Viewing the past with a knowledge of the present and a prospect of the future, it is difficult to estimate sufficiently the benefits that have been conferred by this application of mechanical science to the purposes of navigation. Power, speed, and certainty of action, have been attained on the most gigantic scale. The celerity with which a modern steamer, with a thousand tons of merchandise and some hundreds of human beings on board, cleaves the water and pursues her course, far surpasses the most sanguine expectations of a quarter of a century ago, and indeed almost rivals the speed of the locomotive itself. * * * * Previously to the inventions of Henry Cort, the manufacture of wrought iron was of the most crude and primitive description. A hearth and a pair of bellows were all that was employed. But since the introduction of puddling, the ironmasters have increased the production to an extraordinary extent, down to the present time, when processes for the direct conversion of wrought iron on a large scale are being attempted. A consecutive series of chemical researches into the different processes, from the calcining of the ore to the production of the bar, carried on by Dr. Percy and others, has led to a revolution in the manufacture of iron; and although it is at the present moment in a state of transition, it nevertheless requires no very great discernment to perceive that steel and iron of any required tenacity will be made in the same furnace with a facility and certainty never before attained. This has been effected, to some extent, by improvements in puddling; but the process of Mr. Bessemer—first made known at the meetings of this association at Cheltenham—affords the highest promise of certainty and perfection in the operation of converting the melted pig direct into steel or iron, and is likely to lead to the most important development in this manufacture. These improvements in the production of the material must, in their turn, stimulate its application on a larger scale, and lead to new constructions. In iron shipbuilding, an immense field is opening before us. Our wooden walls have, to all appearance, seen their last days; and as one of the early pioneers in iron construction, as applied to shipbuilding, I am highly gratified to witness a change of opinion that augurs well for the security of the liberties of the country. It is asserted, probably with truth, that whatever thickness of plates are adopted for casing ships, guns will be constructed capable of destroying them. But their destruction will even then be a work of time, and I believe, from what I have seen in recent experiments, that with proper armour it will require, not only the most powerful ordnance, but also a great concentration of fire, before fracture will ensue. If this be the case, a well-constructed iron ship, covered with sound plates of the proper thickness, firmly attached to its sides, will, for a considerable time, resist the heaviest guns which can be brought to bear against it, and be shot-proof. But our present means are inadequate for the production of large masses of iron, and we may trust that, with new tools and machinery, and the skill, energy, and perseverance of our manufacturers, every difficulty will be overcome, and armour plates produed which will resist the heaviest ordnance. We have already seen a new era in the history of the construction of bridges, resulting from the use of iron, and we have only to examine those of the tubular form over the Conway and Menai Straits to be convinced of the durability, strength, and lightness of tubular constructions applied to the support of railways on common roads, in spans which, ten years ago, were considered beyond the reach of human skill. When it is considered that stone bridges do not exceed 150 feet in span, nor cast-iron bridges 250 feet, we can estimate the progress which has been made in crossing rivers 400 or 500 feet in width, without any support at the middle of the stream. Even spans, greatly in excess of this, may be bridged over with safety, provided we do not exceed 1,800 or 2,000 feet, when the structure would be destroyed by its own weight. It is to the exactitude and accuracy of our machine tools that our machinery of the present time owes its smoothness of motion and certainty of action. When I first entered this city the whole of the machinery was executed by hand. There was neither planing, slotting, nor shaping machines, and, with the exception of very imperfect lathes and a few drills, the preparatory operations of construction were effected entirely by the hands of the workmen. Now everything is done by machine tools, with a degree of accuracy which the unaided hand could never accomplish. The automaton or self-acting machine tool, has within itself an almost creative power; in fact, so great are its powers of adaption, that there is no operation of the human hand that it does not imitate. For many of these improvements the country is indebted to the genius of our townsmen, Mr. Richard Roberts and Mr. Joseph Whitworth. The importance of these constructive machines is, moreover, strikingly exemplified in the Government works at Woolwich and Enfield Lock, chiefly arranged under the direction of Mr. Anderson, the present inspector of machinery, to whose skill and ingenuity the country is greatly indebted for the efficient state of those great arsenals. Amongst the changes which have largely contributed to the comfort and enjoyment of life are the improvements in the sanitary condition of towns. These belong probably to the province of social rather than mechanical science; but I cannot omit to notice some of the great works that have of late years been constructed for the supply of water, and for the drainage of towns. In former days ten gallons of water to each person per day was considered an ample allowance. Now thirty gallons is much nearer the rate of consumption. I may instance the waterworks of this city and of Liverpool, each of which yield a supply of from twenty to thirty gallons of water to each inhabitant. In the former case the water is collected from the Cheshire and Derbyshire hills, and, after being conveyed in tunnels and aqueducts a distance of ten miles to a reservoir, where it is strained and purified, it is ultimately taken a further distance of eight miles in pipes, in a perfectly pure state, ready for distribution. The greatest undertaking of this kind, however, yet accomplished is that by which the pure waters of Loch Katrine are distributed to the city of Glasgow. This work, recently completed by Mr. Bateman, who was also the constructor of the waterworks of this city, is of the most gigantic character, the water being conveyed in a covered tunnel a distance of twenty-seven miles through an almost impassible country, to the service reservoir, about eight miles from Glasgow. By this means forty gallons of water per day are conveyed through the hills which flank Ben Lomond, and after traversing the sides of Loch Chon and Loch Aird, are finally discharged into the Mugdock basin, where the water is impounded for distribution. We may reasonably look forward to an extension of similar benefits to the metropolis by the same engineer, whose energies are now directed to an examination of the pure fountains of Wales, from whence the future supply of water to the great city is likely to be derived. A work of so gigantic a character may be looked upon as problematical, but when it is known that six or seven millions of money would be sufficient for its execution, I can see no reason why an undertaking of so much consequence to the health of London should not ultimately be accomplished. * * * * It is asserted by those who have done the least to benefit their country by inventions, that a monopoly is injurious, and that if the patent laws are defended, it should be, not on the ground of their benefit to the inventor, but on that of their utility to the nation. I believe this to be a dangerous doctrine, and I hope it will never be acted upon. I cannot see the right of the nation to appropriate the labours of a lifetime, without awarding any remuneration. The nation, in this case, receives a benefit; and assuredly the laborer is worthy of his hire. I am no friend of monopoly, but neither am I a friend of injustice; and I think that before the public are benefited by an invention, the inventor should be rewarded either by a 14 years' monopoly, or in some other way. Our patent laws are defective, so far as they protect pretended inventions; but they are essential to the best interests of the state in stimulating the exertions of a class of eminent men, such as Arkwright, Watt, and Crompton, whose inventions have entailed upon all countries invaluable benefits, and have done honour to the human race. To this association is committed the task of correcting the abuses of the present system, and establishing such legal provisions as shall deal out equal justice to the inventor and the nation at large. I must not forget that we owe very much to an entirely new and most attractive method of diffusing knowledge, admirably exemplified in the Great Exhibition of 1851, and its successors in France, Ireland, and America. Most of us remember the gems of art which were accumulated in this city during the summer of 1857, and the wonderful results they produced on all classes of the community. The improvement of taste, and the increase of practical knowledge which followed these Exhibitions, has been deeply felt; and hence the prospects which are now opening before us in regard to the Exhibition of the next year cannot be too highly appreciated. The Exhibition will embrace the whole circle of the sciences, and is likely to elevate the general culture of the public to a higher standard than we have ever before attained. There will be unfolded almost every known production of art, every ingenious contrivance in machinery, and the results of discoveries in science from the earliest period. The fine arts, which constituted no part of the Exhibition of 1851, and which were only partially represented at Paris and Dublin, will be illustrated by new creations from the most distinguished masters of the modern school. Looking forwards, I venture to hope for a great success, and a further development of the principle advocated by this association—the union of science and art.

ON THE PRINCIPLES WHICH SHOULD BE OBSERVED IN FORMATION OF STANDARDS OF MEASUREMENT OF ELECTRICAL QUANTITIES AND RESISTANCE.

IN Section A, mathematical and physical science, thirty-one papers were read, from which we select the above, by Sir Charles Bright and Mr. Latimer Clark, the eminent electricians, who said that the science of electricity and the art of telegraphy have both now arrived at a stage of progress at which it is necessary that universally received standards of electrical quantities and resistances should be adopted, in order that precise language and measurement may take the place of the empirical rules and ideas now generally prevalent. Several standards of resistance have already been proposed, but none have as yet come into universal use, and they have all the disadvantage of being arbitrary in their derivation, or of having no relation to other electrical quantities and measurements. Four electrical standards or units are in reality required; these are mutually dependent on each other, and by their aid every conceivable form of electrical manifestation, whether static or dynamic, and whatever its origin or quantity, can be precisely and definitely stated. They are as follows:—

A. An unit of electrical tension, potential, or electromotive force.
B. An unit of electrical quantity, as applied to static electricity.
C. An unit of electric current, or quantity, as applied to dynamic electricity.
D. An unit of electrical resistance.

A. THE UNIT OF ELECTRICAL TENSION, OR ELECTROMOTIVE FORCE.

It is probable that no more convenient unit of tension could be found than that of a single cell of a Daniell's battery—its electromotive force is but little dependent on temperature, or the strength of solutions, while the continued deposit of fresh and pure copper makes its force remarkably constant. It is, moreover, a standard which is in constant use, and its energy is so inconsiderable that it would not often require defining fractionally in practice. It is, however, possible to find a more elementary unit. Recent reseaches have shown, for example, that if a piece of pure zinc be placed in contact with water, or an oxidising acid, the zinc oxidises, and in doing so instantly gives off electricity, thereby lowering its own tension, and raising that of the liquid. As soon as the two have acquired a certain definite and constant difference of tension the oxidation ceases, and the zinc is no longer attacked. If a piece of copper, or silver, or other less oxidisable metal, be placed in mutual contact with the zinc and the liquid, so as to afford a path for the equalisation of the tension, the solution goes on constantly, and the continual flow of the electricity from the liquid to the zinc, through the pathway afforded by the copper, forms what is termed a voltaic current. All oxidisable metals have their own specific limit of tension at which they cease to be oxidised, and any of these tensions might be chosen as a unit, but without any practical advantage over that afforded by the Daniell's element. It is scarcely necessary to remark that the unit of tension is equally applicable to static electricity, and to the tensions existing at different points in the electric current. The zero of tension is naturally that of the earth at the place and time being, and the degree may be either plus or minus.

B.—THE UNIT OF ABSOLUTE QUANTITY AS APPLIED TO STATIC ELECTRICITY.

There is no natural guide for the formation of this important unit (which is the foundation for the two following), and it is therefore necessary to fix on an arbitrary one; it is well known that the quantity of static electricity—that is, electricity under induction—varies, *cæteris paribus*, directly as the difference of tension between the induced and inducing surfaces. The quantity is also dependent on two other conditions, the difference in the surfaces from each other, and the nature of the interposed dielectric. Let us, for the sake of argument, assume the dielectric to be dry air, the difference of tension to be equal to that of one element of Daniell's battery, the surfaces to be one millimetre, as under, and the area to be one square metre; such a standard would be an arbitrary but not an inconvenient one, and to this unit we could refer all other quantities. In practice, this unit would require multiplication by one thousand and by one million. Under this head it is important to observe that any quantity of electricity has a definite existence quite independently of its tension, and when once placed in a body the tension may be raised or lowered, or annihilated, or even reversed in its sign from plus to minus, without any change in its quantity; and when the disturbing causes are removed the quantity remains as before.

C.—THE UNIT OF ELECTRICITY IN MOTION ON ELECTRIC CURRENT.

Having formed a unit of quantity, the definition of this standard becomes simple and obvious; it is formed by a combination of quantity with time. Thus one unit of electricity passing per second naturally forms an unit of current. The practical formation of this standard presents few difficulties. It has been shown by Messrs. Siemens, that when an uniform succession of rapid discharges is sent through a galvanometer, the deflection of the needle is constant and steady. It is easy, therefore, to send a given number of units per second through a given resistance. This method of determining the standard of conductivity has the advantage of being quite independent of resistances. Although it has not yet been put to the test of experiment, there is no reason to doubt that a given quantity of electricity per second will produce an equal deviation of the galvanometer, whether it flow in a continuous stream or in a succession of minute impulses.

D.—THE UNIT OF RESISTANCE.

The standard or unit of resistance should necessarily be the same as that of conductivity, or current—that is to say, a wire that will conduct one unit of electricity in one second of time. This would be a very convenient unit for expressing the resistance of the materials used for covering telegraphic cables, but would be much too large for defining the resistance of telegraphic conductors, and it would require subdivision by 1,000 and by 1,000,000, and these resistances would correspond to wires capable of conveying 1,000 and 1,000,000 units of electricity per second. The value of this mutual relationship and dependence will be seen more clearly if we assume a nomenclature for these units, and for this temporary purpose we will derive terms from the names of some of our most eminent philosophers, neglecting for the moment etymological rules. We shall then have the following table:—

A.—Tension.
1 Daniell's Element .. .. .. = 1 Ohma, or unit of tension.
1,000 Ohmas .. .. = 1 Kilohma.
1,000 Kilohmas .. .. = 1 Milliohma.
B.—Quantity.
1 Ohma, by one metre square at 1 Millimetre distance .. } = 1 Farad, or unit of quantity.
1,000 Farads .. .. = 1 Kilofarad.
1,000 Kilofarads .. .. .. = 1 Milliofarad.
C.—Current.
1 Farad per second .. .. .. = 1 Galvat, or unit of current.
1,000 Galvats .. .. = 1 Kilogalvat.
1,000 Kilogalvats .. .. .. = 1 Milliogalvat.
D.—Resistance.
1 Farad per second .. .. .. = 1 Volt, or unit of resistance.
1-1,000 Volt .. .. = 1 Kilovolt.
1-1,000 Kilovolt .. .. .. = 1 Milliovolt.
1-1,000 Milliovolt .. .. .. = 1 Billiovolt.

The ohma, or unit of tension, is practically a very convenient one for all battery purposes; lower tensions, though not often required, may be readily defined fractionally. The kilohma, or the tension of 1,000 Daniell's cells, is a convenient one for static electricity, and for that of induction coils, as it will pass across a small interval of air. The milliohma is applicable to static electricity of very high tension. The farad, or unit of quantity, is as small a one as is likely to be required in practice. Seventy feet of ordinary telegraph wire with a tension of one cell would contain about a farad of electricity. One hundred farads, if allowed to pass through a very sensitive galvanometer, produce a visible motion of the needle. The kilofarad is a good unit for defining the charge or inductive capacity of submarine cables. The volt, or unit of resistance, is represented by a wire, which would, with a tension of one element, convey a current of one galvat—that is, one farad per second. It would be an useful measure of the resistance of the insulating covering of single miles of cable, although there are some of the most perfect modern cables which offer a still higher resistance. It is, however, altogether too large an unit for the resistance of metallic conductors; it is, therefore, subdivided into the kilovolt and milliovolt, which last measure is probably small enough to be applicable to the resistances of the conductors of ordinary telegraphic cables. For still smaller resistances it is necessary to have recourse to the billiovolt. The mutual relation and dependence of these units is seen at a glance—thus, at the normal tension, a wire having a resistance of 1 volt, will conduct 1 farad of electricity per second, or give a current of 1 galvat—and similarly a wire having a resistance of 1-10 kilovolt will give a current of 10 kilogalvats, that is, 10 kilofarads per second; if the tension be doubled or tripled, the quantities will be increased in the same proportion. The practical introduction of this, or some similar system of notation, would be so great a boon to science and to the art of telegraphy, that it is hoped the British Association will lend its assistance and authority for the settlement of the question, and it is suggested that a committee, composed of members of the association, should be delegated to examine and report on the whole question at the next annual meeting, with power to confer with English or foreign philosophers, and that funds should be provided for the preparation of standards for public use and reference, a duty in which they would meet with the hearty co-operation and assistance of practical electricians.

STEAM SHIP PERFORMANCES.*

Mr. Scott Russell, in presenting the third report of the Committee of the Association on steam ship performances, said the report consisted chiefly of valuable tables, which had been framed from actual experimental trials of various steam ships—some of them in her Majesty's navy, and others employed in the mercantile service. As these tables could not be conveniently read, he would give a short epitome of the objects which had been carried out by the committee during the past year, pointing out those most remarkable points in respect of which they considered their labours had been most successful and most valuable. It had been shown by Mr. Atherton, the chief engineer of Woolwich Dockyard, that by a little variation in the shape of a ship as great a difference could be made in the quantity of freight to be carried by her. The difference in the actual mercantile value of a ship might thus be made to vary as between 100 and 132, giving not less than 32 per cent. profit or loss upon the ship. This was a most important fact, establishing as a truth the principle which the British Association attempted to establish twenty years ago—a principle which was at that time very much ridiculed. Thirty years ago it was believed that if the midship section was given, together with the measurement and displacement, all the elements were afforded for framing a good ship, and that the form was immaterial, and more a question of taste than anything else. The British Association instituted a system of very costly experiments, which they carried on for a number of years; and these experiments satisfied the public to such an extent as to the value of the form of a ship, that he was able to state that there was no ship performing 14 knots an hour which was not constructed in the exact form resulting from the experiments of the Association; and if 14 knots were now as common as 10 knots were formerly, this improvement was absolutely due to the change which had taken place in the form of the vessels. The vessels which formerly sailed 10 knots an hour, and which were built on the old form, required one horse-power to propel two tons. The vessels now performing 14 knots an hour required as little as one horse-power to propel three or four tons; and in the case of the Great Eastern one horse-power was sufficient for the propulsion of nine tons, at the speed of 14 knots an hour. The committee had been very anxious to ascertain, with respect to the velocity of a ship, the best shape of ship suited to that velocity. They believed the best way to accomplish that object was to ask the Admiralty to make such arrangements as would test the resistance of every ship without her engines, by means of a dynamometer, and afterwards by propelling her by steam, so as to determine for each ship what was the real value of her form as distinguished from the value of the propelling power of her engines. The parliamentary committee of the association had waited on the First Lord of the Admiralty, and requested him to institute such experiments, and they had every reason to believe that their request would be granted, and then the following valuable facts would be ascertained. When a ship was loaded to her water-line her screw would be taken out, and the ship as a mere hulk would be dragged by another, and on the tow-rope would be placed a dynamometer to ascertain the exact resistance of the vessel. This had never yet been done with respect to any ship under the control of the Admiralty, They had results of a different nature. They had propelled a ship at a given velocity with her engines, and had calculated by the indicator from the steam in the cylinder, the power of the vessel. But this inference was a vague one, because between the steam in the cylinder and the ship herself there came the following unknown elements. First, the real efficiency of giving out the force of steam; secondly, the real efficiency of the screw in giving out the power of the engine, and converting itself into propelling power; and thirdly, the shape of the ship. The tables appended to the report which he had presented, contained the following returns:—The performance of a large number of her Majesty's vessels in the manner he had indicated, furnished by the Admiralty themselves; and secondly, the result of the performance of six of her Majesty's vessels under peculiar circumstances, including their performances when light, when at their deepest lading, and at different states of trim. The committee had also obtained from the officers of her Majesty's ship, Victor Emmanuel, the results of the performances of that vessel at sea under various circumstances, and seven trials with different screws in Stoke's Bay. The tables also contained the result of the performances of various merchant vessels; of the vessels belonging to the Dublin Company, running between Dublin and Holyhead; and also returns respecting the whole postal fleet of the French kingdom. The report also contained accounts of alterations which had been made in vessels by lengthening them, and by altering and changing their engines. The committee stated that in compliance with the terms appointing them, directing them to obtain information respecting the performance of vessels under sail, with a view to comparing the results of the two powers of wind and steam, "your committee have to state that hitherto they have been unable to obtain such comparisons in the case of merchant vessels, but in the vessels given in the appendix, particulars of one of her Majesty's vessels are recorded under three conditions—viz., under steam alone, under sail alone, and under steam and sail combined, and of two under the latter conditions only. These are especially useful, as they show the effects produced by powers to bear upon the hulls of vessels under the same conditions as to draft and trim, but differently applied. In endeavouring to collect this information from officers in her Majesty's service, the committee were desirous that the application should be made with the concurrence of the Admiralty, and a circular was accordingly issued to a certain number of officers, which they were requested to fill up and return." He was happy to say that a number of officers in her Majesty's services had interested themselves in this duty, and were making regular records of the performance of various vessels in her Majesty's fleet.

THE GRANITE ROCKS OF DONEGAL.

At the meeting of the British Association in Manchester, Mr. R. H. Scott read a paper "On the granite rocks of Donegal, and the minerals associated therewith." He gave a short account of a mineralogical tour made by him in company with Professor Haughton, in the course of the summer, the results of which seemed to throw some light on the possible origin of granite. The district visited was Donegal, which county consists mainly of gneiss and mica slate, and is traversed in a N.E. direction by an axis of granite. This granite is of a peculiar composition, containing two felspars, one orthose, but the other not albite, as in the granite of the Mourne mountains, but oligoclase—a mineral whose occurrence in the British Islands had only been noticed within the last twelve months. Professor Haughton, to whom this discovery is due, was unfortunately unable to attend the meeting. The facts were briefly these:—The granite contains oligoclase and quartz, which combination appears to be a proof that the rock never was in a melted condition, as in that case these two minerals would have acted on each other, and formed common felspar. It lies in beds corresponding to the general lie of the strata of the country, and in its character is essentially gneissose; and, lastly, at points inside the area of the granite, metamorphic rocks (limestones and slates) are found with their bedding, which is nearly vertical, unchanged. These bands run for a distance, in one case, of nine miles across the country. The condition of these rocks is very similar to that of the same rocks outside the granite area, and it is a point of great interest to determine how they got there. The solution of this offered by the authors of the paper was, that the whole of the rocks had originally been stratified, and had been subjected to some actions which are termed metamorphic. The result of such action was to convert some into granite, some into gneiss, and some into crystalline limestone, and mica schist, without very much altering their relative positions. The possibility of granite being produced by other means than simple heat, seemed to them to be proved by the occurrence of felspar in quartz vein, which are usually admitted to have been filled by means of infiltration. Mr. Scott stated that there were several points in connection with these granites which showed a close relation between them and the granites of Norway. The whole question required a careful chemical and mineralogical examination, which could not be concluded for some time. Among the types of rock found in Donegal is a syenite, the felspar of which is oligoclase. The origin of this rock the authors are disposed to attribute to the addition of limestone to the granite. A similar syenite occurs at Carlingford, but contains anorthile, a felspar which would result from the admixture of a larger quantity of limestone than is necessary to produce oligoclase, and has been proved by Professor Haughton to have such an origin. The anorthile syenite never occurs unless limestone is present in large excess, which is not the case in Donegal. In conclusion, Mr. Scott mentioned that the district described by him was very rich in minerals, some of which were extremely rare, and that he entertained no doubt that a more careful examination would largely increase their number.

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* Read in the Mechanical Section (G) British Association Meeting.

The president said that Mr. Marshall, Mr. Scott, and other gentlemen would certainly compel the elder geologists to a great extent to modify some of their original conclusions as to granite. Much progress on the question would never be made until Professor Haughton, Mr. Scott, and others, closely examined the granite rocks in Germany, Norway, and Sweden, and compared them with those in this kingdom. He much regretted that mineralogy had been dissociated from this section, and handed over to the chemical section; but, such being the case, Mr Scott's communication ought to be laid before the chemical section. He felt so strongly the importance of the question that he would certainly recommend the chemical section to consider it.

PHOTOGRAPHIC MICROMETERS.

SIR DAVID BREWSTER read a paper "On photographic micrometers." He said that upon examining, several years ago, some microscopic photographs, executed by Mr. Dancer, a celebrated optician in Manchester, he was struck with the singular sharpness and opacity of some of the lines in such of them as were copies from engravings. The idea occurred to him of obtaining photographically, by means of the camera "micrometrical scales," or systems of delicate lines, opaque or transparent, and fitted both for astronomical and microscopical purposes. In the "Encyclopedia Britannica" he had stated that Mr. Dancer, of Manchester, had succeeded in making photographic portraits on collodion so small that they were wholly invisible to the naked eye, and that 10,000 portraits might be introduced into a square inch. The film of collodion upon which these photographs were taken was so thin and transparent that it was invisible, and allowed objects to be seen through it as distinctly as if it was the thinnest glass. It was obvious that they might construct, photographically, the various *recticula* or *reticles*, as they had been called, used by Cassini, Bradley, La Caille, and Mr. Wollastas, as well as the net micrometer, the concentric circle micrometer, the suspended micrometer of Fraunhofer, and the lineal and circular micrometers of Cawallo, and others drawn upon mother of pearl.

STREET ARRANGEMENTS FOR EXTINGUISHING FIRES.

MR. J. T. BATEMAN (President of section at recent meetings of British Association) read a paper on this subject, in which he observed that the attention of the public had recently been drawn to the subject in consequence of the serious conflagrations which had taken place in London and elsewhere. Nothing could be much worse, said the author, than the preparation for the extinction of fires which existed fifteen years ago throughout the country, and nothing could be much worse than the precautions taken in London. In Manchester, Glasgow, and some other large towns where there was an abundant supply of water, the management was taken in the hands of the corporation, who made the best possible provision in their power for the extinction of fires. In London the fire-engines were maintained and the fire-brigade were paid by contributions from the various fire-offices, and unless a building was insured in some of the offices which contributed to the expense it was not the interest of the firemen to extinguish a fire. This was clearly a palpable error in the arrangement of such matters, and when the preservation of immense masses of property was left to chance it was a great grievance, which ought not longer to be allowed to exist. Mr. Bateman then described a very simple arrangement in use in Manchester, consisting of a ball barrel communicating with the main pipes, to which proper fitting hose could be attached in a very few minutes, thus avoiding the delay caused by the employment of engines. The greatest requisites were high pressure, large main pipes, ample communication with the main pipes, and a plentiful supply of water. There ought also to be an efficient brigade, the men composing it being stationed at short distances from each other, so that their services might be called into requisition at the shortest notice. Such a system would pay for itself in the reduction of the duty on fire insurance; for where the risk was less the cost would be less also, and the public, on whom the cost of maintaining the brigade fell, would benefit by the reduction in their fire insurances.

RAILWAY AND FIRE ALARMS IN BERLIN.

AT same meeting Mr. C. W. Siemens, a native of Berlin, read a paper descriptive of the system pursued in that city for the above purpose, and from which it appeared that "Berlin is divided into a number of circular districts (each of which contains a number of fire stations), communicating with a central station, from which information is instantly conveyed to all the stations in any district where a fire may have broken out, and within a very few minutes all the engines are on the spot and ready for actual use."

[The above is but a practical application of a long propounded theory, and was, as we understand, anticipated in its integrity by the New York authorities, where the system is equally complete. In this age of electric telegraphs uncommonly simple facilities are presented for its extension to every town in the world, and its absence is the more culpable.—ED.]

BAPTISTERY.

BAPTISTERY (from *βαπτιζο, to wash*), a building, or apartment, designed for the administration of baptism.

In ancient times baptism was performed by immersion, and the place for the purpose was a pond or stream; but about the middle of the third century, distinct or insulated houses were erected for the purpose. In 496, they were attached to the exterior side of the church, and in the sixth century, they were brought within the church; but though there might have been two or more churches in one city, yet, in general, there was only one baptistery; and when it became fashionable to dedicate the churches, that to which the baptistery belonged was dedicated to St. John the Baptist. The baptismal churches in Italy were usually built near rivers and waters. In later times, the bishop of baptismal churches granted licenses to other churches to erect baptisteries, taking care at the same time to maintain his own jurisdiction over the people.

The baptistery was an octagon building, covered with a cupola roof, adjacent to the church, but not forming a part of it.

In the interior was a hall, sufficient to contain a given number of people, on the sides of which was a number of apartments; sometimes, instead of these apartments, rooms were added on the outside, in the manner of cloisters: in the middle of the hall was an actagon bath, which, strictly speaking, was the baptistery, and from which the whole building derives its appellation.

The most celebrated baptisteries are those of Rome, Florence, and Pisa; the most ancient is that of S. Giovanni in Fonte at Rome, said to have been erected by Constantine the Great. The plan of this building is octangular; the roof is supported by eight large polygonal pillars of porphyry under the cupola; in the centre of the floor is the bath, lined with marble, with three steps for descending into it: its depth is about 37½ inches. The baptistery annexed to the splendid church of St. Sophia, at Constantinople, resembled the convocation-room of a cathedral; and was called *illuminatory*. In the middle was the bath, and around it were outer rooms for all concerned in the immersion.

The Baptistery of Florence stands opposite to the principal entrance of the cathedral. It is octangular in form, with a diameter of about 100 feet. In the interior is a gallery, supported by 16 large granite columns; the vaulting is decorated with mosaics, and on the pavement is a large circle of copper, with numerical figures, and the signs of the zodiac on it. The external façades are built of black and white marble, and the three great bronze doors are celebrated for the beauty of their bas-reliefs, and for the marble and bronze figures above them.

The Baptistery of Pisa is circular; its diameter is 116 feet; the walls are 8 feet high, and the building is raised on three steps, and surmounted by a dome in the shape of a pear. This dome, which is covered with lead, is intersected by long lines of very prominent fretwork, terminating in another dome, above which is a statue of St. John. The proportions of the interior are admirable; eight granite columns, placed between four piers, decorated with pilasters, are arranged round the basement storey, these support a second order of piers, similarly arranged, on which rests the dome. In the middle of the bapistery is a large octagonal basin of marble, raised on three steps.

Amongst the guests at the Lord Mayor's ball, on the 11th inst., was Miss Agnes Strickland, the distinguished authoress of the "Lives of the Queens of England."

GAS IN CLONTARF.

A movement is at present on foot to procure the very desirable commodity of gas for the neighbourhood of Clontarf and Dollymount, and several of the householders along the main road and in Castle and Vernon Avenues have subscribed their names to a document for the purpose. Without estimating the project in a pecuniary regard—which, no doubt, will be well digested by interested parties before action is taken—we may remark, that as to its desirability there can be but *one* opinion. During the winter months especially, the Clontarf road is, at night, one of the bleakest and most deserted about Dublin, and from the railway bridge to Vernon-avenue, about a mile and a-half in length, one rarely meets a human being but a solitary coastguard or policeman—the latter too few and far between; the additional protection, therefore, afforded to the inhabitants by a bright gas-light at convenient intervals, could not be too highly appreciated. We trust that our enterprising local companies —"the Alliance" and "the Hibernian" respectively—will at least be disposed favourably to consider the project.

INTERNATIONAL EXHIBITION, 1862.

We are requested to mention, that the National Committee of Architecture, in connection with this undertaking, having, with the sanction of her Majesty's Commissioners, appointed a sub-committee for the purpose of forming a court of high-class decorative art, in which shall be gathered the *chefs-d'œuvre* of all the specified classes of art—excepting sculpture and painting, these having their own separate galleries; all desirous of co-operating should at once communicate with the committee in Conduit-street, London.

THE LORD MAYOR'S BALL.

The present possessor of our civic chair is justly entitled to unqualified commendation both for his suitable maintenance of the dignity of that highly honourable position to which, through the favour of his fellow-citizens, he has for the second time succeeded, and for the munificent manner in which he dispensed on each occasion the hospitalities of the Mansion-house. The ball on the 11th inst., at which his lordship entertained some 2,500 people in honour of the visit of H.R.H. the Prince of Wales—who together with his Excellency the Lord Lieutenant, the Chief Secretary, and a host of nobility, were guests—eclipsed, both in numbers and in grandeur, any similar event; and indeed the citizens of Dublin, and we may add also the people of Ireland, owe a deep debt of gratitude to the respectful compliment thus paid on their behalf to so distinguished a personage as the—presumed to be in the ordinary course of nature —future monarch of these realms. During his royal highness' recent three months' stay in Ireland he has, with little intermission, been occupied with military studies at the Curragh camp, and the event in question may be fairly considered as his introduction to civilian life as far as Dublin is concerned. This again he has left for another sphere, to complete his collegiate course, but we trust—nay, we are bold enough to say we *believe*, judging from his affable demeanour at the ball—not without acquiring some affection for the Irish subjects of his illustrious and amiable mother. English, Scotch, and Irish are becoming better acquainted, and with the growth of that intimacy ancient prejudices pale and become matters of the past; and thus it ought to be, for we are all devoted to one common cause, "peace and progress," and our triple interests are identical. As one of the great contributing media to this desired end, we cannot but recognise the present chief maistrate, who is, to all intents and purposes, what a chief magistrate ought to be, and in all the various relations of life, whether public or private, entitled to unanimous respect. To accommodate so vast an assemblage as was to be collected on this occasion, the ordinary arrangements were somewhat altered. The oak-room, which is generally set apart for refreshments and supper, was appropriated as an auxiliary apartment for dancing, and in the courtyard a temporary shed, 136 feet in length by 20 feet wide, suitably decorated, was erected as a substitute. In the round or "king's" room a spacious dais festooned with Irish poplins, manufactured at the right honourable host's eminent establishment, and otherwise decorated, was set apart for the prince, the lord lieutenant, and other guests of distinction. Extending therefrom at either side was a platform with numerous seats for those who were not joining in "the mazy dance," and elsewhere through the room sitting accommodation was likewise provided. The illumination of this apartment was most brilliant and effective, comprising the letters V.R, Prince of Wales' plume, star of St George, in glass prisms, and a range of jets; and the general decoration, which we understand was committed to the care of Messrs Arthur Jones & Son, of Stephen's-green, was marked by good taste. We may, perhaps, here note a suggestion, that on future occasions of this character means should be adopted for more efficient ventilation, which might be effected at a comparatively small outlay, and is greatly required. The success of this public entertainment, which may be regarded, and no doubt will be recorded, as an *event* in the city annals, is to no small extent attributable to the energetic and business-like action, combined with great courtesy to all, of his lordship's very efficient secretary, Mr. John Martin, T.C., the amount of whose labours on the occasion can hardly be estimated.

THE COMMUNITY OF THE REGULAR OPERATIVE CARPENTERS AND MR. THOS. S. MARTIN.

TO THE EDITOR OF THE DUBLIN BUILDER.

Sir—Through the medium of your valuable journal, and in connection with the letters which have lately appeared in its pages on the subject of employment for the regular operative carpenters of the city of Dublin, we wish to address the following to Mr. Thomas S. Martin, in reply to a letter received by us from him on the 29th ult., and which appeared in the last issue of the Dublin Builder. The letter commences by stating, that "it is with extreme regret that he learned by the Dublin Builder of the 15th inst. that we have a number of men out of employment belonging to our body;" also, that "he has 100 persons employed in his joinery department, and out of that number he has only *two* Scotchmen and *one* Englishman." We presume this one Englishman is his foreman, for whom he sent to London. He further states that "when a deputation of our body waited on him, he told them that he was most anxious to avail himself of our assistance, and to employ us with other men, but that work upon the terms he offered was refused, unless he dismissed all his old hands who had faithfully served him since the commencement of his mills." To these assertions of Mr. Martin we reply, that they are wrong; for when our deputation waited on him he told them to send him a rule-book of our society; we did so accordingly, and another deputation waited on him during the following week for an answer. He told the members thereof that he would not pay the *uniformity rate of wages*, that he would classify the men, and pay them according to their abilities. With this proposition we refused to comply. By means of this arbitrary and unjust classification on the part of Mr. Martin, not only would the labour of the first-class artizans be subjected to an optional scale of remuneration, which might descend even below the regular standard rate of wages now paid by the regular builders, but the less experienced workmen would be reduced to a minimum utterly inadequate to their abilities, or what would be required to meet the necessities of life.

If the system of classification were permitted to become the rule, it would be impossible to assign a limit to the descending scale of wages which he would eventually establish. It is difficult for Mr. Martin to conclude, that the ability of any workman, who has passed through the long period of seven years' apprenticeship learning his trade, could be justly estimated at a less value than the ordinary rate of wages now paid. Even suppose he is engaged on the plainest species of work, its resulting amount during his period of weekly labour will, if assiduously executed, be fully equal to the established rate of wages generally received; but if Mr. Martin is of a contrary opinion, he has his *resource*, without originating any new and arbitrary classification of payment, to meet such a contingency—namely, to *dismiss* him, and engage another man in his place. This is the plain and rational course to adopt; it is one that would be, as far as possible, *satisfactory to both parties*; and this is the best answer to the insidious system of classification, the sole purpose of which is to raise and accumulate capital, to the injury of the operative.

No doubt, capital is necessary for the employment of labour, but also is labour necessary for utilising capital. In one respect they have a common interest—that is, upon the excellence and amount of work done, for upon that depends the gross profit to be realised, out of which is to be derived both profit for capital and wages for labour. So far the employer and workman have a common interest; but then the question comes--the division of the common produce between the two classes of producers. Mr. Martin desires to reduce the wages to the *lowest possible point*, in order that the profits may be as *large as possible*, while we only ask the regular standard wages paid by the regular builders. Without a fixed standard as minimum remuneration for special labour, the artizan is placed at the mercy of his paymaster. No one can doubt that when the master capitalists assume an offensive attitude, by wanting to reduce the rate of wages, the operatives have a perfect right, founded on their inherent interest and honest duty to themselves, to protest against what they consider—as in the present instance is submitted—an act of aggression and usurpation.

Mr. Martin further states in his letter, that "he is willing to employ the regular operative carpenters of Dublin." If so, why does he refuse to pay them the regular standard of wages paid by the regular builders of Dublin? He will *not*, unless we break our rules to please his arbitrary will, which we will never do. He has lately come from Australia, and has got the notions of the new world in his head; he looks on the people of Dublin as Lilliputians, and he is the Gulliver of the day, he thinks he can make 1,000 operative carpenters break their rules and communities, that have been held in Dublin by their forefathers for *two hundred years;* he also thinks that he will, after a time, sweep all the respectable master builders out of the market with his improved machinery. Who will compete with him when he has over 100 persons in his joinery department? What a monopoly in the space of a few months! when our most respectable and longest-established builder has not that number of carpenters employed at the present time. We have seen as great a capitalist as Mr. Martin at a loss by speculating on machinery for preparing wood goods; we have seen Mr. Paulding, of Manchester, the greatest contractor in it, at a serious loss thereby, where he had a large market for his work; for England is a manufacturing country, and Ireland is an agricultural one.

Again, Mr. Martin says, that "joinery works were first established to protect our local trade from foreign importations; that he saw mouldings, greenhouses, &c., upon our quays, so that a trade was fast leaving the country." We return Mr. Martin thanks for his patriotic views. We sent deputations to all our employers respecting the importation of wood goods from foreign markets, as we had steam manufactories in our city before Mr. Martin speculated. We had Mr. Meade and the two Mr. Kellys; these gentlemen went to a great deal of expense in getting up machinery. *They* are *regular builders*, they employ the *regular* operative carpenters of Dublin, and pay the *regular* standard wages; but Mr. Martin's protection establishment from foreign importation of wood goods, we say was established for *self* interest. He, being a timber merchant, and seeing the goods imported from England, had not the profit for his timber, but, having capital, got up machinery for preparing all kinds of work belonging to carpentry, and has men working for what wages he *thinks fit to pay them*, so that now he has the gross profit of timber and workmanship. We, therefore, think that he, as a *mercantile gentleman*, has no right to *monopolise* the trade of the *regular builders* of the city of Dublin.

Signed on behalf of the committee,

John Moork, Chairman.
Patrick M'Donald, Secretary.

CATHEDRAL CHURCH OF ST. MARY, LIMERICK.

In accordance with a promise conveyed in a preliminary notice of the restoration and other works for some time in progress in this venerable structure, we now present particulars:—

After the death, in 1857, of Mr. Augustus O'Brien Stafford, a desire was expressed by some of his friends that a memorial should be erected in this cathedral to his memory, and a committee formed for the purpose, and various plans being considered, it was decided to erect a stained glass window. and Mr. William Slater of London, architect, was employed by the committee to examine the church. At the request of the dean the east window was selected, and Mr. Slater reported that it would be necessary to remove the modern perpendicular window, which was out of character with the rest of the building, and that a portion of the roof, which was much decayed, should be renewed. The committee having adopted Mr. Slater's report, entered into contracts with Messrs. Ryan & Son for a new roof over the chancel and new stone work in the window; and with Messrs. Clayton & Bell for the stained glass. The erection of these works commenced at Easter, 1859, when the cathedral was closed, and were completed in the month of September following. It was then found that the ceiling over the rest of the nave was in such a dangerous state that it was necessary to remove it immediately. On the removal of the ceiling, the decayed and rough condition of the roof became so apparent that a proposition was laid before the chapter to execute some repairs, and to cover the spaces between the rafters with plaster. In a short time £460 was contributed, and in October, 1859, the amount was available for extending the new roof as far as the tower, in accordance with what had been erected over the chancel. In January, 1860, the dean and chapter voted the sum of £305 10s. 7d. for a new roof, and the lord bishop having added the sum of £50, a contract was entered into with Messrs. Ryan & Son. As it was necessary to have designs and specifications for the extension of the roof, the trustees requested Mr. Slater to supply them, and at same time to prepare designs for fitting up the interior of the cathedral, and to report generally upon the state of the building, so that they might have a complete design for the whole to guide future operations. At the time that the committee for the Stafford memorial was dissolved, the reredos under the east window was not completed, as they had only a sum of £25, which was not sufficient for the purpose; but further subscriptions having been obtained, the trustees agreed to complete the same on being handed over £70 10s., the cost of the work in London. The trustees also entered into contracts with Messrs. Cox & Son for new seats for the choristers, and canopies over the stalls, as far as the organ gallery, to be executed in carved oak. The dean having contracted for new seats in the choir, on removal of the old ones the floors of the chancel and choir were found to be in a very bad state, and unless altered, Mr. Slater's designs could not be carried out. The trustees agreed with Mr. Ryan to replace these floors. The trustees directed Mr. Ryan to open the clerestory windows, which had been blocked up in the choir, but open to the nave; and being without sashes, through them a constant stream of cold air passed into the outer part of the church. The opening of these windows has done much to restore the cathedral character to the building. In August, 1860, the bishop consented that the organ gallery should be removed. The dean undertook the removal of the galleries, and opened up the arches which had been blocked with brickwork and sashes. The dean opened the present organ gallery, where the organ has been erected, the lord bishop having contributed £50 towards the work. The dean also provided new stoves, new seats in the transepts, and soldiers' seats; removed all the monumental tablets into the north chapel, and cleaned the walls of the whole building. He also erected an entrance door in the south porch, and other works, which were executed under the constant supervision of the Rev. F. Hamilton. Capt. Brine, R.E., proposed to line the transept roofs with timber to correspond with the nave, without removing the outer roofs. For various reasons these works were not proceeded with, and almost all the subscriptions promised to him were handed over in aid of other works by the persons who had promised them. After the removal of the galleries, Lord Limerick and Mr. Hamilton handed over the subscriptions received by them, to assist the works carried on by the dean. Mr. Slater's attendance was again necessary to review the altered state of the choir, and subscriptions were obtained and applied to—

Extending the floor of the choir,
Providing twelve new oak stall seats.
Deans' and precentors' seats in carved oak,
Continuation of the carved oak canopies over the stalls,
Oak backing for the stalls.

The floors of the aisles were laid with limestone flags, which were almost always damp; on the removal of them, the earth, in consequence of numerous graves, was in a very bad state. It has now been covered with brickwork and Minton's tiles set in cement. Three rows of red marble steps from the Co. Clare have been laid at the entrance to the choir. As additional light was required in consequence of the increased height of the roof, gas pipes have been laid, extending through the church as far as the chancel. The vestry was heated by a stove, with a pipe passed through the window; a fireplace and flue, with an arrangement for conveying warm air into the chancel, has been erected. It was found that the water from the street passed in under the foundations of the east gable, and that in consequence the soil under the chancel floor was quite damp. The foundations have been flagged over and secured. A singular credence arch, with a circular window in the chancel, which had been blocked up, and a stove placed in it, has been opened up, the window glazed, and Mr. J. Peacocke has since replaced the marble slab which had been broken away. The Earl of Limerick finding that one of the peal of eight bells was broken, and the gear of all the others in such a decayed state that they could not be rung, had the broken bell recast, and the whole properly remounted, and has fitted up a neat room for the bell-ringers, with substantial floors. He also incurred considerable expense in having the bellringers taught by a professional man. A corps of young men have gratuitously undertaken the service, and the pleasant sounds of the bells, so famed in poetry, may now be heard after many years' silence. The Rev. Maurice De Burgh and Rev. Frederick Hamilton, in addition to liberal subscriptions, presented a carved oak altar table, chairs, and stools, at a cost of £50. The cost of the altar rail, steps, and encaustic tiles laid on brick floors in cement, has been given as an aid to the restoration. Mrs. C. Monsell, in addition to presenting an altar cover and altar linen, has, with Miss O'Brien, presented two gas standard for the chancel. Miss Baker collected a sum of money to purchase and present alms'-dishes. Lady Limerick has presented embroidered doilies for the alms'-dishes. Lady Inchiquin presented a kneeling carpet for the chancel. Some members of the Arthur family have restored the arches of the tomb in the north transept, which were broken and heretofore concealed by wooden panels. Miss Selina Maunsell collected a sum of money to provide new books for the church. The family of the late Archdeacon of Limerick have obtained a design for a stone pulpit, which they are about to present as a memorial of their father. Mrs. Westropp has directed her nephew, Mr. Ralph Westropp, to erect a memorial to the Westropp family in the south transept, to include a new roof, and new stone window filled with stained glass, and the complete fitting up of the transept, for which designs have been prepared by Mr. Slater, and approved of by the dean and chapter. Some ladies, desirous to make a special gift to the cathedral, have agreed to raise a fund, by subscriptions of £1 each, to present a font, &c. It is also in contemplation to erect, by subscription, a stained glass window in memory of the late Sir Matthew Barrington, Bart., to whose exertions the development of the railway system in Ireland is mainly attributable.

A FEW WORDS ABOUT CEMETERIES.

In earlier numbers of this journal we noted some particulars respecting the great receptacles for the dead, established during the present century in the suburbs of this metropolis, but as the subject is one of very general import, and, moreover, is, to a certain extent, associated with the pursuits of our professional readers, we recur thereto more comprehensively.

The term "cemetery" is of Greek derivation, signifying "a place of rest or sleep," and was applied by the early Christians to common places of interment.

From the earliest ages the disposal of the bodies of the dead has been a necessary, and with many nations a sacred duty. Among some we find that a superstitious veneration for those who had "passed away;" the necessity of funeral rites to secure the future happiness of the deceased; and the crime attached to the violation of the tomb, formed a part both of their civil and religious code. The practice of burying the dead in the earth is probably the oldest, as it is the simplest mode of disposing of them; but the custom of burning the body, and afterwards collecting the ashes, and depositing them in a tomb, or urn, became very general amongst the Greeks and Romans. The Egyptians do not seem to have ever adopted this practice; and even amongst the ancient Greeks and Romans it seems likely that interment in the earth was mostly resorted to by the lower orders. At the present day all European nations deposit their dead in the earth, and the ceremony of burning is extinct.

The situation of cemeteries is of great importance, both with regard to the public health, and from considerations of convenience. Among the Greeks we find that they were usually without the cities. Among the Romans the tombs were generally placed by the sides of the public roads. The early Christians followed the custom of the Romans, but they afterwards transferred their burial-places to the vicinity of the churches, and within towns.

Cemeteries should be placed on high ground, and to the north of habitations, so that southerly winds should not blow over the houses, charged with the putrid exhalations; low wet places should be avoided, and care should be taken that bodies be not interred near wells, or rivers, from which people are supplied with water.

It may not be uninteresting here to state that extra-mural, or suburban cemeteries, formed part of the plan of the celebrated Sir Christopher Wren, for the rebuilding of London after the great fire, "I would wish," says he, "that all burials in churches might be disallowed, which is not only unwholesome, but the pavements can never be kept even, nor the pews upright; and if the church-yard be close about the church, this is also inconvenient, because the ground being continually raised by the graves, occasions in time a descent by steps into the church, which renders it damp, and the walls green, as appears evidently in all old churches." He then proceeds to recommend, that a piece of ground, being purchased in the fields, should then be "enclosed with a strong brick wall, and having a walk round, and two cross walks, decently planted with yew-trees. The four quarters to serve four parishes, where the dead need not be disturbed at the pleasure of the sexton.

"In these places beautiful monuments may be erected; but yet the dimensions should be *regulated by an architect*, and *not left to the fancy of every mason*; for thus the rich with large marble tombs would shoulder out the poor: when a pyramid, a good bust, or statue on a proper pedestal, will take up little room in the quarters, and be properer than figures lying on marble beds; the walls will contain escutcheons and memorials for the dead, and the real good air and walks for the living."

Though the cemeteries which have been formed are pronounced to be only improvements on the places of burial in this country, and far below what it would yet be practicable to accomplish, they have indisputably been viewed with public satisfaction, and have created desires of further advances by the erection of national cemeteries. Abroad the national cemeteries have obtained the deepest hold on the affections of the population. They have been established near to all the large towns in the United States. To some of them a horticultural garden is attached—the garden-walks being connected with the places of interment, which, though decorated, are kept apart. These cemeteries are places of public resort, and are there observed, as in other countries, to have a powerful effect in soothing the grief of those who have departed friends, and in refining the feelings of all.

At Constantinople the place of promenade for Europeans is the cemetery at Pera, which is planted with cypress, and has a delightful position on the side of a hill overlooking the Golden Horn. The greatest public cemetery attached to that capital is at Scutari, which forms a beautiful grove. In Russia almost every town of importance has its burial-place, at a distance from the town, laid out by the architect of the government. It is always well planted with trees, and is frequently ornamented with sculpture. Nearly every German town has its cemetery, planted and ornamented. In Turkey, Russia, and Germany the poorer classes have the advantages of interment in the national cemeteries.

One of the most celebrated cemeteries in Europe is that of Pere la Chaise, but in this, as in all the cemeteries of Paris, it has been a subject of complaint, that the graves of the poor are neglected and little cared for, amidst the splendid monuments and sculptured ornaments which mark the tombs of the higher classes.

The first attempt at a cemetery in London, in imitation of that of Pere la Chaise, was made by the General Cemetery Company, who, in the year 1833, opened to the public their new and extensive burial-ground at Kensall Green. At the entrance there is a handsome gateway, from which a central walk leads to the church in the *consecrated* portion of the cemetery. In this building are solemnized the funeral rites according to the Church of England. In front of the church a large circle is appropriated to many of the more splendid tombs and mausoleums, and beneath it are extensive catacombs.

The establishment of the cemetery at Kensall Green was immediately followed by that of several others in the suburbs of London; one of the most picturesque of these is Highgate Cemetery, situated on the rising slope of the hill behind Highgate Church. Here, the natural beauty of the ground has been tastefully made use of, and the result produced is pleasing, if viewed as a pleasure-garden, though certainly conveying but little of that solemnity of thought and feeling we are accustomed to associate with a burial-place for the dead.

Norwood Cemetery is on the north-west side of a hill to the east of St. Luke's, Norwood. The entrance is an open arch, which, with the lodge adjoining it, are in much better taste than that of Highgate, although, had there been a gateway, the design would have been greatly improved. There are two chapels—one for members of the Church of England, the other for Dissenters—though varying somewhat in design, there is great similarity in their style, which is a sober, but correct Gothic. The principal objection is the injudicious position of these two buildings, which, from being too near together, neither form distinct architectural pictures, nor group so as to form one design. The architect was Mr. W. Tite.

Abney Park Cemetery displays evidence of a simple and pure taste in its buildings and general arrangement. The entrance, if wanting in architectural composition, has something bold and effective in its general appearance. The four piers are lofty and well-proportioned masses, constructed of Portland stone, upon granite plinths, and are surmounted by handsome coved cappings, in the Egyptian style. The lodges are in the same style, and extend the frontage to 118 feet, 40 of which are occupied by the piers and gates in the centre. The effect of this entrance is greatly enhanced by the park-like aspect of the grounds, and the fine old trees with which they are adorned. Nearly in a line with the entrance is the chapel, in the early pointed style, with lancet windows. The architect was Mr. W. Hosking.

The South London Cemetery is one of the most beautiful spots within the vicinity of the metropolis, situate at Nunhead, between Peckham Rye and New Cross. The grounds are most tastefully laid out—there are handsome lodges, a residence for the superintendent, episcopal and dissenters' chapels, and extensive catacombs. The architectural arrangements were superintended by Mr. Bunning.

The West of London Cemetery is situate at Earl's Court, and the buildings, &c., in the Italian-Doric style, are of a similar character to those previously described, and the grounds are laid out in the pleasure-garden manner, so popular with those who have the management and designing of cemeteries. It would be well were a few hints taken from the solemn, beautiful burial-places of the Orientals, in laying out such establishments in this country.

HUMAN LABOR AND EMIGRATION.*

Human labor is the most difficult article for a statesman to secure, and the possession of an abundant population has been held by the deepest thinkers on national wealth, to form the chief riches of a state. The subtlest minds have been at work to discover and apply machinery, which would supersede the ingenuity of the human finger, and multiply the strength of the human arm. The system of Irish agriculture seems to have been productive of an increase in the supply of that expensive commodity, human labor, at a rate which is without parallel, and the causes which placed Ireland so very high among labor-producing states gave to those parts of Ireland which were most rural the larger increase. Thus we find that the increase in the population which took place in the decennial period from 1821 to 1831, varies in the provinces of Ireland just in proportion to the employments of the people: the more they were engaged in agriculture the greater was the increase in the numbers. The total increase in the population (as shown by the census) from 1821 to 1831 was 965,574 persons, being at the rate of 14 per cent, but this increase was not equable over the entire island; thus in the province of Leinster, the increase was 9 per cent., in Ulster it was 14 per cent., in Munster it was 15 per cent., and in Connaught it was 21 per cent. During the following ten years—that is, from 1831 to 1841—the census returns show but an increase of 440,759 persons, but during this period there had been a greater emigration going on which absorbed about one half of the increase; the number of emigrants in this period was 403,459 persons, which would make the decennial increase 844,218 persons. We have no means of judging of the number of emigrants from each of the several provinces; the increase in the resident population during the second decade was 5 per cent. on the population of 1831 (or 6 per cent. on that of 1821). The relative proportions for the different provinces is slightly varied; the greatest increase during this second decade is in Munster. The increase (exclusive of emigration) was in Leinster 3 per cent.; in Ulster, 4 per cent.; in Connaught 5 per cent.; and in Munster 8 per cent.; thus making the increase for the whole of Ireland in the 20 years 19 per cent.; in Leinster it was 12 per cent.; in Ulster, 18 per cent.; in Munster, 23 per cent.; and in Connaught, 26 per cent.

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* From a paper read by Mr. Fisher at recent Social Science Congress.

The increase which had been going on during these twenty years was all lost in the following ten years. Pharoah's dream was repeated, and the gain of the former period was swallowed up by the leanness of the period from 1841 to 1851, when the decrease in the population of Ireland was 1,623,154 persons. The gain during the former ten years was 440,759 exclusive of an emigration of 403,459 persons; thus making a deficit which would be equal to 2,467,372. Of these we find about one-half (1,240,237) are accounted for by foreign emigration. During this period a very large emigration also took place from Ireland to Great Britain, of which we have no account. This tendency to export our population has continued, and during the ten years from 1851 to 1861 the population of Ireland has further diminished by 787,842 persons, to which if we add the ratio of the increase at the rate of ten years from 1831 to 1841 (which would be about 600,000), would make the increase 1,387,842. The foreign emigration from Ireland, during the latter periods, was 1,230,986. The decrease between 1841 and 1851 was 19·85 per cent for the whole of Ireland, and between 1851 and 1861 it was 12·02 per cent. It was not equally divided among the provinces, as it was effected by the causes which mostly affect agriculture. The decrease for the ten years ending 1851 was—Connaught 29 per cent.; Munster, 22½ per cent.; Ulster 15½ per cent.; Leinster 15½. During the ten years ending in 1861 the decrease was—Munster 19 per cent.; Leinster, 14 per cent.; Connaught, 10 per cent.; Ulster, 5 per cent.

Ireland has now a smaller population than she had in 1811. The loss of population during the past twenty years has more than counterbalanced the increase during the previous thirty years.

If it be the case that a system of agriculture affects the creation or production of human labor, we should follow its indications, and seek to discover the causes which led to a decline in that dearly-raised, and (as experience shows) easily-lost commodity—human labor. It may be remarked that I speak of a people not stinted from the want of a sufficiency of suitable food; but of a people fully developed in their physical constitution, and hardy, robust, and spirited—who had almost too much animal spirits, as indicated by their pugnacity and tendency to quarrel; a race which was admired by strangers for its general healthiness and fine appearance, and which, though deficient in many respects, deserved the attention of the statesmen to raise and educate, rather than the sentence of extermination and banishment that was unconsciously passed on them. That there was a tendency towards thriftiness is shown by the fact that the deposits in the savings banks from 1821 to 1831 were about £1,000,000 sterling, and from 1831 to 1841 they were a similar sum; the total deposits in 1841 were £2,243,426, and they went on increasing until 1855, when they reached £2,921,581. The further fact, that the holders of land in quantities of less than five acres had in 1841 on their farms live stock to the value of nine millions sterling, or what was fully equal to three years' rent of their holdings. These facts show (if it were necessary) that there was a conservative tendency in the minds of the Irish people—that a desire to save had taken possession of their minds. There were many things which indicated that Ireland was not over-peopled in 1845. The inhabitants had a large surplus of agricultural produce to give in exchange for the commodities of other countries, and hence were large consumers of the manufactures of England and the produce of other climes.

DRUIDICAL ARCHITECTURE.

A term applied to a class of structures composed of rough unhewn stones of great size, the erection of which is generally attributed to that family of mankind classed under the name of Celts, more especially to the Druids.

These erections are of various descriptions, some consisting of a single stone, others comprising many hundreds; their arrangement also differs very greatly, yet at the same time there is a general similarity which readily marks their relation. The remains are more numerous in this kingdom than in any other, but they are by no means confined to it, similar erections being found not only in the neighbouring islands, in France, Germany, the Netherlands, Portugal, Sweden, and Denmark, but also in Phœnicia, Palestine, India, Malabar, Persia, and China, and even in the western continent. To account for the existence of these works in such remote regions, their construction has been attributed to the Celtæ. These Celts, or Gauls, as they are termed by the Romans, are supposed to be descendants of Gomer, the son of Japhet, whose posterity were called after his name, Gomerians, a title which is identical with the Cimmerians of the Greeks, and the Cimbri of the Latins.

The monuments erected by the Celts may be divided and classed as follows:—Lithoi, composed severally of one, two, and three stones, to the first of which is applied the distinguishing appellation monolithon, and to the last that of trilithon. They have all the common name of Cromlechs. After these come the kist-vaens, or chests, composed of four stones, and lastly, circles comprising a large number of stones. Further, we have logan, or rocking-stones, tolmen stones, cheese-rings, and cairns.

The most simple of these structures are the monolithoi, or single stones, of which we find a great number in various parts of the British Islands. The first mention of such stones we find, is of that set up by Jacob after his dream, which he named Bethel; the next is that set up by Joshua under an oak by the sanctuary, as a witness unto the Israelites, lest they denied their God. Another stone is spoken of at a later period, called the stone of Abel, upon which the ark was rested; and another, which was placed by Samuel between Mizpeh and Shen as a memorial of the Divine assistance. We read also of the stone Ezel, and the great stone in Gibeon. Many such stones are seen in Palestine at the present day, but not in the places mentioned in the Old Testament. The same kind of stones are almost universal in India, few, if any, of the temples being without them; there are two also in Tyre. It is suggested, that the pillars of Hercules were of this class, and with some probability, as Arrain says, that "Gades was built by the Phœnicians; the sacrifices and ceremonies there performed are all after the Phœnician manner;" and Strabo adds, that there were here two pillars dedicated to Hercules. Plato mentions a pillar connected in some way with the Amazons, and similar lithoi were to be seen at Megara, at Cheronæa, in Thessaly, Ionia, and Mauritania, one also within the walls of Athens. Cyrus erected obelisks over the grave of Abradates, king of Susa, and over those of his wife and officers. Further north we find such stones in Denmark, Sweden, Scotland, England, and in our own country.

Next to the lithoi, or cromlehs, stand the kist-vaens, or monuments of four stones, consisting of three uprights, and one horizontal stone covering the whole; they are often found in or near circles, and are frequently accompanied with barrows of various kinds. Kist-vaen is a Welsh term, and signifies stone-chest, but the term quoit is frequently applied to the same structures, more especially in Cornwall, and there is one near Cloyne, in Ireland, named Carig-Croith, which is interpreted Sun's House. Such monuments are found in abundance, and in every quarter of the globe.

The most remarkable of the circular erections in Great Britain are those of Stonehenge and Abury, both of which are situate in the neighbourhood of Salisbury Plain. The former, about seven miles north of Salisbury, is approached by a broad avenue protected on either side by a vallum, or long mound of earth; this avenue leads into a large circular platform, 300 feet in diameter, enclosed from the surrounding plain by means of a vallum 15 feet in height, with a ditch on either side of it, and, as some suppose, by an inner circle of stones, some few having been found in immediate proximity to the outer circle. In the avenue, at a distance of about 100 feet from the circular ditch, is a large stone inclining towards you as you approach, and a similar one in the ditch at the entrance. Passing onwards in a straight direction you approach a large number of stones composing the temple, more especially so termed, which consists of an outer circle of stones 14 feet in height, seventeen of which still remain, six scattered in various parts of the circle, but eleven on the north-east side, at equal distances from each other, forming a continuous segment of a circle, thus demonstrating the form and position of the whole. This circle consisted originally of thirty stones, surmounted by a continuous impost of large flat stones, which were fitted on to the uprights by mortise and tenon, and formed a complete and regular circle. Within this enclosure is another of a similar figure, and 83 feet in diameter, composed of the same number of stones, which however are of smaller dimensions and without imposts. Within this again were five separate structures, termed trilithons, each consisting of two large stones surmounted with an impost, and having three smaller stones a short distance in advance. These structures were situate, one immediately opposite the avenue, and two on each side of it, leaving an unoccupied space for an entrance. The larger upright stones were more lofty than any of the others, one of them measuring upwards of 21½ feet in height; thus overtopping all the outer circles. In front of the central trilithon is placed, by Stukeley, a low flat stone, supposed to be an altar. The avenue noticed at the commencement of this description is continued in a north-easterly direction for a distance of about a third of a mile, where it separates into two branches, the one leading southward between two rows of barrows, the other in the opposite direction for more than a mile and a half to a spot called the cursus, which is a flat tract of land, bounded on each side by banks and ditches, and at its extremities by barrows or tumuli.

The number of stones employed at Abury and Stonehenge, with their distribution, as given by Dr. Stukeley:—

ABURY.	Stones.
The great circle contains	100
North temple, outer circle	30
North temple, inner circle	12
South temple, outer circle	30
South temple, inner circle	12
The cove and altar	4
Obelisk and altar	2
The eastern avenue	200
The western avenue	200
Hackpen, outer circle	40
Hackpen, inner circle	18
Long stone-cove jambs	1
The Ring stone	1
Closing stone of tail	1
Total	652

STONEHENGE.	Stones.
The great-circle uprights	30
The great-circle imposts	30
Inner circle	40
Trilithon uprights	10
Trilithon imposts	5
Inmost stones	19
Altar	1
Stones within the vallum	2
Large table stone	1
Distant pillar	1
Stone at entrance	1
Total	140

Logan stones, or rocking-stones, as they are less technically termed, are stones, often of an immense size, poised on others, or on natural rocks, in such a peculiar manner, as to move with the slightest touch. They seem to have been erected at various times and places. They were known to the Greeks, and called by them *λιθοι εμψυχοι*, or live stones, also named Petræ Ambrosiæ, from the ceremony they underwent of being anointed with oil. Pliny takes notice of one erected by Lycippus, at Tarentum, and also of one at Cyzicum, which is said to have been left by the Argonants; but the most celebrated was the Gygonean stone, near the Pillars of Hercules, of which Ptolemy Haphæstion relates that it stands near the ocean, and may be moved with the stalk of an asphodel, but cannot be removed by any force. Pliny likewise says of one at Harpava, in Asia, that it is of so strange and wonderful a nature, that if even a finger is laid on it, it will move, but if you thrust it with your whole body, it will not move at all.

These stones are very common in Britain; there are several in Cornwall and Yorkshire, as also in Scotland, where they are called Claca Breath, or stones of judgment; it is known that there existed formerly several in the Island of Iona, which have since been destroyed. In some cases the stone rests on two points, in others on one; it is said that the junction was formed in one instance in Scotland, where the stone had been removed, by a protuberant knob in the upper stone fitting into a socket.

Wring-cheeses, so named from their resemblance in form to an ancient cheese-press, consist of large masses of stone placed one upon the other for several tiers, the whole resting on a base of much smaller dimensions than the superincumbent mass. By some it is contended that they are merely the productions of nature, but it seems more reasonable to suppose that at least some art has been employed in their formation. They are by some termed rock-idols, under the supposition that they were worshipped as gods.

At New Grange, near Drogheda, is a curious sepulchral pyramid of stone, formed of pebble stones, the weight of the solid contents of which amounted to no less than 189,000 tons. The plan of this monument is curvilinear, and covers about two acres of ground, and is surrounded by a number of large unhewn stones, rising about 7 feet above the ground; the height of the pyramid is calculated at 70 feet. A great number of stones, removed for paving and other purposes, led to the discovery of a passage leading into an interior vaulted apartment. This passage began about 40 feet within the body of the work, and is entirely composed of large flag stones; its length is 61 feet, the width 3 feet, and the height varies from 2 to 9 ft. This passage leads into an octangular vaulted apartment, whose diameter is 17 feet, and its height twenty; the vault or dome is remarkable as being composed of overlapping horizontal stones, the upper ones projecting inwardly beyond the lower, sustained in their position by having a large portion of each stone upon the one beneath it, than projects towards the interior: this construction is exactly similar to that of the tomb of Agamemnon, or treasury of Atreus at Mycene. The side of this irregular octagon immediately opposite the entrance, is formed into a niche, as are also two sides at the right and left, similar to the erections called kist-vaens, the last two containing each a rock-bason. This building is, we believe, the only one of its kind existing in Britain.

BALBEC.

Balbec, or Baalbec, a famous city in Syria, celebrated by the Greeks and Latins under the name of Heliopolis, the city of the sun, or Baal. It was surrounded with walls, which were flanked with towers at regular intervals. The principal remains consist of the great temple, a smaller one, called by Mr. Wood the most entire temple, a circular temple of a singular construction, and a Doric column standing alone. The longitudinal direction of the great and most entire temples is east and west. Before the entry to the great temple are two courts and a portico, which face eastwards. After passing the portico, we come to a hexagonal court, surrounded with columns and apartments; we thence enter a quadrangular court, the area of which is also surrounded with columns: on the north or south side of this court are seven apartments, or exhedræ; five are rectangular on the plan, one stands in the middle, having a semicircular exhedra on each side of it. These were probably lodging rooms for the priests. At the other extremity of this court, upon the south, are columns of a colossal magnitude, being the remains of the peristyle of the temple. The shafts are twenty-one feet eight inches in circumference; and the entire height of the columns fifty-eight feet.

The columns are all joined with iron cramps, and without cement, which is nowhere used in these edifices, but the surfaces are so close that there is hardly room for the blade of a knife to be inserted between them. The stones which compose the sloping wall are of enormous size. On the west the second course is of stones from twenty-eight to thirty-five feet long, and nine feet in height; and at the north angle, over this course, are three stones, which occupy one hundred and seventy-five feet seven inches. The shafts of the columns of the great temple consist each of three pieces which are joined with iron pins about one foot long, and one foot diameter. Most of the bases had two sockets, one circular, and the other square. Greek and Roman authors are entirely silent as to these astonishing ruins.

CONDITION OF THE LABOURING CLASS IN KERRY.

In the course of a comprehensive view of "Ireland's agricultural prospects," by the special correspondent of the *Times*, who represented that journal on the occasion of her Majesty's visit, we find the following:—

"Kerry labourers are badly off. Winter wages for men are commonly only 6d. a day, and many men work during that season for diet only, while their families go into the Killarney, Tralee, and other 'Unions.' But in many districts better pay prevails. Mr. Herbert's labourers at Muckross have 8s. a-week the year round, with a rent-free cottage of three ground-floor rooms—with unplastered inside walls to be sure, but palaces in comparison with many of the country cabins in which human beings are condemned to be born, to fare hardly, and to die with every comfort unknown. These better-paid hands live better, dress better, and *are* better than men stinted on lower wages; and if their case is a proof that poor half-starved Paddy will not invariably spend an extra shilling in potheen, as his calumniators sometimes tell us. Lord Kenmare, or his large property, furnishes labourers with plots of ground for keeping cows, not under the control of the farmers employing them; and the distress prevalent in Kerry is, therefore, checked by many cases of tolerably easy livelihood obtained by industrious men. In Killarney itself, it is a fact that the poor are specially dainty about the quality of their bread-loaf."

GRAND JURY "TRICKS OF TRADE."

We have already announced that there is an attempt being made by a committee to effect the reformation of the grand jury laws, the desirability for which may be inferred from the following exposé by Mr. Edward Burke, of Scariff, of some secret workings in the present system:—

"The flagrancies of the grand jury laws are imminently numerous. A protection wall must be built to a road skirting a deer park or a demesne, a bridge near a nobleman's gate must be taken down and re-built of granite, its sections and battlements must be cut stone, its sideways must be flagged, and it must have pillars of approach; but nothing of this for ornament—for decoration—oh no; 'tis all a question of durability and strength. A hill most dangerous to wayfarers must be cut down. The query book will describe it as on the high road leading from A to B; so it may, but it is also within musket shot of Viscount Somebody's grand gate. A most useful road is presented. Lord Anxious subscribed £500, as it goes only through his estate, but how does my Lord Anxious subscribe? He gets his agent to take the contract, and now comes '*the trick of trade.*' Sixpence a perch, along with his lord's subscription, would make the road; but my Lord Anxious gets his agent a contract from the sessions and jury of eightpence, which makes the road without the subscription, so that while his lordship subscribes the public pay his subscription. Oh! *Timeo Danaos et dona ferentes.* Instances are invidious things, but it is in no wise impossible to find a road leading nowhere else than to a gentleman's hall door, kept in repair by public contract; but these are only the small dodges, the slight civilities, the trivial goodnaturedness of grand juries. It is in the scheme of re-presentments they do up the cesspayer. No matter how great the defalcation of the officer, it is re-presented, and the county must repay it! New officers are always the nominees of some potentate of the grand jury; he may swindle a little, peculate a little, plunder a little, his defalcations with the treasurer are looked on as forbearances to the cesspayers. Finally, the deficit is re-presented—paid over again by the public; then the officer closes his accounts. If circumstances don't favour him, he absconds with a few thousand pounds, but no matter, the fiat of re-presentment goes forth from the next assizes, and what the officer pilfered the public must repay. . . . . In the county Mayo, this very year, £11.633 has been re-levied by this process to meet the defalcations of official malefactors. A striking and unanswerable proof of the superiority of elected over self-constituted bodies is found in the results of the medical charities act. Up to the passing of that act grand juries had the control and management of dispensaries. Since then, committees formed of the poor law guardians. What is the consequence? Instead of 80,000 cases relieved (as in the old system) yearly, we have 761,635 tickets attended to at very little greater cost. In fact, as the report (page 14) states, the present dispensary system is as superior to the grand jury system which it has replaced as one thing can possibly be superior to another. What stronger proof can exist of grand jury incompetency? While in their hands the department was an incubus. Taken from them and given to the management of elected bodies, poor law guardians, it becomes at once a powerful adjunct of poor law relief and a great engine of public charity."

DRAUGHTY DWELLINGS.

TO THE EDITOR OF THE DUBLIN BUILDER.

Sir,—Your recent capital article on "*Quantity* and *quality* of ventilation" struck me as being particularly truthful, more especially that portion referring to the construction, in utter defiance of all sanitary principles, of the majority of buildings, domestic included. I unfortunately practically experience the force of your remarks, both in town and country, for my town house is as ill ventilated as it is possible to be, although full of draughts, which meet one at every point; and even with fires in each apartment sufficient (quoting your own words) "to roast an ox," it is impossible to maintain anything like a uniform temperature, and an equable diffusion of *fresh* and withdrawal of *foul* air. Myself and family are consequently nearly all the winter laid up with colds, and despite all precautions, are compelled to shiver out that inclement period; and not much better are we circumstanced in our suburban *refugium*, when "it smells frosty," as it is doing just at present, somewhat too soon to relinquish it for the season. Mr. Editor, you have done signal public service in many respects by the class of information communicated through the pages of your work—so valuable that it deserves most extensive support; and I would make bold to ask you to enlarge on this all-important subject, and enlighten our modern architects and builders on the principles which should guide them in the construction of *habitable* and *wholesome* dwellings.

A Constant Reader.

Notes of New Works.

Mr. Robert Samuel North, of London, has been declared contractor for the completion of the line of railway from Goragh Wood to Markethill, at £90.000, two years being the time allowed.

The construction of the lines from Longford to Sligo, from Streamstown to Clara, and the Liffey branch is being proceeded with by the Midland Great Western Railway Company.

The new church of St. Dympana, Lavy, in the diocese of Kilmore, will be consecrated on the 13th October. It comprises nave, chancel, sacristies, porches, and belfry, and is 105 feet in length by 35 feet in width. A spire, rising to a height of 125 feet, will hereafter surmount the tower. Cost about £1,5[illegible]0; Mr. Ryan, architect.

Messrs. Hammond, of Drogheda, builders, have taken the plot of ground opposite the Amien-street railway terminus, and are erecting workshops, &c.

An enlargement of the church on Obelisk Hill, Killiney, by which the size of the structure will be nearly doubled, has been undertaken. The cost will be about £500.

Messrs. Stringer and Emerson, builders, of Clifden, have contracted for the building of a new church at Renvyle, Co. Galway. Plans, &c., by Messrs Welland and Gillespie, architects to the Ecclesiastical Commissioners.

A new weir and artificial watercourse are to be constructed at Brittas, Co. Dublin, under the direction of Mr. Brazil, C.E.

The new Roman Catholic church, for some time in course of erection at Clare, has been completed.

The first stone of the new Roman Catholic church of Tournafulla has been laid by the Earl of Devon.

The Marquess of Abercorn, in the absence of Lord Clifford (chairman), turned the first sod of the Finn Valley Railway, on the 9th instant.

The new church of Blessinton, Co. Wicklow, has been dedicated. It is advantageously situated on an eminence, and is in the Gothic style, cruciform on plan, about 90 feet in length by 25 in width, and 60 feet across transepts, has roof of open timber work, great east and west windows, belfry at west end, &c.

Gas is to be introduced into the town of Ballyshannon, and a company has been formed for the purpose, who are now seeking tenders for the requisite works, mains, &c.

The foundation stone of the new Roman Catholic church at Lixnaw, Co. Kerry, has been laid and blessed by the bishop.

A new Roman Catholic church is being erected at Mount Courtney, Newcastle west, Co. Limerick. The first stone was laid on 27th ult. by the Earl of Devon, who has granted a site, and contributed largely to the building fund. Mr. Scanlan, Listowel, builder.

A new marble altar has been recently erected in Moneygay Roman Catholic church, Co. Limerick. It was designed by Mr. W. E. Corbett, architect, Limerick, and executed in a very creditable manner by Mr. Kirwan, Bolton-street.

Extensive works, in conjunction with the Constabulary Depot, Phœnix Park, will be immediately undertaken. Plans are in preparation at the office of Public Works

The rebuilding of the houses recently occupied in Upper Sackville-street by the Standard and Colonial Insurance Companies respectively, has been commenced under the directions of Mr. W. Murray, architect; Messrs. Cockburn and Sons, contractors.

The new parish church of SS. Peter and Paul, Moate, is abont to be commenced after designs by Mr John Bourke, architect. It will be cruciform in plan, comprehending nave, aisles, transepts, side chapel, apsed chancel, bell tower, and sacristy; the total dimensions being 110 feet by 25 feet, and breadth across transepts 70 feet. The style selected is a character of Norman.

Miscellaneous.

Obstruction of the Thoroughfares.—On Saturday week two men, named James Keogh and Peter Lynch, were charged at Head Police-office by Constable 146 B with obstructing the thoroughfare in Grafton-street. It appeared that they were in the employment of Mr. Meade, builder, who is carrying on some work in Grafton-street, and that the obstruction was caused by occupying the street with carts of rubbish. Mr. Meade attended, and complained of his work having been stopped by the police. There was no other way of removing the rubbish than that which was adopted.

Mr. M'Dermott said an obstruction in so crowded a thoroughfare as Grafton-street was a cause of great emparrassment, and could not be allowed. It was his intention to write to the Commissioners of Police on the subject. He would not fine the men, but the constable might proceed against them by summons. In the meantime the obstruction should be discontinued.

Pneumatic Despatch.—The last experiments have been carried on with a portion of the tube, and a set of apparatus prepared for the line from the General Post-office to Bloomsbury, and have resulted in proving the complete sufficiency of the disc arrangements for producing the power, as well as in showing that the power may be conveniently and economically applied. The directors have placed them in communication with the Post-office, the railway companies and other parties, with a view to arrangements for the immediate construction of the first section of their works. The extension of the works, to comprise the entire parcel delivery of London, must speedily follow. Single carriages, and trains of carriages, of weight varying from one to three tons, have been successfully passed through the tube, or portions of the tube, at speeds varying from fifteen to forty miles an hour, under pressures ranging between 1oz. and 6oz. per square inch only; and these experiments have been repeated from day to day with uniform results. The transmission of the power from end to end of the tube is apparently instantaneous, the buffing and delivery of the trains under perfect control, and generally the combination too possesses an elasticity in its working which is all that could be desired. As regards economy of power, the engineers have no doubt it will be found that a fair per centage of useful effect is obtained, while in respect to the much more important consideration—convenient application of power—the advantages of the medium employed are too obvious to need remark. On the whole, they are fully satisfied with the results obtained, and are convinced that the company possesses in the new system a means of transmission, which, from the great facilities it affords, must soon come into extended practical use.

Accident.—A night watchman at Rush, on the Dublin and Drogheda Railway, was killed recently by the engine of a train, while walking along the line. No blame is attributed to the driver.

The Director General of the Museum of the Louvre has lately placed a second painting by the celebrated Hobbema in the gallery o the Dutch Masters. This painting represents two water mills with four wheels; a rustic bridge is thrown over a river, and right and left are woods, over which sunshine produces a very pleasing effect. This painting, which formed part of the gallery of the Duke of Mecklenburg, was purchased by the French government for 52,5 0f. The other painting was purchased from M. Nieuwenhuys, in the year 1850, for 18,000f. It represents the interior of a forest. The Louvre possess at present two paintings by Hobbema and three by Paul Potter.

Prize Medal.—Mr. Maclise, R.A., and Mr. L C. Wyon, have been entrusted with the designing and execution of the prize medal, to be given to successful exhibitors at what may be termed the Palace of Industry, next year. The dimensions of the medal will be identical with that given in 1851, as well as the material of which it is composed—namely, bronze.

Harbour Improvements.—A number of labourers are at present employed by the Drogheda Harbour Commissioners in executing certain works on the north side of the viaduct, preparatory to opening a quarry on the ground recently purchased from Capt. Ackland. It is understood that eventually the quarry will be converted into a graving-dock, where vessels can be hauled up, their timbers examined, and undergo repairs if required, instead of their being, as at present, obliged to proceed to Liverpool or elsewhere for that purpose. This cannot fail to prove acceptable to those having an interest in the shipping of the port —*Drogheda Paper.*

The Genius of Irishmen.—"Ireland," says Sir James Macintosh in his dissertation on the Progress of Ethical Philosophy, "may truly be said to be 'incuriosa suorum'" This remark must be understood with considerable reservations. As far as its orators and wits are concerned there is no nation in Europe that is more careful of its intellectual glories. No Irishman requires to be reminded that he is the countryman of Burke. The names of Grattan and Flood, of Curran and Plunket, have actually degenerated into claptrap. The memory of Sheridan and Moore is in no danger of being lost, and Goldsmith is a household word that lives on every lip. Here. indeed, the fault of an Irishman would seem to be in an opposite direction. He claims Swift as a countryman, because Swift, though the son of English parents, first saw the light in Dublin; and he arrogates the genius of Sterne, because Sterne happened to be born when his father, a captain in a marching regiment, was stationed in Clonmel. In philosophy, however, the remarks of Sir James Macintosh is true. A native born Irishman—Johannes Duns Scotus—is generally regarded as a Scot. The birthplace of Hutcheson, the Irish founder of the Scotch philosophy, is unknown. The philosophy of Berkeley, overwhelmed as it has been with misrepresentation, has been vindicated with no Irish pen. The existence of one of his most important works was first pointed out by a Scotchman; and it is an Englishman who has at length superintended its republication, and transmitted it to Ireland as a contribution of the English press. And yet, in earlier times, the Irish genius was more remarkable for dialectic subtlety than for either impassioned eloquence or spontaneous wit. The disputants of the Irish College in the University of Paris were satirised as "Gens ratione furens et mentem pasta chimæris." An Irish tutor harassing a professor of Salamanca with a sorites, was regarded by Bayle as the very type of scholastic subtlety. It was to the uncouth Hibernian figures that prowled about the halls that Gil Blas addressed himself for disputation when prosecuting his logical studies at Oviedo. In short, as Sir William Hamilton remarks, the Hibernian logician was long celebrated in every University of Europe for his logical acuteness, and—tell it not in the Island of Saints—for his pugnacity and barbarism also.

Memorial Window in St. Michael's Church, Kingstown.—A very elegant memorial window has lately been erected in this sacred edifice by the Messrs. O Conner, of Berners-street, Oxford-street, London, and Glenageary, Kingstown, in memory of Major M'Kenna, of the 1st Royals, who was killed by a round shot at the Peiho river in China, in the attack on the Taku Fort, from which our troops had been repulsed a few years ago, but since captured. The memorial is erected by his brother officers in commemoration of his gallant and courageous conduct on that occasion, and the universal esteem in which he was held by both officers and men. There are four compartments in the window representing Gideon, David, with the head of Goliah, St. Michael, patron of the church, and St. Andrew, patron of the regiment. It is a very creditable work of art, and reflects much credit on the Messrs. O'Conner.

Population of Paris.—The following is the movement of the population of Paris and of the department of the Seine, since the quinquennial census of 1856, as shown by that which has just taken place. The population of enlarged Paris, divided into 20 arrondissements and 80 quarters, now amounts to 1,696,000, being 521, 54 more than it was in the 12 arrondissements in 1856. In the department of the Seine the number is now 1,953,000, being an increase since 1856 of 225,581.

The Mayoralty.—It has been estimated that the expenditure of the Lord Mayor (Atkinson) during the year will amount to nearly £8,000, the revenue of the office which he now fills for the *second* time being only £2.000. He has worthily sustained the character of the city for hospitality by the recent ball, and the banquet given by him to Lord Brougham and other distinguished members of the Association for the Promotion of Social Science.—*Saunders.*

Treasurership to the Ecclesiastical Commissioners.—An election for this vacant office will take place on the 10th proximo. It is hardly fair to anticipate the result. but we trust that the past services of an efficient and long-tried servant, said to be a candidate, will receive due consideration.

Hereford Cathedral Restorations —The Dean and Chapter of Hereford have just prepared a statement of the work of restoration at this cathedral already effected, and yet to be completed, which has been distributed among the visitors at the musical festival now holding in that city. From this statement it appears that of the sums borrowed on mortgage (£13,000). under the Hereford Cathedral Restoration Act, from 1859 to 1861, £10,000 has been expended on the external and internal restoration of the north transept and aisles, the south transept, the north aisle of the choir, including Bishop Stanbury's Chapel, the north-east transept, the south-east transept, the south aisle of the choir, the chapter-house and vestibule, the Layde Chapel and vestibule, and Bishop Audley's Chapel, and the external restoration of the north aisle of the nave, the north porch, the south aisle of the nave, and the great cloisters. They have, therefore, £5,000 in hand to meet the balance of existing contracts and the cost of flooring generally (except the choir), repairing and refixing monuments, releasing parts of the roof, repairs of inner stonework. &c. The following additional works are proposed to be executed if funds can be raised for the purpose:—Fitting up and flooring of the choir. the restoration of the external stonework of the tower, lighting the cathedral for congregational use, and fitting up of the Ladye Chapel for service for St. John's parish. These works are estimated to cost £8,000, towards which the Dean and Chapter have a sum in hand, and promises of £3,553 10s. 10d., leaving £4,446 9s. 2d to be provided. They therefore appeal to the public for pecuniary aid, and state that if the funds were supplied the whole of the works in the interior might be completed and the cathedral opened in October of next year.

Progress of English Art Manufactures.—"To the intending purchaser of so important an article of personal adornment and utility, it is of some importance to be informed where he may meet with these more tastefully-embellished watches, and to be thus saved the annoyance and loss of time of a fruitless search. To such we shall be doing a service by informing them that the show-rooms of Mr. J. W. Benson, of 33 and 34, Ludgate Hill, and 46 and 47, Cornhill, contain a rare and most extensive stock of watches, ornamented with exceedingly beautiful designs; indeed, their exquisite taste leaves nothing to be desired by the educated The high repute which Mr. Benson has attained for the qualities of his manufacture stands second to none. Here, then, will be found perfection of workmanship. combined with the highest order of art in embellishment. Mr. Benson's show-rooms are the most distinguished in the City for spaciousness and the unexampled variety of his stock."—*Morning Advertiser.*

Benson's Illustrated Pamphlet, post free for two stamps, is descriptive of every construction of watch now made. Watches safe by post to all parts of the globe.

TENDERS

For alterations and additions to District Lunatic Asylum, Clonmel. Mr. George Wilkinson, architect.

Troy	£3,600	0	0
Cosgrave (accepted)	2,900	0	0
Ryan	2,600	0	0
Tobin	2 440	0	0

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☞ *NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the* Dublin Builder," 42, Mabbot-street. *All other Communications should be addressed to the "Proprietor and Editor,"* 17, Lower Gardiner-street.

TO SUBSCRIBERS AND ADVERTISERS.

Subscribers and advertisers to whom frequent applications have been made by circular and otherwise for various amounts of accounts furnished, will have the goodness to remit same to the office, as directed. It must be obvious to all that the character of this journal entails more than ordinary *expense for each publication, and judging from the good feeling manifested towards our mission by all classes, we are quite sure it is only necessary to remind those indebted that a multitude of individual items, however small, serve to form a very important aggregate.*

The Dublin Builder.

Vol. III.—No. 43.

UNREQUITED LABOUR.

THE members of every profession or occupation have usually a certain degree—whether positive, comparative, or superlative—of up hill work to encounter before they attain even half way their ascent of the ladder of fame; but as a general rule, we believe that those who embark in the pursuit of architecture experience more difficulty even in climbing a few rungs of the aforesaid ladder, than have any other of their professional cotemporaries in attaining its summit. A youth who has just emerged from his period of probationship, exulting upon the smooth path that apparently lies open before him, imagines that because he can produce a few "pretty pictures," and "try his hand" at writing a specification, he must be in the fair way of making a fortune, and with very little trouble too—in fact, the foundations of his "castles in the air" are already being formed in his imagination, and he entertains no small opinion of his social and professional consequence. However, after a little experience—that infallible teacher—he finds that he has not been dealing in realities, that the conceptions of his fertile brain are as far as ever from arrival at maturity, and that his "friends," upon whose interest and assistance he calculated with such certainty—if ever they existed at all (?)—have dwindled numerically into a position of exquisite nothingness, and the illusion of his dream is therefore fully dispelled. What, then, is to be his course? He is left to choose between the cheering alternative of either seeking a situation as assistant in the office of some more fortunately born votary at the shrine of "the glorious art," and thereby eke out a bare existence for the rest of his days, or to try his chance in the lottery of competitions, wherein so many of his brethren have been *so* successful. His chivalry has not yet deserted him, and he adopts the latter course, going into it in right earnest, toiling from sunrise till sunset, and not unfrequently even "by the dim light of the midnight lamp." Pretty pictures, perspectives with bright skies of ultramarine, over which our artist plies his brush most unmercifully—but to his own fancy most scientifically—are, with plans, elevations, and sections, produced by the score, neatly mounted, and dispatched to their destination, there to await the "careful consideration" of an impartial committee. The young competitor having now some breathing-time begins to inquire particulars respecting this jury, on whose dictum a favourable or an adverse verdict may depend. He finds, to his inexplicable horror, the chairman perhaps to be a very noted vendor of "Guinness' stout" and "John Jameson's overproof," together with very many other nice articles to minister to the comforts and the necessities of the outward man; a very respectable man *in his way* no doubt, quoth the architect, but not at all suited to pronounce an opinion on the merits of my, or any other, architectural design. Enquiring still further, it is discovered that a very wealthy pawnbroker is a "highly influential" member of this committee, because he has built some houses out of his superfluous cash, and in such a style, too, as would amaze (truly so!) even an architect or builder. This gentleman, moreover, can discourse very freely too about the various orders of architecture—can absolutely discern "Gothic" from "Classic," and is thoroughly acquainted by practical experience with every department of a building. Such a one as *this* will assuredly prove very weighty on the adjudication, and the youthful competitor strains every nerve to gain him over. Very many others, in different spheres—all, however, somewhat akin in point of competency to decide such a question, and we need not paint their several portraits now—constitute this "highly intelligent" committee. Before such a strange medley as this are to be paraded the results of many days (perhaps weeks) of incessant labour and study, and a decision of *some* kind is finally arrived at, which, in nine cases out of ten, is in gross contradiction to all sense of justice and reason. The cast drawings are returned to their owners, with or without, as may be, even the courtesy of "thanks," and serve as a pleasing (?) reminiscence of "unrequited labour." From the foregoing, which is not an overdrawn picture, but under special circumstances capable of being viewed in many lights, various considerations may arise, the principal of which is the suggestion of a *remedy*. In our own columns and those of our cotemporaries there have been very many offered, still the evil is as present as ever, and the numerous schemes proposed to obviate it have proved as futile as attempts to accomplish "perpetual motion"—a subject of which, by reference to a recent number, it will be seen we treated rather fully.[*] "The prevention" would, however, in most cases prove as bad as "the cure," for if there were not at least the *semblance* of competition, and the accompanying "unrequited labour," monopoly would follow, and the voices of the less fortunates be paralyzed from appealing even to public sympathy for perpetrated injustice. Our junior friends in the architectural profession will do well to weigh carefully "the doctrine of chances" when they are about to expend time and labour which may prove unrequited; and though it *may* occasionally occur that there has been some little fame acquired even by an *unsuccessful* competitor, who has made a creditable display, yet it becomes questionable after all may he not, in competing at all, be wasting "fragrance on the desert air," and, "while grasping at a shadow, lose the substance."

ANTIQUITIES IN BUTTEVANT, COUNTY OF CORK.[†]

BALLYBEG is about half a mile from Buttevant; the remains of the Augustinian abbey stand at the gorge of a winding and romantic glen, through which the turnpike road from Mallow to Buttevant passes; its situation must have been remarkably picturesque, when forests clothed the lofty and abrupt hill sides, when the horn of the hardy hunter woke the morning echoes through its rocky passes, as he chased the red deer by the banks of the gentle Mulla.

The present remains show it to have been once strongly fortified. Its massive belfry looks more like a castle keep, and the remains of stern looking towers, which formerly flanked the abbey enclosures, speak of troublous times and treacherous onslaughts; a portion of the east and west ends of the church, the cloister walls, ruins of two towers, and of columbarium, or dove-cot, are all that at present remain of this once splendid structure, the extent and magnificence of which is still attested by the fragments of walls, and sculptured stones dug up by the peasantry on the surrounding lands. Of the east end, fragments of the chancel walls alone remain; in Smith's time the east window existed, but there is now no trace of it; a farmer has built his house and offices across the centre of the church, and the west end is occupied as a cow-house! The west gable has a lofty Early English couplet of graceful proportions, with large inward splays; the lancets are divided internally by a very fine banded shaft having a moulded base, and a bold and richly carved cap of the peculiar foliage of the period. A strange feature exists in this portion of the building—four massive piers have been built at some period subsequent to the original erection, two of them in the western internal angles, upon which vaults are turned, converting this end of the church into a fortified structure. You can ascend to the top by a stairs constructed in one of the piers. The vaulting is ornamented with some grotesque heads; it crosses the couplet window, destroying its effect. There are circular holes in the vaulting, as if a peal of bells had been hung in the upper part. This tower, or belfry, was certainly erected sometime subsequent to the original building, as these piers are not bonded into the original masonry, but merely built against the walls. The cloisters were on the south side of the church, and appear to have been of large extent. The enclosing wall still exists, and retains the corbels that carried the beams of the lean-to-roof over the arcade, no portion of the masonry of which at present remains—neither cap, base or portion of shaft by which I could determine its character. About twenty yards from the west end of the church are the remains of a lofty square tower, which was connected with the conventual buildings, and evidently built for defence. The wall were massive and of excellent workmanship; the lower storey of a similar tower stands about forty yards from the east end, close to the Doneraile-road; the finish of the quoins and a handsome pointed doorway evidence the care bestowed on its erection.

The Columbarium.—About twenty yards from the south-east corner of the chancel is a low circular tower, about 28 feet in height, the walls of which are perpendicular, having no inward inclination, or batter. Its internal diameter is 15 feet 7 inches; thickness of the walls 3 feet 9 inches; its internal circumference is 70 feet; it had two doors, one at the east and one at the west side—the west one is perfect, but the cut stone jambs of the east one, having tempted the cupidity of a neighbouring farmer, were abstracted and it is now an unsightly breach. The interior is exceedingly curious, the inside face of the wall having been built in square compartments and in regular tiers, one over the other, to a height of fifteen feet, where they are terminated by a projecting string-course; the first tier commencing at eighteen inches from the ground. There are eleven tiers of pigeon holes, thirty-two in a tier, which each average eight inches square, and are from ten to eleven inches in depth; they are formed of small square stones, hammer-dressed, yet neatly fitted, and bonded well into the solid wall; between each tier is a course of stone, seven inches in thickness, and the small piers between are ten inches wide, the horizontal courses between the tiers are formed mostly of two courses of thin stone, and the diminutive piers of two and three cubical stones; yet the whole is carefully bonded and well built, in fact it is the neatest and most curious specimen of hammer-dressed work I have ever met with, either ancient or modern. The height internally to the string-course is 15 feet 6 inches, from which starts the beehive-shaped roof of masonry, the upper part of which is formed of flags overlaying one another, and leaving a circular opening of about three feet six-inches in diameter, so as to give ingress and egress to its feathered inhabitants. This roof does not exhibit its domical form externally, as the walls are carried above the top of the vaulting, a level platform being formed on the top, the raised wall forming a parapet round it, and having rude gurgoiles to carry off the rain water; the whole height of the building externally is 27 feet 6 inches. A curious external feature is an apparent mode of communication with the abbey buildings. About fourteen feet from the ground, at the north side, is a doorway which leads to the platform above mentioned; at one side of this doorway is a fragment of wall projecting about four feet, and pointing towards the S.W. corner of the chancel; lower down there does not appear to have been any connection with the tower, as the masonry exhibits no such feature, so that it would appear to have been a portion of a gallery of communication carried upon arches to some part of the domestic buildings. The interior appears to me to have been subjected at some period to the action of fire, as the lime-stone of which the whole is built exhibits a white and calcined appearance I am at present personally aware of but one other specimen of this class of buildings existing in this country; it is adjoining the Cistercian abbey of Kilcooly, and presents some different features, both as to design and construction from that at Ballybeg; but I have been informed of the existence of one or more of these buildings in the county of Kilkenny. I find that some difference of opinion exists among antiquaries respecting the foundation of Ballybeg, some of which opinions I now subjoin.

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[*] See page 439, *ante*.

[†] From a Paper read by R. R. Brash, architect, before Kilkenny Archæological Society.

Archdall states that Phillip de Barry founded a priory here for regular canons following the rule of St. Augustine, and dedicated it to St. Thomas, the favourite saint of that age. He endowed it in the year 1229, in remembrance of which his equestrian statue in brass was erected in the church.

According to Ware, Ballybeg was a priory of regular canons of St. Augustine, dedicated to St. Thomas founded by William de Barry, and endowed by his son David, in 1237.

The Abbe MacGeoghegan copies Ware to the effect that at Ballibeg, near Buttevant, in the county of Cork, a priory was founded for regular canons of St. Augustine, by William Barry, in 1237, and endowed by his son David.

Dr. Smith writes that at Ballybeg, on the other side of the river, a small walk from Buttevant, was a monastery of Augustinians, founded anno 1237, and dedicated to St. Thomas, by William de Barry, being endowed by his son David.

Both of these last statements are manifestly in error, for we find in Lodge's "Peerage" that David de Barry was possessed of the lordship of Buttevant at that period, and that he was not the son of William but of Robert. whom he succeeded. It is true that William was the eldest son and heir of Phillip de Barry; but being a favourite of King John, he resided in England, and supposed to have assigned his Irish estates to his younger brother, Robert.

Mr. Crofton Croker, in his valuable and interesting work, "Researches in the South of Ireland," in his notice of Ballybeg, has fallen into an error respecting the columbarium. He describes it as the "stump of an ancient round tower;" to which it bears no resemblance (except in its circular form), having no batter, being built of common rubble masonry, having two doorways on the ground level, and being of much greater diameter than our cloichtheachs.

The field in which this dove-cot stands is called by the neighbouring peasantry the "pigeon-field," a name sufficiently corroborative of the uses I have ascribed to this building. Many stories are here related of money-seekers and dreamers of "crocks of gold," &c. One or two have been authenticated to me, and are given by Mr. Crofton Croker in his "Researches."

One of them relates to the discovery in the pigeon field of a sepulchre, the interior of which was lined with slabs having figures of the apostles quaintly carved thereon, and containing a stone coffin. Of the remains of this tomb I could discover no traces. I heard that the slabs were thrown about and broken, their ultimate fate being to repair the road, and that the stone cist was many years used by a neighbouring farmor as a pig-trough!

The other story relates to a blacksmith who dreamed three successive nights of "a crock of gold under a big flag in the abbey," and who accordingly commenced excavating among the mouldering remains of the ancient fathers until he exhumed a stone coffin, containing a skeleton, a cross, a bead of precious metal, and a plate of the same, on which was incised a representation of the crucifixion. These valuable relics met the fate of most of our native antiquities, having been disposed of by the finder to a goldsmith in Cork, who remorselessly melted them down.

We find that the dove-cot or pigeon-house was a very general appendage to ancient religious houses. In the surrender of the abbey of St. John, Kilkenny, in the reign of Henry VIII., we find the last abbot, Richard Cantwell, siezed among the other buildings, tenements, &c, "of a water-mill, a pigeon-house," &c.

Tumuli.—A little to the north of Buttevant, beyond the turnpike, the old road between Charleville and Buttevant strikes off in an easterly direction, crossing the Awbeg by a bridge partly ancient and partly modern, the arches at one side being pointed and the masonry of antique character and apparently coeval with the neighbouring monastery. At a late period it was considerably widened; but the arches of the modern portion are semicircular, which has an odd effect. A short distance from the bridge, on the height, in a field by the roadside, is "Knockane-na-m-buachaillidhe"—that is, "the mound or hillock of the boys"—an ancient, conical, earthen tumulus, about fifteen feet high and sixty feet in diameter. A deep excavation has been made in the west side of it, as we were informed, by gold-seekers. A similar tumulus, and of corresponding dimensions, stands a short distance from the above, called "Knockane-na-g-caillinidhe," or "the mound of the girls," nearly half of which has been cut away in making a new road. These were in all probability memorial tumuli, erected to commemorate some bloody conflict and the fall of two chiefs or heroes.

At Kilmaclennan, about two miles from Buttevant, is an immense mound of irregular outline, the remains of a once noble tumulus or barrow. The aged countryman who was my cicerone stated he remembered it in his younger days complete, with a moat on the top. The moat he explained as "a flat green little field." He said it was opened about fifteen years ago by the Rev. Mr. Connery, parish priest of Buttevant, who informed the people that he first heard of it in Paris. What was found in it "he was not sure"—that is, he was completely ignorant; but the gold-seekers came afterwards, and excavated and ransacked the whole mound, and the farmers now are carting away the materials of which it is composed. The original height of this tumulus is only conjectural; its present outline is broken and irregular; its greatest height about eighteen feet; the material of which it is composed, earth and small rubble.

Nearly in the centre is a rude cist, which is now entirely uncovered. It is rectangular, formed of four upright stones composing the sides and ends, with a massive table stone covering all. It at present rests but on two sides and an end, the other end having been forced out by the riflers.

The following are the dimensions of the stones:—No. 1 side stone, length 9 feet, height 6 feet; No. 2 side stone, length 7 feet 6 inches, height six feet; No. 3 end stone, length 4 feet, breadth 6 feet; No. 4, end stone, length 4 feet 6 inches, height 5 feet 6 inches. The covering stone measures 9 feet 9 inches in length, by 7 feet 6 inches in breadth; the average thickness of these stones is from 15 to 18 inches. What was found at the opening of this tumulus I have not been able to ascertain. It is evidently sepulchral, and must have contained some primæval remains.

It is to be regretted that a vast number of these sepulchral tumuli have been destroyed, and there contents scattered and lost, through the ignorance or avarice of individuals. It would be desirable if this and kindred societies took more active steps to disseminate, among our gentry and farmers, the value and importance of monuments of this class, that when their removal is unavoidable, they may be instructed as to the necessity of having a competent person on the spot to investigate and report upon them.

It would be also desirable if a fund could be appropriated for the examination of such of these tumuli as are accessible; or if one or more members took upon them the opening of one each every year, I am sure the results would be most gratifying to those concerned, and our museums would be enriched by many an article of ancient art, calculated to throw light on the dim past and to illustrate the history, habits, and religion of the early habitants of our land.

Our ancient annals and literature teem with reference to the sepulchres of the mighty dead, to the fields of conflict, to the spots where heroes and chiefs and kings have fallen. With such lights on his path, the well-directed efforts of the antiquary cannot fail of being crowned with success.

THE ABSOLUTE STRENGTH OF TIMBER.

THE strain occasioned by pulling timber in the direction of its length is called *tension;* it frequently occurs in roofs, and is therefore worthy of consideration.

The absolute strength of a fibre, or small thread of timber, is the force by which every part of it is held together, which is equal to the force that would be required to pull it asunder; and the force which would be required to tear any number of threads asunder is proportional to that of their sum; but the areas of the sections of two pieces of timber composed of fibres of the same kinds are as the number of fibres in each; and therefore the strength of the timber is as the area of the sections.

Hence all prismatic bodies are equally strong: that is, they will not break in one part rather than in another.

Bodies which have unequal sections will break at their smallest part; and therefore, if the absolute strength which would be required to tear a square inch of each kind of timber be known, we shall be able to determine the strength of any other quantity whatever.

The following table is taken from Muschenbroëk's experiments; he has described his method of trial minutely; the woods were all formed into slips fit for his apparatus, and part of the slip was cut away to a parallelopiped one-fifth of an inch square, and therefore the twenty-fifth part of a square inch in section; the absolute strengths of a square inch were as follow:—

	lb.		lb.
Locust tree,	20,100	Pomegranate,	9,750
Jujeb,	18,500	Lemon,	2,950
Beech oak,	17,800	Tamarind,	8,750
Orange,	15,500	Fir,	8,330
Alder,	13,900	Walnut,	8,130
Elm,	13,200	Pitch pine,	7,650
Mulberry,	12,500	Quince,	6,750
Willow,	12,500	Cypress,	6,000
Ash,	12,000	Poplar,	5,500
Plum,	11,800	Cedar,	4,880
Elder,	10,000		

M. Muschenbroëk has given a very minute detail of the experiments on the ash and walnut, stating the weight requisite to tear asunder slips taken from the four sides of the tree, and on each side in a regular progression, from the centre to the circumference. The numbers of this table, corresponding to the two timbers, may therefore be considered as the average of more than fifty trials made on each; and he says that all the others were made with the same care, and therefore there is no reason for not confiding in the results.

Practical Observations.—The following observations on wood will be of great use to the practical carpenter, in making a proper choice of timber, according to the purposes for which he may want to employ it:—

The wood immediately surrounding the pith, or heart, is the weakest; and its inferiority is so much the more remarkable as the tree is older. Muschenbroëk's detail of experiments is decidedly in the affirmative. M. de Buffon, on the other hand, says that his experience has taught him that the heart of a sound tree is the strongest, but he gives no instances. It is certain, from other experiments, on large oaks and firs, that the heart is much weaker than the exterior parts.

The wood next to the bark, commonly called *white*, or *blea*, is also weaker than the rest; and the wood gradually increases in strength as we recede from the centre to the blea.

The wood is stronger in the middle of the trunk than at the springing of the branches, or at the root; and the wood of the branches is weaker than that of the trunk.

The wood on the north side of all trees, which grow in the European climates, is the weakest, and that of the south side the strongest; and the difference is most remarkable in hedge-row trees, and such as grow singly.

The heart of a tree is never in its centre, but always nearer to the north side, and the annual coats of wood are thinner on that side. In conformity to this, it is a general opinion of carpenters, that the timber is stronger whose annual plates are thicker. The tracheæ, or air-vessels, are weaker than the simple ligneous fibres. These air-vessels are the same in diameter and number of rows in all trees of the same species, and they make a visible separation between the annual plates. Therefore, when these are thicker, they contain a greater proportion of the simple ligneous fibres.

All woods are more tenacious while green, and lose very considerably by drying after the tree is felled.

The *compression of timber* is another consideration worthy of attention.

In considering strains of this kind, it is absolutely impossible to conceive how a piece of timber that is perfectly straight can be bent, crippled, or broken, by any force whatever acting at the extremes. But suppose the smallest force whatever, acting in the middle, on a direction perpendicular to the length, this force will be sufficient to give a small degree of curvature; and if a strong force be supposed to act at the ends at the same time, each pressing the timber in the direction of its length, these forces may instantly contribute towards breaking it.

It is easy, therefore, to conceive that if a piece of timber be the least bent whatever, or if the fibres of that timber be not quite straight, there is a certain force which, if acting at the ends, will break it.

The first writer who considered the compression of columns with attention, was the celebrated Euler, who published, in the *Berlin Memoirs* for 1757, his Theory on the Strength of Columns. The general proposition established by this theory is, that the strength of prismatic columns is in the direct quadruplicate ratio of their diameters, and the inverse ratio of their lengths: he prosecuted this subject in the *Petersburg Commentaries* for 1778, confirming his former theory. Muschenbroëk has compared the theory with experiment, but the comparison has been very unsatisfactory; the difference from the theory being so enormous as to afford no argument for its justness; neither do they contradict it, for they are so very anomalous as to afford no conclusion or general rule whatever.

We may observe, by the way, that we learn that purlins are able to carry twice the load when notched into the rafters, that they carry when mortised into them, which is the most usual manner of framing them. So would the binding joists of floors; but this would double the thickness of the flooring. But this method should be followed in every possible case, such as bres-summers, lintels over several pillars, &c. These should never be cut off and mortised into the sides of every upright; numberless cases will occur which show the importance of the maxim.

We have seen that it depends entirely on the position of the pieces in respect of their points of ultimate support, and of the direction of the external force which produces the strains, whether any particular piece is in a state of extension or of compression. The knowledge of this circumstance may greatly influence us in the choice of the construction. In many cases we may substitute slender iron rods, for massive beams, when the piece is to act the part of a tie. But we must not invert this disposition; for when a piece of timber acts as a strut, and is in a state of compression, it is next to certain that it is not equally compressible in its opposite sides through the whole length of the piece, and that the compressing force on the abutting joint is not acting in the most equable manner all over the joint. A very trifling inequality in either of these circumstances (especially in the first) will compress the beam more on one side than on the other. This cannot be without the beam's bending, and becoming concave on that side on which it is most compressed. When this happens, the frame is in danger of being crushed, and soon going to ruin. It is therefore indispensably necessary to make use of beams in all cases where struts are required of considerable length, rather than of metal rods of slender dimensions, unless in situations where we can effectually prevent their bending, as in trussing a girder internally, where a cast-iron strut may be firmly cased in it, so as not to bend in the smallest degree. In cases where the pressures are enormous, as in the very oblique struts of a centre, or arch frame, we must be particularly cautious to do nothing which can facilitate the compression of either side. No mortises should be cut near to one side; no lateral pressures, even the slightest, should be allowed to touch it. We have seen a pillar of fir, 12 inches long and 1 in section, when loaded with three tons, snap in an instant when pressed on one side by 16 pounds, while another bore 4½ tons without hurt, because it was enclosed (loosely) in a stout pipe of iron.

In such cases of enormous compression, it is of great importance that the compressing force bear equally on the whole abutting surface. The German carpenters are accustomed to put a plate of lead over the joint. This prevents, in some measure, the penetration of the end fibres. M. Perronet, the celebrated French architect, formed his abutments into arches of circles, the centre of which was the remote end of the strut. By this contrivance the unavoidable change of form of the triangle made no partial bearing upon either angle of the abutment. This always has a tendency to splinter off the heel of the beam where it presses strongest. It is a very judicious practice.

The joinings practised in carpentry are almost infinitely various, and each has advantages which make it preferable in some circumstances. Many varieties are employed merely to please the eye. We do not concern ourselves with these, nor shall we consider those which are only employed in connecting small works, and can never appear on a great scale; yet, even in some of these, the skill of the carpenter may be discovered by his choice; for, in all cases, it is wise to make every part of his work, even in the smallest details, as strong as the materials will admit. He will be particularly attentive to the changes which will necessarily happen by the shrinking of timber as it dries, and will consider what dimensions of his framings will be affected by this, and what will not; and will then dispose the pieces which are less essential to the strength of the whole, in such a manner that their tendency to shrink shall be in the same direction with the shrinking of the whole framing. If he do otherwise, the seams will widen, and parts will be split asunder. He will dispose his boardings in such a manner as to contribute to the stiffness of the whole, avoiding at the same time the giving them positions which will produce lateral strains on truss-beams which bear great pressures; recollecting that although a single board has little force, yet many united have a great deal, and may frequently perform the office of very powerful struts.

Our limits confine us to the joinings which are most essential for connecting the parts of a single piece of a frame when it cannot be formed of one beam, either for want of the necessary thickness or length; and the joints for connecting the different sides of a trussed frame.

Much ingenuity and contrivance has been bestowed on the manner of building up a great beam of many thicknesses, and many singular methods are practised, as great nostrums, by different artists; but when we consider the manner in which the cohesion of the fibres performs its office, we shall clearly see that the simplest are equally effectual with the most refined, and that they are less apt to lead us into false notions of the strength of the assemblage.

LIME LIGHT AT SOUTH FORELAND.

ON a headland some 3½ miles to the eastward of Dover, are situate two lighthouses, well known as the Upper and Lower South Foreland Lighthouses. The Upper Lighthouse, which is fitted with a Fresnel apparatus, was recently the scene of Professor Holmes's experiments with the electric light.

The light now used, however, is obtained from the ignition of a piece of lime by submitting it to the intense heat evolved by the compound flame of hydrogen and oxygen gases, in the proportions in which they form water. The lime does not burn, but simply becomes brilliantly illuminated, without undergoing any chemical change. The light, therefore, is independent of the atmospheric air, and does not deteriorate it. The light produced is the most intense known, with the exception of the electric light, from which it differs, however, in some important particulars. It is steady and continuous, and its volume may be increased at pleasure. Drummond was the first who applied the lime light to purposes of practical utility; and by his experiments it was shown that its range was practically unlimited, for he connected the shores of Wales and Ireland by the light at Holyhead, a distance of 64 miles; and afterwards obtained a like result at the summits of Ben Lomond and Knock Layd, a distance of 95 miles. His light, however, wanted these two special properties: volume, without which no light is adapted to the means at present possessed for its distribution; and secondly, continuity, which he could not command. For these reasons it was condemned by Stephenson as unsuited to lighthouse purposes. In fact, with the appliances then obtainable, he could come to no other conclusion, the duration of the light being under no control.

It has now been maintained in the South Foreland Lighthouse as a first order coast light since the 26th of last month with success. It is exhibited there, we understand, upon trial, and the period of probation has been settled at three months by the Trinity Board; and upon its fulfilling the conditions requisite for a first-class lighthouse probably depends its extensive adoption for coast lighting.

The Fresnel apparatus in which the light has been placed is not considered by its exhibitors the one best calculated to show the full power of the lime light; but its brilliancy is, notwithstanding, strikingly apparent, when contrasted with the ordinary coast lights.

Another important adaptation of this peculiar light is now in course of trial. The value of a powerful light on board of those vessels of the navy, which from their magnitude and high speed render additional precautions necessary against collision, cannot be too highly estimated. Each vessel fitted with such a light becomes in effect a floating lighthouse—a conspicuous warning to other vessels approaching it. Life and property to an incalculable extent may, by means of this light, be rendered comparatively safe. Each vessel may carry a light at the mast head, fulfilling a double purpose of a warning beacon and a look-out light, illuminating the surrounding water, and giving the vessel the means of avoiding collision with others. Such lights are also applicable to signalizing, to convey intelligence at night or in thick weather from one ship to another, and as such specially adapted for fleet signals. An application of this kind is now under consideration and trial, with a view to combine, if possible, the mast-head lamp and signal lamp in one, at the same time producing an economical and efficient lamp, adapting itself to the code of night signals now employed in the navy.

The methods of obtaining the gases admit of alterations for the better, not so much in the mechanical means used for producing them from their present sources, for these are very simple, but as to the sources themselves from which they are obtained. The hydrogen is at present obtained by the decomposition of water by the agency of zinc and sulphuric acid. A simple apparatus, however, is in course of construction for obtaining it by the decomposition of steam passed through red-hot cast-iron borings. The hydrogen can be obtained by these means very rapidly, and at a moderate cost; whereas its production by the present method is both costly and tedious, to say nothing of the objections that must always exist to the use of sulphuric acid in large quantities.

The oxygen gas is obtained by simply heating the per-oxide of manganese to redness, in cast-iron retorts. The process is simple enough, but very slow, the gas leaving the manganese very unwillingly, and 8 cubic feet only being produced from 10 pounds. The cost of firing is, therefore, considerable. There is a method which has been in practical operation of obtaining this gas from nitrate of soda, which is far speedier and less costly. The gases pass from the retorts into gas-holders in the usual way.

The lamp is of brass, and consists of a circular base, 7½ inches in diameter, and 1¾ inch in height, with an aperture in the centre, through which the lime wicks pass. In this base are contained two annular chambers for holding the gases. These chambers are separate and distinct, into one of which the hydrogen passes, and the oxygen into the other from the gasholders. From these chambers the gases are supplied by separate tubes to small mixing chambers, 5-8ths of an inch in diameter, and ½ an inch in depth, into which the gases are admitted by means of two separate cocks, one for each tube. The chambers are filled with from 16 to 20 very fine wire safety guages, through which the two gases have to pass on their way to the jets, which are screwed into the tops of the chambers. By these means the gases are thoroughly intermixed before their ignition at the points of the jets.

Within the aperture in the base is fitted a brass tube, 22 inches in length and 3⅝ inches in diameter inside. This tube is of cylindrical form, corrugated at the upper end in order that each corrugation may be opposite to the centre of one of the eight panels of the Fresnel apparatus. In the middle of each exterior corrugation is cut an aperture of about 7 inches from the base of the lamp. This aperture is about 2¼ inches long and 1 inch wide, and opposite one of the jets in every case. Within the external tube just described, a screw for putting the lime in motion is worked by a clock placed below the lamp: this screw passes through a nut, upon which rests an inside octagon tube of brass, of 89 inches in length. Upon each of its surfaces, which are flat, a metal case containing the lime is fastened every evening before lighting. These cases, which are open in front, are about 1 1-8th inches in breadth at the back, and are dovetailed so as to overflap the edges of the lime, which is in section the segment of a cylinder, so as to correspond exactly in shape with the corrugations of the external case. Each lime case when fastened to the interior tube, as above described, fits closely into one of the corrugations through the aperture, in which is exposed a surface of lime 2¼ inches long and 1 inch wide, upon which the flame impinges.

When the lime-wicks have been inserted ready for lighting the gases are turned on and lighted, and motion is given to the screw which raises the nut on which the tube carrying the lime-wick rests, keeping a fresh surface of lime always exposed to the action of the flame. No further attention is required during the burning of the lamp.

The lantern of the lighthouse at the South Foreland is similar in every respect to that of the North Foreland, the only difference being in the mode of lighting by the substitution of an oxyhydrogen lamp for the oil lamp as heretofore used. The contrast of the two lights is remarkably striking, the one being of the ordinary orange colour, and the other pure and colourles,, and of extreme brilliancy. The lamp is supplied by the two gases through tubes, which are carried up a tube in the centre of the lighthouse, the gas-generating apparatus and the gasholders being in a contiguous outhouse or shed.

THE CONSTRUCTION OF CATTLE SHEDS.

IN order to make the feeding of cattle advantageous, it is most important that the cattle sheds should be placed in the most convenient situations with respect to the fields from which the food is to be brought. In large farms, movable sheds with temporary yards may be erected according as different fields are in grass or roots, and a great saving of carriage thereby effected, both in the bringing the food to the cattle, and carting the dung unto the land; a clay bottom should be selected, in a high and dry spot, if possible, and it should ever be borne in mind that, with cattle, as with human beings, cleanliness, free ventilation, and perfect drainage, are indispensable to perfect health and a sound condition of the body.

Cattle sheds are most cheaply constructed when placed against walls or other buildings. If they are to be erected in an isolated situation, the expense of the double shed will be much less than that of the single one, to contain the same number of cattle.

Every building of this description should be capable of being well aired, by a free ventilation; and so constructed as to require the least possible labor in giving the food and clearing away the dung; the stalls should be so placed as to keep the cattle dry and clean, with sufficient drains to carry away, and reservoirs to receive the ordure. The greater number of the air-holes should be in the roof;

and if the building have gables, there should be a window in each, as high as possible, with moveable boards, or air flights, as in granary windows, which may be easily opened or shut, by means of a small rope. These precautions will not only conduce to the health of the cattle, but tend to preserve the timbers, which, from the alternate wetting by the breath, and drying, would otherwise soon go to decay.

In single sheds, the cattle are, in many parts of the country, fastened to stakes about three feet distant from each other, ranged in a line parallel to the wall, at the distance of about 18 or 20 inches from it, thus leaving sufficient space for laying down the food; but this plan is inconvenient, as it obliges the feeder to pass between the cattle when he feeds them, and is consequently attended with loss of time, and is sometimes dangerous.

The best construction is that which admits a sufficient space for a passage before the cattle, for the feeder to pass along with a wheel-barrow, when he distributes their food. In single sheds, 3 feet will be sufficient for the width of this passage; and in double sheds, the heads of the cattle should face each other, and the breadth of the passage need not be increased beyond 4 feet.

Where cattle are fed from the outside, through holes left for the purpose, many inconveniences may arise from wet weather, a severe frost, or a heavy fall of snow; but when fed within, no change of weather can have any influence on their feeding; particularly if due care be taken to keep the provender dry and under cover.

In single sheds, it would be convenient to have a provender-loft above the cattle, for holding, occasionally, hay and stray; a loft of this kind might be provided with flaps in the flooring, furnished with hinges, which, when opened, would afford an easy access for putting in the fodder from the cart, and enable the feeder to throw it into the racks when required. In this case the roof may be supported by posts or pillars, about 3 or 4 feet high, on the top of the wall, and 8 or 10 feet distant from each other; the flaps may be lifted by rings, and be made stationary in any required position, by a catch.

In many places cows and oxen are bound to stakes, without any stalls or divisions between them. In some parts cows are bound in pairs, with a slight division between them; in others, they are not bound, but every cow or ox has a separate stall, divided from the rest by wooden rails, so that they cannot get out, and so narrow that they cannot turn round. Many feeders think the cattle thrive better in stalls of this description, than when they are bound. At each stake there should be a trough for holding provender, and between these two troughs there should be another for water, common to the cattle on both sides: this water-trough, which, as well as the others, may be of stone, and of one piece, may be supplied by a pipe from a cistern or reservoir; and over them should be a perpendicular rack, for straw or hay. But though the double stalls, here recommended, are much used for milch cows in different parts of England, they have, in general, only one provender-trough for each cow, and none for water.

In paving stalls for cattle, the declevity is in general too great, which occasions them to stand uneasy. The best mode is similar to that of paving stables. Wood has lately been used with advantage for paving stalls.

In many places, it is the practice to fasten the heads of the cattle between two stakes; by which they can neither lie down in comfort, nor dislodge or destroy those tormenting vermin, which frequently prey upon them. No animal can thrive when confined in this manner.

As the dung of cows and oxen is of a liquid nature, it may perhaps be carried off by an iron grating, placed behind each animal, as nearly as can be, in the spot where it usually drops, and immediately over the stall drain, or over a wooden spout, which being continued in a sufficient slope, to a pit or reservoir without, will, with the assistance of water occasionally thrown down, empty itself therein. Should any obstruction occur, the aid of a rake or a hoe, fitted to the drain, may be easily applied; especially if the drain be only covered with a strong plank, which may be taken up when necessary. The greater part of the dung being thus carried away, the remainder will be easily removed. Such a contrivance would save much labor, and facilitate the keeping of cattle clean; it would also be the means of saving a great deal of litter, when scarce or dear. On this part of the subject it may be observed, that the waste of urine and dung, too often seen in even well-conducted farms, is much to be deprecated and lamented—everything of the kind is valuable, and should be conducted to proper reservoirs judiciously constructed and arranged for the purpose, to be afterwards used on the land.

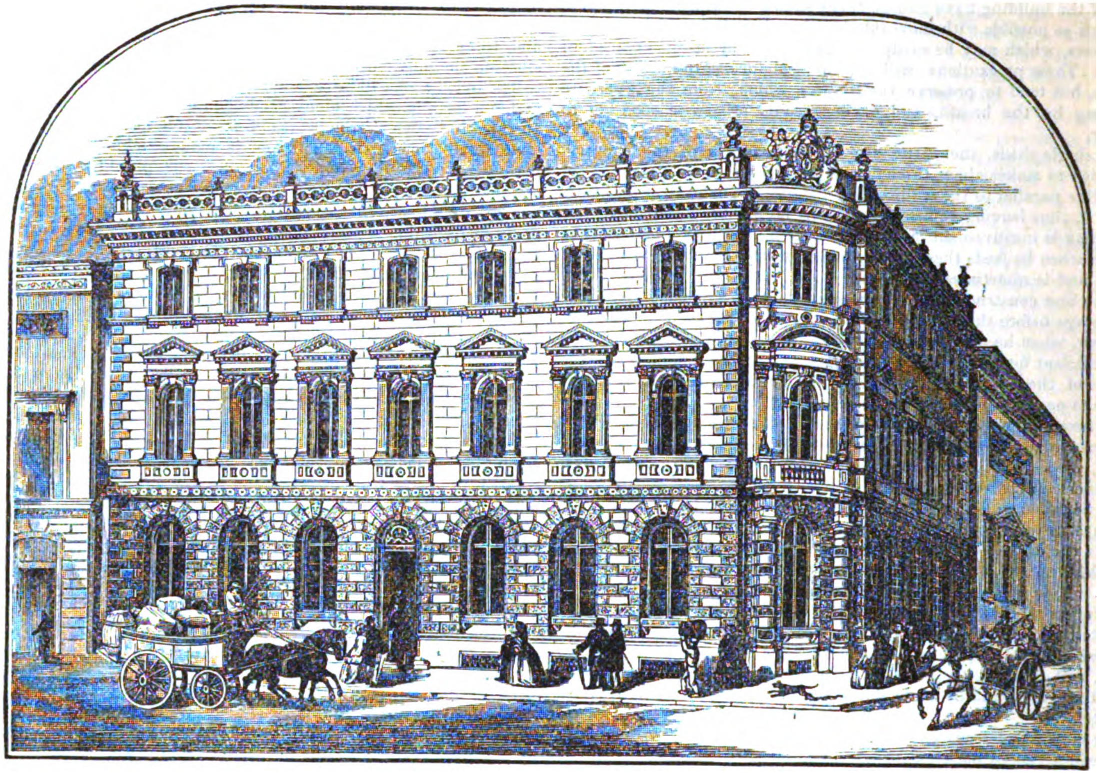
Where a great number of cattle are kept, the erection of sheds or feeding houses on a circular plan, proves very economical, and saves much labor, though a little more expense in the first cost. In this form of building, the animals stand all round with their tails towards the external wall, leaving a sufficient passage or gangway behind, for them to pass to and from their stalls; proper openings are also to be left in the wall, for discharging the dung, which may fall into covered pits on the outside. The openings should be so contrived, as to be capable of being shut up in severe weather. The area, or space in the middle, is converted to the use of feeding and attendance; and, to render the plan complete, there should be a room above, to store up the different sorts of food that the cattle may require.

The oblong plan likewise admits of much room and convenience, and is a form in which many cattle houses have been lately erected. In this kind of shed, the length of 50 or 60 feet affords room for a great number of cattle. The roof is made shelving, 14 feet in the highest part, and 6 or 7 in the lowest. The place for the reception of the cattle is separated from that wherein the dung is to be deposited, by a wall, or other convenient division, and may be about 18 or 20 feet within, to afford good room. The stalls are 12 feet long, and from 4 feet to 4 feet 6 inches wide; leaving gangways at the heads and behind the cattle, 3 feet or 3½ feet in breadth. Each stall has two doors, the one for admission of the cattle, the other for the persons who attend them; and when the buildings are of great length, it may be convenient to have additional doors at each end. There should likewise be a water-trough in each stall, and where a stream can be made to run through the whole range, it is productive of great advantage. The boxes, or mangers, for particular sorts of food, as well as racks for hay, are also necessary to render these buildings complete. The bottom of the stalls may be formed of strong planking, laid so as to have a very slight descent, and perforated with holes for the passage of the urine into the reservoir. There should also be openings in the wall, behind the cattle, between every two stalls, of about 2 feet square, for discharging the dung, with proper shutters fitted to them. Each stall should likewise have a wooden window, of about the same size, for the admission of light and for free ventilation, placed as high as the house or shed will admit. The reservoir for the dung or urine should extend the whole length of the building.

IMPROVEMENT OF THE HARBOUR OF DROGHEDA.

Since the appointment of the Drogheda Harbour Commissioners improvements have been made in the navigation of the Boyne, such as few other harbour boards in Ireland could boast of. Some of the present Commissioners recollect when there were several fords across the river, and when no vessel could come up to the quay, except what were called Preston flats; and even these frequently got fast in the mud, and could not be moved without the action of two or three tides. The flats alluded to drew about seven feet of water, and at the present day steamers drawing thirteen and a-half feet can go out and come into port readily. This and various other improvements cost the board, on a rough calculation, about £30,000, and they think it the best laid out money that has ever been expended. The Commissioners are now, however, about crowning all their enterprise in an undertaking which, when carried out, must prove of vast importance to the shipping interest and prosperity of the town. There are to be found in the Boyne obstacles which do not exist in any other river in the country. Its course from Drogheda to the sea is only four miles, and it is as tortuous along that distance as the Serpentine which flows into the Thames. The Commissioners wish to get rid of this tortuous course, and make the river a straight one; a project which eminent engineers have over and over declared to be absolutely necessary for developing the trade of the port. I quote the following passage from the last report of the Boyne Commissioners' Resident Engineer, Mr. Patrick Donor, in which he treats of this grand undertaking:—"I know of no other river similarly circumstanced where a vessel can lie at low water with such safety as in the Boyne; but from its serpentine form I am of opinion that the present mode of dealing with so important a river is tantamount to a waste of the funds, as after a century spent in dredging, such as has been last summer, its course would not be materially altered. I would, therefore, most respectfully suggest, for the consideration of the board, the desirability of opening a cut or canal, commencing between the White and Black Towers on the south side of the river, at Branagan's Point, from thence through the slob land of Mornington Bed, entering the river on the north-west side of Maiden Tower. This would do away with the present circuitous and zigzag course, and give a direct run to vessels from the harbour to the bar; and I am convinced no effectual move will be made in the navigation until this alteration in the river's course be accomplished. This new cut would be the means of drying up all the slob land on both sides of the river, from Tom Roe's Point to the stage—nearly eight hundred acres!—which is at present covered at high water."

At a recent meeting of the Drogheda Harbour Commissioners, the subject was introduced, when it was remarked that the Wexford and Dundalk Harbour Commissioners contemplated borrowing from £100,000 to £150,000 each to improve their rivers; and why not Drogheda? It appeared that Mr. Donor's estimate for the new cut, or canal, is about £50,000. After a lengthened discussion a resolution was carried to the effect that Mr. Smith, the engineer of the Clyde, be employed by the Drogheda Harbour Commissioners to make a survey, and report on the state of the river Boyne.—*Saunders.*



IMPERIAL FIRE INSURANCE OFFICE, LONDON.

IMPERIAL FIRE ASSURANCE OFFICE, LONDON.

A contemporary, at one time speaking of the establishments of this class in London, appropriately remarked, that "what the club is to the street architecture of the West End, the assurance office is to the city;" and for the subject of our illustration we have selected one of the most important edifices devoted to assurance purposes in the metropolis of Great Britain. It stands on the delta formed by the union of Threadneedle and Broad Streets, and therefore occupies a triangular piece of ground—the latter façade being, however, considerably longer than the other. The character of the elevation is sufficiently expressed in the woodcut to render minute description superfluous, but we may draw attention to the sculptured keystones on the ground floor, opens which symbolise the city, power, fire, water, &c., respectively, and together with the armorial devise of the company, were executed by Mr. J. Thomas, sculptor. The principal staircase, which is stated to be of very elegant design, leads to the various floors, on the ground of which are the offices for town and country departments of the *fire* office, whereas those of the *life* branch, a highly decorated board room, with other apartments are on the first floor; the second comprising a foreign office with strong room, resident manager's suite of apartments, and accommodation for clerks, porters, and the *cuisine* in the basement. The cost of erection, including fittings and furniture which are of suitable character, was about £15,000, which would seem to be a very small sum. Mr. John Gibson of 13, Gt. Queen-street, Westminister, was the architect; Messrs. Piper, the builders.

We hope to be enabied to present some other illustrations of street architecture in London, and in doing so shall select the best available subjects.

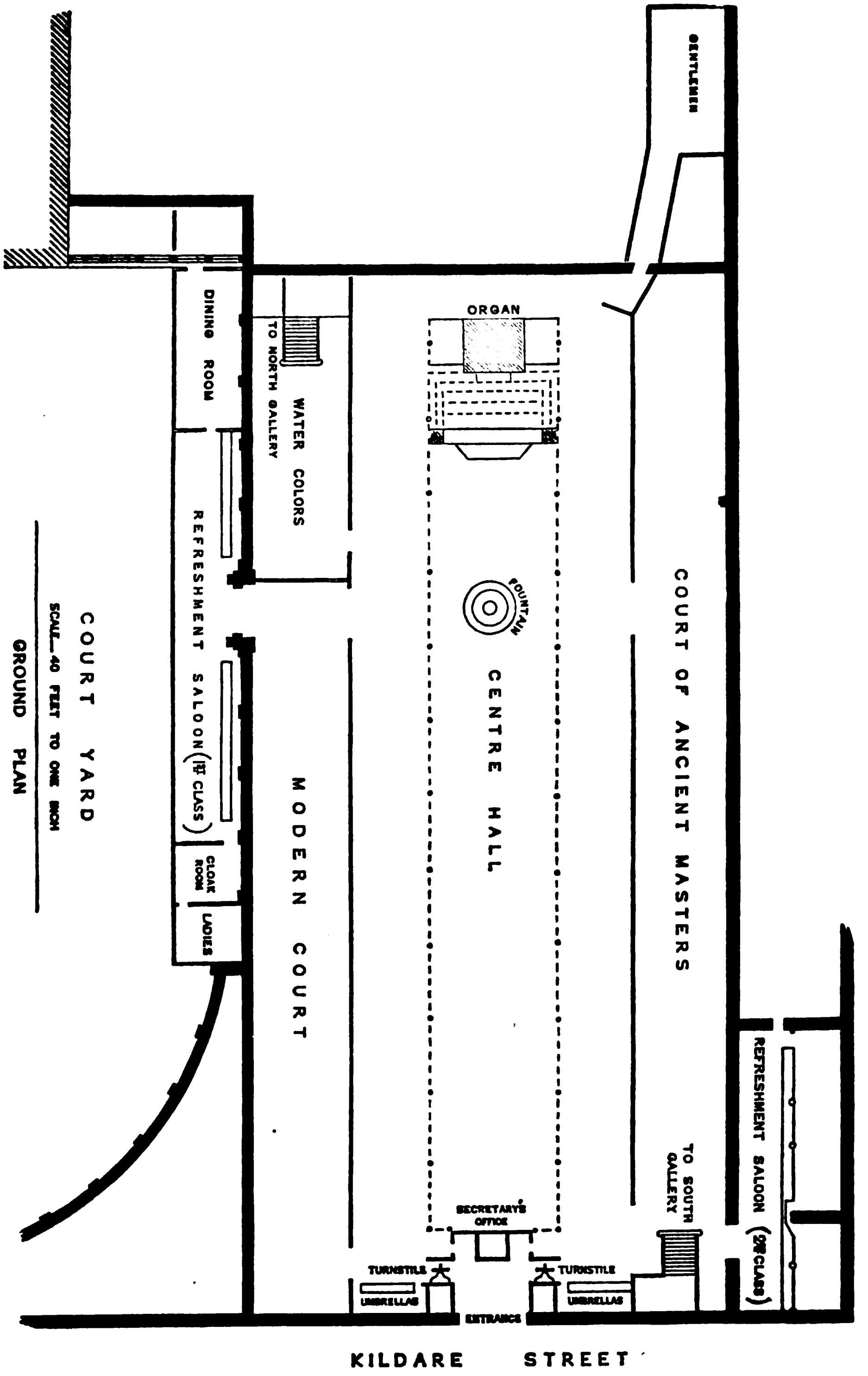
COMING AUCTIONS OF TIMBER AND OTHER BUILDING MATERIALS.

At Dublin, on the 10th inst., Mr. Thomas H. Carroll will have an auction of wood goods at his stores, Sir John's Quay; and on the 17th Messrs. John Martin & Sons will hold a similar sale at North Wall. A more general auction, comprising both timber in baulk and cut, ready made carpentry, slates (which at present are exceedingly scarce), sewerage pipes, &c., &c., will be held by Mr. Crooke on the 3rd inst., at 2, Hendrick-place, near Queen-street; and on Tuesday, 8th inst., he will hold an important sale of building materials, timber, &c., at Mr. W. Burke's yard, North-wall. At Liverpool, on the 10th and 11th insts. (as likewise announced by advertisements herewith), will be important sales of mahogany, Mr. Challoner, broker, from whose circular relating thereto we take the following:—"The next auction sales will include 6 cargoes, viz., 1 of City St. Domingo, 1 of Porto Plata, 1 of Honduras (Belize), 1 of Mexican, 1 of Santana, and 1 of Laguna. The trade will do well to pay a visit here *before the sale days*, and so the better mature their minds for business at Auction. I do not venture to tell them their business, but if I were a wood buyer, I would next month buy mahogany freely, cut it up the following month, and so hold a large seasoned stock, to insure the very best work and cheapest in the world. It is very sad that people will not exercise their common sense, and more extensively use the best and cheapest (because of the ample tare) wood in the age we live in, besides being most readily worked, namely, mahogany. I perceive that an eminent professor has been employing himself before the association in Manchester to tell us, by-and-by, about wood, and among others, mahogany. Why, the Spaniards, centuries back, told us, and that, too, practically, that it (mahogany) was better than their own oak, and Spanish oak is known to be the best in Europe, and they established this fact at the time they themselves were the best shipbuilders in the world, and now, at length, our naval men agree with the Spaniards, and 16,000 loads, similar to the mahogany for sale on the 10th and 11th proximo, are supplied this year by one house, for the dockyards."

Timber.—At Messrs. William Kelly and Co.'s sale on Thursday there was considerable disposition to buy evinced by the trade. The attendance was large and respectable, and the sale is considered to have been the best of any of the autumn sales. There were sold:—

12,159 pieces of Miramichi and St. John deals and battens, from 12 to 24 feet long, at £14 15s. to £15 10s. per 120 of 12 feet 9 x 3.
971 pieces of first quality pine plank at £27 10s. to £35 5s. per ditto.
419 pieces of second quality pine plank at £21 10s. to £26 15s. per ditto.
239 pieces Miramichi pine deals at £21 5s. per ditto.
600 pieces of Quebec spruce deals at £17 per ditto.
240 pieces Quebec second quality spruce deals at £16 per ditto.
840 pieces of third quality Quebec spruce deals at £14 15s. per ditto.
1,417 pieces of red deals, 16 to 22 feet long, at £24 2s. 6d. to £25 per ditto.
765 pieces of red battens, 16 to 22 feet long, at £22 15s. to £23 per ditto.
60 pieces of red pine timber at £3 7s. 6d. per ton.
30 pieces of birch timber at £3 10s. per ton.
19 pieces of ash at £3 10s. per ton.
12 fathoms of lathwood at £7 7s. 6d. per fathom.
2 lots of Quebec board timber at £3 12s 6d. and £3 15s. per ton.
1 lot of small-sized pine at £2 12s. 6d. per ton.
108 pieces of under-sized Memel at £3 5s. per ton.

M. Zwirner, the architect by whom the work of completing the cathedral of Cologne has for many years been conducted, died on the 22nd ult.



GROUND PLAN OF FINE ARTS EXHIBITION BUILDING, ROYAL DUBLIN SOCIETY.

THE DUBLIN EXHIBITION.

We have made frequent allusion since the inauguration of the Exhibition of Fine and Ornamental Art, now being held in the agricultural hall of the Royal Dublin Society, to the general features of its various departments; but for those at a distance who have not yet had an opportunity of visiting the building, and who might desire to be acquainted with its arrangements more clearly than mere description could convey, we insert herewith an illustration of the ground plan correctly drawn to scale, and from which an idea thereof, and of the extent, may be formed with facility. The collection secured for this Exhibition reflects the highest credit both on the contributors and on those officials and members of the committee who in such good earnest exerted themselves in the undertaking from its earliest stage, and we are happy to find—though at first we were somewhat apprehensive of the reverse—that in a pecuniary point of view the result has far exceeded their most sanguine expectations. It may not be inappropriate here to mention that it is contemplated by many of the exhibitors and habitual frequenters to present Mr. Henry Parkinson, the efficient and courteous secretary, with a suitable testimonial, which we trust will be as important as his worth deserves.

NEW ROMAN CATHOLIC CHURCH, CITY QUAY.

Recently we announced that a large church was proposed to be erected on the City-quay, where, as most of our readers are aware, there is a very densely populated locality, chiefly inhabited by the lower classes—coal heavers, seamen, &c. The Rev. Mr. M'Cann, a curate in the parochial church of St. Michan's, undertakes out of his private purse to supply the requisite funds for the erection of a commodious structure for the requirements of so large a congregation, and the building was actually progressing, according to plans obtrusively furnished by a builder in this city, when some differences relative to the contract arose, and the works were temporarily suspended. Fortunately, therefore, the perpetration of as ugly, unsuitable, and barn-like a church as ever was built in the wildest district in Ireland was thereby prevented, and the services of Mr. Bourke, architect, being subsequently obtained, a new design, of which the following are particulars, was decided upon. Instead of a long ill-proportioned parallelogramic block, with walls some fifty feet high, a flat ceiling, and a distorted portico, surmounted by what some, drawing largely upon their imagination, might term "a pediment," and other monstrosities, as shown on the first *designs* (save the mark), the plans will now comprise nave, chancel, side chapels, sacristy, and porch, and the elevation, of Gothic design, simple but effective, will at once proclaim the purpose of the structure. The general dimensions of nave are 130 feet by 34 feet in the width, the height to apex of roof, which is of open timber work, being 51 feet. Towards the quay the elevation will present a gabled end with pyramidal pitch, two moulded entrance doors, and a five-light lancet window, the chancel at opposite end being lighted by a three-light window. A belfry rising to a height of 85 feet will form a prominent feature. On the 24th ult. the corner stone was laid by the most Rev. Dr. Cullen.

A LOCAL COMMITTEE FOR THE EXHIBITION OF 1862.

On the 21st ult. a meeting was held by the Committee of Manufactures of the Royal Dublin Society for the purpose of adopting such measures as would secure the adequate representation of Ireland at the great exhibition in London in May next. Dr. Sayers presided.

Mr. Waldron, M.P., explained that the *Times* had accused Dublin of being the most apathetic of any other city with reference to this undertaking, and the committee above-named thought they should adopt some initiatory steps to induce manufacturers to come forward liberally, and remarked that "recollecting the immense advances that Ireland had made since 1851, it would be very deplorable, indeed, if there was not at the coming exhibition a proper display of Irish products and manufactures."

Mr. Gilbert Saunders thought that "as there were no great centres of trade or manufactures in Ireland, the appointment of trade committees was not desirable. For the purpose of applying for space and doing other necessary matters, a *local* committee would be found more expedient."

Mr. Gresham expressed a hope that the present opportunity would *not* be lost of securing, as far as the committee could by its exertions, a full representation of Irish industry at the Exhibition of 1862. He considered that any failure in the matter would be very lamentable indeed.

Mr. Fry believed that such persons in Ireland as wished to exhibit had already made application for space. He did not see how the meeting could render much assistance in the matter.

Mr. Maunsell, as hon.-secretary to the society, stated the position of the case. The Great Exhibition of 1862 had taken a deep hold on the public mind. The Exhibition would represent the various departments of the manufactures and industry not only of the Continent of Europe, but also of the colonies and America at large. While considering the demands for space at the exhibition, the promoters of the project seemed to think that the applications from Ireland were *not as ample* as the state of industrial and manufacturing enterprise in Ireland justified, and the attention of Ireland, and *of Dublin particularly* was called to the matter. He believed this was done in a kindly spirit towards this country, for the purpose of stimulating it to exertion. Anything done in such a matter as this by a single person was badly done as compared with what could be effected by association, and the committee of manufactures deemed it best to call this meeting in order, by organization of some sort, to give a stimulus to manufacturers, and aid the movement in an effective manner. After the circular sent in March last by the Royal Commissioners, Lord Talbot de Malahide was appointed to represent the society on the committee of advice, but nothing, he believed, was since done. Ireland, in the various departments of manufactures—poplins, laces, embroideries, ornamental carvings, furniture, saddlery, damasks, linen, cutlery, &c.—could make a most important and creditable and valuable display, and it ought to be the object of the committee of manufactures to promote such a display as much as possible. *Only nine days now remained* for making applications for space at the exhibition, and he conceived the best course to be for the committee to sit daily until the close of the month. The speaker concluded by moving the following resolution, which passed unanimously:—"That the committee of arts and manufactures should sit from day to day for the remaining period, during which applications for space could be made, and by publishing advertisements, affording information, taking charge of and forwarding applications for space, and adopting such other means as may be thought best, endeavour to have carried out such an exhibition of the products of Irish manufactures as may best maintain the character of the country for progress and development in the arts of industry."

PUBLIC SCHOOL BUILDING IN IRELAND.

From the recently published report of the Commissioners of National Education we find that "at the close of the year 1860, the number of schools in operation was 5,632, being an increase in the schools in operation of 136, for the year 1860, as compared with the year 1859;" also that "grants were made at various times amounting to £8,299 3s. 3d. towards the erection of 37 ordinary national schoolhouses, not yet opened, which will contain in the whole 62 separate schoolrooms. In addition to the ordinary national schools not yet built, there are in course of erection seven model schoolhouses of various kinds, containing in the whole 20 schoolrooms. When these 54 buildings shall have been completed, they will afford accommodation to 7,655 additional children. Of the above 47 grants for the erection of ordinary schoolhouses, 12 were awarded during the year 1860, involving liabilities to the amount of £2,982 15s. 7d. The number of schools struck off during the year 1860 was 98, of which 82 had been previously in operation, and nine had been suspended; the remaining seven were simply cases in which grants for building had from time to time been awarded, but for various reasons have now been cancelled."

ANCIENT IRISH HISTORY.

The following review of the above-named work, by Professor Curry, appeared in a recent number of the *London Morning Herald*:—

"A remarkable work has just been brought out in Dublin, and as it is the only novelty at present fixing local attention, a line in reference to its character may not be out of place—the more especially as it is likely to attract the notice of archæological students in England and elsewhere; nor may less profound readers fail of deriving information from its pages, the variety of its contents being sufficiently ample to embrace a large range of differing tastes. The title of the book is 'Lectures on the MS. Materials of Ancient Irish History;' and, besides the detailed account which it furnishes of ancient Irish and other MS. (many of which, and the most valuable, were stowed away unnoticed in libraries, public and private, at home and abroad), it treats minutely of ancient historical and imaginative tales, of the remains of the early Christian period, of early ecclesiastical MSS., and of the so-called 'prophecies.' It is astonishing to what an extent the prophecy mania raged, and still rages, in Ireland. Amongst prophets whose predictions were believed in with implicit faith were Conn, King of Ireland, surnamed of the Hundred Battles; Fionn M'Cooil, the renowned chief of the Finnian heroes; and other laymen of note in history and tradition—so that the saints had not all the honour of inspiration to themselves. Most of the prophecies were directed against the English sway in the country; and such was the impression which the impostures made upon the popular mind, that the English in their turn availed themselves of them to aid in establishing their authority, and impressing the Irish with the notion that resistance to their power would be worse than futile. Sir George Carew, Lord President of Munster, in the reign of Queen Elizabeth, did not disdain to stoop to this expedient."

INSUFFICIENT WORKHOUSE ACCOMMODATION.

At a recent meeting of the Guardians of the South Dublin Union, a resolution to the following effect was proposed:—"That in consequence of the want of accommodation in the school building, and the fact of some of the dormitory being occupied by the officers of the union, the plans for a new building, which had been submitted to the board, should be adopted." There was no *seconder* to this, and an amendment, duly seconded, was moved—"That the consideration of the matter be postponed for six months," the speaker urging that the expense of the proposed building was too great, and that the ratepayers were too heavily taxed to bear any additional burden which was not absolutely necessary. Another amendment was then proposed—"That a portion of the plan in question be approved," but it was lost by a majority of 13 to 5.

The first amendment was adopted.

THE MATER MISERICORDIÆ HOSPITAL.

Though we have on former occasions noticed the progress and features of the large pile of building for some time in course of erection at Eccles-street, in this city, and intended as an hospital to be presided over by the Sisters of the Order of Mercy, we may appropriately, on the occasion of the opening, which took place on the 24th ult., recur thereto and quote description from our contemporary the *Freeman*:—

The principal or north-west façade, facing Eccles-street, is nearly 300 feet in length, and is divided into five compartments by slightly projecting pavillions at the ends, and by a great central projection over 70 feet in length, having in the middle portion a recessed portico, with massive Ionic columns, 3 feet 6 inches in diameter, and forming together, with four adjoining pilasters, a frontispiece crowned by a great pediment, which overtops the rest of the building. Behind this will be the cupola, rising 120 feet from the surface. Two approaches to the ground floor lead into spacious waiting halls for out-patients of both sexes; opposite these are the approaches to the dispensary for out-patients; and on either side are doctors' rooms, with private consulting rooms, ward dispensaries, &c.; and in the rere of all is a spacious laboratory, with all necessary accessories. Passing through the corridor right and left, the temporary reception wards are approached, together with the bath-rooms for patients on entering. When the entire shall have been completed, the corridor referred to will pass round the entire building, looking out on the enclosed quadrangle. On the wings on ground floor will be, on the male and female sides, spacious wardrobes, fumigating rooms, hospital stores, heating apparatus, entrance halls and staircases from recreation grounds, servants' rooms, and refectories, together with lifts for beds and for the prepared food for the patients. The rere of the ground floor will contain the great kitchen, 70 feet in length, the larder, stores, oven and bakehouse, laundry and drying-rooms, vapour baths, together with a boiler and engine-rooms for raising water to the tanks on the roofs. The new water works bill will enable the architect to avoid the outlay necessary for the pumping apparatus, and will also relieve the good Sisters from a great yearly tax in the expenditure required for the working of a steam pumping engine. The second floor is approached by two circular stairs of moulded granite. Passing through the portico to the entrance hall, which is richly furnished with mosaic pavements, niches, pilasters and lofty domed ceiling, on either side are the public reception rooms great linen dispensary, accident wards, convalescent rooms, &c. The apartments on both the upper stories, will be used at present as general wards, until the completion of the entire building. As before observed, the corridor, twelve feet in width, with lofty groined ceilings, will branch round both wings, and will terminate in the chapel at rere. Opposite the entrance hall is the grand staircase, which requires to be seen to be fully appreciated; behind the grand stairs and communicating with it is the beautiful apartment 50 feet by 34, adorned with Corinthian columns, and which is now used as a temporary chapel, to be applied in future to the general public uses of the establishment. On either side of this apartment are cross corridors leading to the operation wards, baths, &c., on both stories, and over it are the pathological museum and an operation theatre altogether unequalled in this country. On both wings in the upper stories will be the great wards for both sexes, extending, from front to rere, 330 feet, having in central projections the staircases, *tisaneries*, baths, closets, &c. In the rear of the building will be 28 spacious private rooms for pension patients, with central corridors terminating in the chapel, which will occupy the central portion of the rere of the building, and will be cruciform in plan, divided into nave and transepts, the latter of which will have aisles with arcades and lofty domed ceiling. The nave will be set apart as a choir for the community, and will communicate with the projected convent at rere by a corridor entered through a campanile, which will rise 90 feet above the surface, and which will also form the vestibule of approach from the convent to the hospital wards, through two quadrantal corridors branching right and left. It is expected that the two upper stories when completed will give ample accommodation for 500 beds, and which, together with the ground floor, if used in a period of calamity, would give accommodation for 700 beds.

It is to be regretted that there is one drawback to the imposing appearance of the chaste and massive façade. An ugly excrescence rises from the roof behind the portico and causes disappointment in the minds of those who may be unaware of the causes. This excrescence is in fact the base of a cupola of pleasing and original design, intended to be the grand crowning ornament of the building, and to serve not only as a clock and bell tower, but also to be in connection with the campanile at rere, the chief medium of ventilation.

A proposition was made at a recent meeting of the Midland Great Western Railway Company to subscribe £21,000 to the construction of the Westport extension of the Great Northern and Western line, and was most unfavourably received.

THE MANUFACTURES OF IRELAND.

On the principle of "Better late than never," we are glad to see, even at the last moment, some stir on the part of the Irish manufacturing interests as regards the representation of their country in the Great Exhibition of 1862. The skill and industry of the Sister Isle furnished some excellent contributions to that of 1851, and perhaps no country in the world has progressed more in proportion during the decade which has since elapsed. Irishmen have become of late years more practically alive to their own interest than they were formerly, and it seems to us almost unaccountable that such apathy should have been shown on the present occasion. A very extraordinary statement was made at the meeting of the Royal Dublin Society, which took place on Saturday, which, although it is not sufficient to account for the delay, may perhaps be taken as a curious illustration of the indifference prevailing in Ireland upon matters of material importance. The Lord Mayor of Dublin was asked to convene a meeting for the purpose of taking steps to secure some representation of Irish manufactures at the next World's Fair, and that functionary declined because he did not intend to be an exhibitor. The Lord Mayor of Dublin is, we believe, a silk and poplin manufacturer, and it is of course a matter altogether for his private judgment whether or not to exhibit the products of his manufactory. But his refusal, as Lord Mayor, to discharge what we must consider to be his duty, because as a private individual he had no direct interest in the matter, seems to be entirely inexcusable. As the chief magistrate of a city, interested to a considerable extent in manufacturing industry, it was, we should have thought, one of the incidents of his office to aid in seeing a proper representation of that interest on an occasion so remarkable. Lord Mayors are in the habit of commencing and presiding at meetings relating to questions much less germane to the interests with which they are *ex officio* supposed to be identified. Municipal functionaries are generally believed to be the mouth-pieces of the community over which for certain purposes they preside. Surely the adequate representation of the industrial art of Dublin and of Ireland was as important a matter for the Lord Mayor of Dublin, and one as worthy of his attention, as the Galway contract, in favour of which this very Lord Mayor appeared at the bar of the House of Commons some few months back. If Dublin is interested in steam-packet communication with America, if it be essential to her material prosperity that a particular steam-packet company should be propped up by Government funds, it is of no less moment that the buyers of the world should see what she is capable of producing in the way of manufactures. A good "stand" for his wares is highly prized by the shopkeeper, and it would be very extraordinary if Ireland were to reject that offered to her for productions in the Exhibition of 1862. We are glad to find from the tone of those who spoke at the recent meeting that the full importance of all this is now recognised. The encouragement resulting from the last Great Exhibition will no doubt have a very perceptible effect upon the forthcoming one. Not merely in poplins, lace, linens, and other manufactures, which are peculiarly their own, but in a great many walks of art, Ireland has achieved great eminence. In designing and ornamental carving the national cleverness has been conspicuously shown. The mineral productions of the country are remarkable; and in a great many branches of art Irishmen ought to occupy a foremost position. Before the rest of the world we ourselves should be a little ashamed to see so important a part of the United Kingdom miserably represented. It would look as if we had a Cinderella in the family, and we should feel it as a kind of reproach to us. People from abroad would hardly believe that she was a voluntary Cinderella. We do not wish to see her one. She is as clever, as handsome, and, if she pleases, can be as well dressed as her two sisters, and we wish to present her in her most becoming toilette to all the princes and potentates who will be here in 1862.—*Globe.*

ROMAN BRIDGES.

The Roman bridges are described by Bergier, as possessing all the requisites met with in a modern bridge; they consisted of piers, arches, butments, carriage-ways, and raised banquettes or foot-paths separated from the road by a railing, and sometimes furnished with a cover to shelter passengers from the weather. Their solidity and proportions prove they must have been constructed on sound principles.

The superintendence and care of bridges was always an important object with the Romans; it was at first committed to the priests, who thence obtained the name of *pontifices*; afterwards it was given to the censors and curators of roads; and at last the emperors took it into their own hands. In the middle ages, the building of bridges was esteemed to be an act of religion; and about the close of the twelfth century, St. Benezet founded a regular order of hospitallers, under the denomination of *pontifices*, or bridge-builders, whose province it was to erect bridges, appoint ferries, and entertain travellers in hospitals built on the banks of rivers.

Of the bridges of antiquity, that built by Trajan across the Danube, near the town of Warbel, in Hungary, is allowed to have been the most magnificent. It was destroyed by Adrain, but some of the piers may still be seen.

The remains of a bridge, bearing as strong marks of ruined magnificence as any of antiquity, are to be met with at the bottom of a hill, on which the town of Narni is seated, on the road between Loretto and Rome. This bridge was built by Augustus, to join two mountains, between which flows the river Nera, and to enable the inhabitants of Narni to pass on a level from one mountain to the other. It was of an extraordinary height, and its whole length, 850 palms (637½ feet). It consisted of four large unequal arches.

The next considerable Roman work of this kind is the *Pont du Garde*, about three leagues from Nismes; which serves the double purpose of a bridge over the Gardon, and an aqueduct for supplying the people of Nismes with water. The bridge, which consists of six arches, is about 465 feet in length, and supports a second series of eleven arches, which are continued beyond the extremities of the bridge, and form a junction with the slope of the mountains on either side; it is about 780 feet long. Over these is a third series of 35 arches, much smaller than those below, 850 feet in length, supporting a canal on a level with the two mountains, along which the water is conveyed to Nismes by a continued aqueduct. This extraordinary edifice is built with very large stones, held together by iron cramps without cement. The whole height is 190 feet above the lower river.

The bridge of *St. Esprit*, near Lyons, is of Roman origin, and has long been deemed one of the finest and boldest of the ancient bridges of France. Its whole length is upwards of 800 yards; it is very crooked, bends in several places, and makes many unequal angles, particularly in those parts where the river has the strongest current. The arches run from 15 to 20 fathoms in width. The feet or bottoms of the piers consist, in their lower parts, of several courses of footings jutting out like steps; and are each protected by two pedestals, projecting from them. Between the large arches are smaller apertures, like windows, reaching nearly to the tops of the pedestals, about the middle of the pier. This mode of construction was adopted with a view to break gradually the mighty force of the Rhone; the several courses of steps, jutting out from the piers, oppose and break the stream by portions, and prevent it from operating with its whole force upon the fabric at once; and when the flood rises so high as to cover the steps and pedestals, the small arches or windows, allow the water to pass freely, which otherwise would have choked in the upper part of the great arches, and endangered by their being forced up.

The city of Valenza de Alcantara, in Spain, is celebrated for its ancient bridge over the Tajo, or Tagus about 25 miles from Madrid, built in the time of the Emperor Trajan; and, as appears from an inscription over one of its arches, by the people of Lusitania, who were assessed to defray the expense. It is 200 feet above the water, and though consisting of only six arches, is 670 feet in length, and 28 in breadth. At the entrance of the bridge is a small chapel dug in the rock by the pagans, who dedicated it to Trajan; but when the Christians obtained possession, they consecrated it to St. Julian.

Near the old town of Brioude, in the Lower Auvergne, or department of the Upper Loire, is a stupendous stone bridge, of one arch, the largest with which we are aquainted. It is attributed to the Romans, and stretches over the whole stream of the Allier. The extremeties of the arch rest on a natural rock, which occasions the spring on one side to be lower than on the other; it is formed of squared stones in two ranks; the rest of the fabric is of rubble-work. The span of the arch is 181 feet; its greatest height, from the level of the water to its intrados, 68 feet eight inches; and the bridge, 13 feet.

ON THE CHEMICAL CONSTITUENTS AND GROWTH OF TIMBER.

Trees, and all other vegetable productions, are organized bodies, the constituent parts of which are resolvable into their original elementary forms.

The *inorganic* substances, which enter into the composition of every plant, and which are by its innate properties converted into its organized as well as inorganized components, are derived from the soil by the roots, or by parts performing analogous functions; and also from the atmosphere by the leaves.

These substances may be primitive or secondary; that is, they are either in their primeval inorganic state, or they have returned to it from having once been organized, either as animals or vegetables.

The elementary substances essential to all plants consists of carbon, hydrogen, and oxygen; but to these is frequently added nitrogen; and sulphur, phosphorus, silica, soda, potass, lime, &c., are also found in different parts of a fully-developed plant. Of all these *inorganic* substances, oxygen forms more than a third of the bulk, hydrogen a little more than one fifth, and nitrogen in varying quantity, but never much exceeding three per cent.

The *saline* or mineral constituents of plants consist of the carbonates of potash, soda, lime, and magnesia. *Sulphates* and *phosphates*, of potash, soda, ammonia, lime, and magnesia, some *chlorides* and other substances which are derived from the soil and can be freed from the organic matters by the action of fire.

Chemists have reduced 1,000 lbs. weight of the several undermentioned substances, all equally dry, to ash by burning, with the following results:—1,000 lbs. of elm timber, yieldinging 19 lbs. of ash; 1,000 lbs. of poplar, 20 lbs.; 1,000 lbs. of willow, 4½ lbs.; 1,000 lbs of beech, 1½ to 6 lbs.; 1,000 lbs. of birch, 3½ lbs.; 1,000 lbs. of oak, 2 lbs.; 1,000 lbs. of pine, 1½ to 3 lbs.; and 1,000 lbs. of ash, 5 to 6 lbs.

It will be perceived from this list of substances, that trees require only a small proportion of mineral nutriment, from which circumstance it has been doubted whether its presence be not merely accidental, but, from the constant and unvarying quantity of mineral matters found to exist in certain substances, this supposition does not appear to be well founded. Under the same circumstances it should be observed, that trees will succeed where corn and other vegetables, which require a greater proportion of mineral aliment, would naturally perish.

If we examine the cross section of a tree, we shall find it to consist of three principal parts: the pith, the wood, and the bark. The wood and the inner bark consist of a number of vertical tubes which convey the juices or liquids, up and down, from the roots to the leaves. These tubes are traversed by the medullary rays, which extend in straight lines from the centre to the circumference. The medullary rays connect the pith or cellular substance of the tree with the outer bark, and when they are cut in a sloping direction they produce the beautiful-varied appearance called *figure* in the wood.

From their hardness and compactness the medullary rays may serve, in some measure, to resist the pressure of the accumulating annual rings, and to keep open the tubes for the passage of the sap in the interior of the tree for a longer period than if they did not exist.

The important office of the leaves is to inhale the gaseous food contained in the atmosphere; they are, in fact, an expansion of the twigs of the tree, and their bases the elongations of the tubular vessels in the wood. The leaves are full of tubes or vessels, particularly on their under sides, which comunicate with the inner bark. The sap ascends from the roots through the tubes or vessels of the wood, and is distributed in the woody fibres of the leaves, whence it is returned by the pores in the inner bark to the roots. In the daytime, the leaves absorb carbonic acid from the air, which becomes decomposed, and the oxygen given off, at night, this process is reversed, although in a slower degree than in the former instance; about one-third of the entire quantity of carbon required by the tree is thus extracted from the atmosphere As the sap descends, it forms another annual ring or layer of sapwood, and inner bark, by which the bulk or circumference of the tree is increased, and goes on increasing year after year. By counting the number of these so-called annual rings, which are very distinct in some species, it is supposed the age of the tree can be ascertained; but we are inclined to doubt this hypothesis, when we consider the immense number of rings in some trees which bear no comparison to the time they may be supposed to have been growing. Although the sap of the tree is most active in the spring and during the period of vegetation, it has been ascertained that it is never altogether stationary, except during severe frosts.

The annual rings present a great difference of character in different species of trees: in resinous woods, such as the cedar, larch, and pine, the rings are very distinct, while in the beech, and some others, they are so small as scarcely to be discerned. They also differ in their structure in different woods: in the softer kinds of woods their structure may be termed spongy, while in the oak, elm, and other closer-grained woods, they are hard, compact, and very distinct.

The pith, which seems to perform an important part, like the marrow in bones, while the tree is young, appears afterwards to lose much of its office in the growing economy of the tree; for, as the inner layers or rings become indurated, and formed into heart-wood, the pith is nearly or altogether extinguished, and the tree in this state consists only of heart-wood, sap-wood, and bark. The sap-wood, becoming heart-wood, as the layers or rings increase, and the outer surface of the bark dries, perishes, and falls off.

From the elasticity of the increasing rings, great pressure is exerted upon the heart-wood, which, when the trees becomes of considerable bulk, must materially, if not altogether, prevent the circulation of the sap in the inner portion of the tree; and, following this chain of reasoning, it might, we think, be shown that the *free* growth of a tree, and the full development of the leaves depend on the accelerated circulation of the sap, arising from this pressure through the whole area of the sap-wood, bark, and leaves, when the easily-compressed cellular substance of the pith has ceased to act.

The tardy circulation of the sap in old trees arises either when the pressure has been removed by the tree becoming hollow, or when the process of hardening has so far proceeded as to bear no proportion to the quantity of the sap-wood in which it is enveloped. The smallness of the leaves, and the short and stunted shoots, which are produced on the branches of old trees, or such as are said to have done growing, may thus be accounted for. When the induration has reached its extreme limits, the proper time has arrived for the tree to be cut down.

The hardening of the sap-wood, and the consequent premature age of the tree, may arise from other circumstances than those of mere old age: ungenial climates and situations check the free circulation of the sap, and the new layers of wood and inner bark are thus imperfectly formed, or greatly attenuated in substance and the tree shows all the signs of age, at a period when, had it been reared under different circumstances, it would have still appeared young and vigorous.

External accidents, by which water is admitted into the solid substance of the tree, projuce the same injurious though more rapid effect of rotting, and the consequent premature decay of otherwise valuable, sound, and flourishing trees. as it is attributable to ungenial situations. Such accidents should be carefully guarded against, or, where they occur from storms which break the branches, the best remedies should be speedily applied.

Hedgerow timber is particularly exposed to injuries of various kinds, and the practice of planting valuable trees in such situations should be sparingly adopted, or altogether avoided. It has been the common practice to store hedgerows with timber trees, as thick as chessmen on a board, to the mutual injury of the growing crops and the trees themselves; while waste corners and pieces of ground, suitable for the trees and profitable only when planted, are left vacant in their native barrenness, although a wise Providence has so constituted the majority of trees, that they will flourish upon, and indeed prefer, situations that are altogether unfit for the production of corn and other vegetables.

If this fact remained unknown to our forefathers, when the science of chemistry was imperfectly understood, there is now no reason why we should continue a practice at once opposed to nature, experience, and science, attended as it is, moreover, by a constant loss in a pecuniary point of view.

BIOGRAPHY OF GIOVANNI LORENZO BERNINI.

THIS architect was born in 1598, and died in 1680. His father, Pietro Bernini, a Florentine, was a painter and sculptor of more than common talents. Giovanni's first work in architecture was the great central altar of St. Peter's, remarkable for its twisted columns; its novelty, singularity, and the difficulty of its execution surprised, and had many imitators. By desire of the Pope, he adorned with niches the four great piers which support the cupola of St. Peter's. He was employed in the construction of the palace Barberini, particularly in that of the stairs, the great hall, and the principal front. The front has on the lower floor a Doric, very well understood; but the application of so many cornices, and the great arched windows, do not add to the beauty of the structure. The front of the Propaganda Fide is also the work of Bernini: that building threatened ruin, to prevent which he erected a battering basement, which increased at the same time both the beauty and strength of the structure. Urban VIII. wishing to complete the front of St. Peter's, which, according to the design of Maderno, required, at its extremities, two steeples, gave the commission to Bernini. He designed and executed the fine fountain of the Piazza Navona. For Prince Ludovisi, he begun a great palace, which in its principal front presented five faces; this edifice was afterwards converted into a great law-court, called *Curia Innocenziana*, one of the finest palaces in Rome. Alexander VII. gave him many works to execute, among which is the piazza before St. Peter's. By order of this Pope he planned many buildings, among which is remarkable, the palace of Santi Apostoli. The very elegant church, of an elliptic figure, of the Novitiate of the Jesuits, is likewise his. Louis XIV. and Colbert his minister, both admirers of the fine arts, ordered Bernini to make drawings for the palace of the Louvre, for which building the first architects were stimulated; these drawings pleased so much, that the monarch sent him his portrait set in gems, and wrote very engaging letters to the Pope, and to Bernini himself, that he might go to France to execute them. In consequence of which, though an old man, he left Rome, and went to Paris, where he was received as if the only man worthy to work for Louis XIV. When Bernini had seen the front of the Louvre, by Perault, he said publicly that his coming to France was useless, where there were architects of the first class. This trait does more honour to Bernini than all his abilities as an architect. In fact, with regard to architecture, which he was sent principally for to France, he did nothing. He made the king's bust, and during the eight months he staid in France, he was paid at the rate of five pounds a day; and received at last a gift of 50,000 crowns, and an annual pension of 2,000, and a pension for his son, whom he took with him, of 500. When he returned to Rome, in gratitude to his Majesty, he made an equestrian statue, which was placed in Versailles. Under Pope Clement IX. he embellished the bridge of St. Angelo with an elegant iron balustrade.

Large schools have been built at Moate, Co. Westmeath, adjoining the new convent house, erected by the Sisters of Mercy. The foundations are being prepared for a parish church in the Gothic style, and 78 feet in length by 31 in width; comprehending nave and aisles, with an arcade of five bays on either side. A tower, 126 feet high, will be added.

A new school-house and dwelling for the Sisters of Charity are to be built at Caher.

A new Protestant hall is to be erected in the town of Longford. Proposals were to have been lodged on 28th ult.

The works on that portion of the Irish south-eastern line, in the direction of Ballywilliam, are reported to be in a forward state.

The Galway Harbour Commissioners have passed a resolution to select a site for a new graving-dock, and a committee of three have been appointed to give effect to the object.

The church of Kenawley, Co. Fermanagh, is to be enlarged. Architects, Messrs. Welland & Gillespie, Ecclesiastical Commissioners.

Various works are to be executed at the churches of Granard, Co. Longford, and Sellerna, Co. Galway. Same architects.

The following tenders for the construction of six of the new forts on Portsdown and its western approaches have been accepted by the Government:—For Wallington, that by Messrs. Lee & Sons, Nine Elms, Vauxhall, London; for Fareham and Newgate, that by Messrs. Wilson, Great Suffolk-street, Borough, London; and for Nelson, Southwick, and Wedley, that by Messrs. Treadwell, Parliament-street, Westminster.

Tenders have been invited by the Corporation of the City of Dublin for the loan of £300,000, required for their waterworks. No rate of interest is specified, leaving that to be fixed by the lenders. The security offered to borrowers is of the most satisfactory character, and this view of it is vouched by the highest legal opinions. There can be no doubt but that the money will be easily obtained on such undeniable security as the corporation can offer.—*Freeman.*

A novel tramway has been introduced near Newcastle. It consists of blocks of cast iron about 18 inches square and four in thickness, the surface being chequered with small oblong pieces protruding so as to give horses good footing, but not causing the slightest obstruction to the wheels of vehicles. The blocks are laid upon a firm substratum of compost, and will be on a level with the other portions of the road.

Mr. John Owens, of the Royal Engineer Branch of the War Department in Ireland, has been presented with a handsome testimonial, accompanied with a beautifully illuminated address, by the civil officers of the Royal Engineer Department in the Dover district, where he was stationed since his return from foreign service in 1847 to the present year. The address congratulates Mr. Owens on his promotion to Dublin, and expresses the esteem and respect of those with whom he has been for many years officially associated.

One of the hewn stones remaining whole amid the ruins of Baalbec is sixty-seven feet long, fourteen feet broad, and nine feet thick. Its weight is about 560 tons.

Mr. Alderman Cubitt, the head of the well known eminent building firm of Cubitt & Co., and the present Lord Mayor of London, has been invited by a deputation of the City Liverymen, and an extensively signed requisition, to allow himself to be placed in nomination for the same office for 1861-62, when in all probability, owing to the great decennial Exhibition then to take place, as also the Prince of Wales attaining his majority, he will be raised to the dignity of baronet. It is thought, moreover, that for the latter reason, the Lord Mayor (Moylan) of Dublin will also have the same honour conferred on him, and the same official in York likewise, the only three *Lord* Mayors in the kingdom.

The attractions of Nice will be increased during the winter by an exhibition of the fine arts, which is to take place during the months of December and January. Preparations for it have already commenced.

A recently published return shows that on the 1st of January, 1860, the total value of telegraphic plant in France amounted to 1,900,000fr. In 1858, it was 7,200,000fr., and in 1857, 5,900,000fr. Total length of the wires on the 1st January, 1860, was 42,527 kilometres (26,579 miles), to 38,422 in 1858, and 33,705 in 1857.

MR. BENSON'S WATCHES.—"We have seen several watches from this well-known firm, and can speak with confidence of their exquisite workmanship and artistic finish. They keep time with very great precision, and have been declared by competent judges to be well worth the money. Parties wishing them can be supplied through the post-office."—*Glasgow Examiner.*

Benson's Illustrated Pamphlet, post free for two stamps is descriptive of every construction of watch now made. Watches sent by post to all parts of the globe.

J. W. Benson, 33 and 34, Ludgate Hill, and 46 and 47, Cornhill.

Miscellaneous.

Museum of Irish Industry.—The distribution of prizes and certificates to students of this institution, and the opening of the session of 1861–62, will take place on the 3rd inst. at 8½ p.m. The Lord Lieutenant will be present, and Sir Robert Kane, F.R.S., president, will deliver an inaugural address.

South Dublin Penny Bank.—The following is the statement of accounts for the week ending 23rd September, 1861:—number of depositors, 187; amount lodged, £26 11s. 8d.: number of new accounts opened, 16: number of withdrawals, 32; amount withdrawn, £10 18s 10d.; total number of depositors since the 1st January, 1,689; total amount lodged since 1st January, £598 2s. 4d.; balance in bank to credit of depositors, £303 3s.

Ely Cathedral.—The reconstruction of the lantern of this cathedral, as a memorial of the lamented Dean Peacock, will be commenced in a few days, designs having been prepared by Mr. Gilbert Scott. The intention of the friends of the late dean to enter on this work was announced some months since; but as the estimated expenditure was from £5,000 to £6,000, some difficulty has been experienced in providing the requisite funds. Sufficient promises of support having, however, now been obtained to justify the commencement of operations, they will be prosecuted with energy, and Messrs. Freeman & Son, of Ely, will commence the erection of scaffolding, &c., next week. The new lantern, like the existing one, will be of oak cased with lead, but windows will be introduced harmonizing better with the rest of the building. Mr. L'Estrange, an amateur artist of considerable taste and skill, is proceeding with the painting of the ceiling of the nave, a series of gigantic medallions, representing the Creation and other scenes from early Scripture history, being in course of execution. New school buildings for the choristers are also in progress.

Building Ice Houses.—"T. J. B.," Newtownmountkennedy, asks—"What is the best plan of building or making an ice house? I have built two in different situations, filled them well, and in the following June have not found one pound of ice. I hope to obtain some information from your numerous readers."——The site of the ice house has as much to do with the keeping of the ice as the building of it; the site should be perfectly dry, and not exposed to the sun's rays at any time of the day. The well may then be sunk in the dry soil eight to ten feet deep, and built round with either stone or brick; a drain with an air-tight trap should be made in the bottom. The wells may rise above the surface about four feet, and the best roof is timber and thatch A passage should be made to the ice house eight or nine feet long, and have doors both to the ice chamber itself and the front of the passage. In such houses we have seen ice keep well throughout the summer. You will see an excellent ice house of the above description in your neighbourhood, at Bellvue, Delgany; the ice has never been known to fail in it.—*Farmers' Gazette.*

Cottage Walls getting Green.—"An Improver" asks—"What would you recommend for washing the walls of cottages, near the sea side, to prevent them getting green. Oil paint is too expensive. I saw an advertisement for the style of thing in a London paper some time ago, but cannot remember the direction."——Washing the walls down with vitriol and water mixed, so that the water may be tolerably acid to the taste, will destroy the green moss, and prevent it growing for some time.—*Ibid.*

Lucifer Matches.—Mr. Gore, a recent writer on this subject, gives some astonishing statistics respecting this branch of manufacture. The firm of Messrs. Dixon employ 400 workmen, and generally have on hand £8,000 or £10,000 worth of timber. Each week they consume one ton of sulphur and make 43,000,000 matches, or 2,160,000,000 in the year. Reckoning the length of a match at two and a quarter inches, the total length of these would far exceed the circumference of the earth. Another calculation has been made, that the whole length of waxed cotton wicks consumed every year by one London manufacturer in the production of "vestas," would be sufficient to reach from England to America and back again. The magnitude of the figures relating to the English manufacturer of matches is, however, insignificant when we turn to the Austrian production. Two makers alone, M. Pollak, at Vienna, and M. Flirth, in Bohemia, produce the amazing number of 44,800,000,000 matches yearly, consuming twenty tons of phosphorus, and giving employment to 600 persons. The low price at which these necessaries of life are produced is equally astonishing. M. Flirth sells his cheapest boxes at one penny per dozen, each containing eighty matches. Another maker sells the plain boxes at twopence per 100, and 1,400 matches for one farthing; whilst a third maker sells a case of fifty boxes, each containing 100 lucifers, for fourpence. The imports of matches into the United Kingdom are of the value of £60,000 yearly, representing the enormous number of 200,000,000 daily. The daily consumption is 50,000,000 more than the above number, or upwards of eight matches each day for every individual in the kingdom.

Literature and Art.—The neighbourhood of St. Paul's Cathedral has for centuries been the favorite haunt of literature and the chosen abiding-place of booksellers. Old London-bridge used at one time to bear away the palm for bookshops; and the signs of "The Looking-glass," "The King's Head," and "The Three Bibles," are famous in bibliopolic annals. When the houses on the old bridge were pulled down, however, the ousted venders of learned wares rushed impetuously to Paternoster-row; and those who could not find room there ensconced themselves in Amen-corner and Ave Maria-lane. Great are the conscript "Fathers of the Row;" world-famed are such names as Longman, Whittaker, Blackwood, Blackie, and Van Voorst. Sweet are the odours of hot-pressed octavos, and gift-books bound in morroco by Hayday. Much sweeter would those odours be were it not for that abominable stench which for any time this half century has issued from the tallow-melters, whose factory has been permitted to render oleaginous and wellnigh unbearable the approaches to St. Paul's and "Learning's long lane." The "Row" has been in a blaze: a tremendous conflagration has swallowed up tons of tallow, illustrated works in quires, volumes bound and volumes in boards, newspapers, periodicals, ledgers, and daybooks; besides imperilling the costly stock of silks belonging to one of the great "drapiers of Paul's-churchyard." Imperilling silks, do we say? Why, was not Wren's great dome in danger too? What an incineration we might have had! Remember that the framework of the cupola is of wood; remember that the amount of woodwork in the stalls of the choir—in the organ-loft; remember the vast thorough draughts for the flames to rush through that would have been afforded by the huge emptiness of our most magnificent and most naked cathedral. Literature has suffered to some extent by the fire in Paternoster-row; but what an irreparable loss might Art have suffered had the cruel flames crept up to the pediments and architraves of Wren's great work! Surely it is time for Paternoster-row and the congeries of nasty, straggling, fire-breeding lanes and alleys between Little Britain and the Old Bailey, to be pulled down. Some of these days it will be to late to cry "Wolf!" and the cathedral may have gone by the board through sheer inertia and parsimony on the part of authority. By judicious demolitions a noble space might be cleared on the western and northern side of St. Paul's—a space which would give us reason to be ashamed when we compared it with the Parvis Notre Dame at Paris, or the Izaak's Ploschad at St. Petersburg. On the north and the west our Blackwoods and Blackies erect palaces for bookselling purposes as sumptuouas s those of the Pawsons and other great Manchester warehousemen, on the southern side. Item: this is not the first time that learning has been in the fiery furnace in the same neighbourhood. In the old times the booksellers used to keep their "back stocks" in the vaults of St. Paul's; and twice running, at the partial cremation of the cathedral in James I.'s time, and at its total destruction in Charles II.'s reign, the booksellers' stocks were burned. There were no illustrated editions "Lallah Rookh" in those days, but, then, there were no comfortable policies of insurance to cover the loss of any amount of "back stock."—*Illustrated London News.*

Mahogany.—A hundred and fifty years ago this wood was almost unknown to English commerce. In 1724, the Prince of Wales, afterwards George II., ordered the staircase of Marble-hall, Twickenham, to be constructed of mahogany, which was perhaps its first application to home embellishment. In the same year a West Indian captain sent a few planks to Dr. Gibbon, who was erecting a house in King-street, Covent Garden. The wood being too hard for the carpenters' tools, it was laid aside as lumber; but when the house was finished a cabinet-maker was engaged to make some necessary furniture, and seeking among the stuff in the yard for wood suitable for the purpose, he found the foreign planks; his tools being somewhat sharper than those of the carpenter, he met with more success, and the first article made from the mahogany of Jamaica was a candle-box for the doctor's kitchen. This was so much admired that Woolaston, the cabinet-maker, was instructed to make a boreau for the drawing-room. The boreau became famous, and people of taste came purposely to see it. Woolaston made a fortune, as it became the fashion to sit on chairs, and to dine off tables of mahogany.—*Our English Home*

Exhibition at Florence.—The most successful department of this undertaking is said to be the sculpture gallery, in which Magni, of Milan, has two clever groups of "A Girl feeding a Goat with Grapes," and "A Young Lady in a Swing," worked by a small boy, probably Cupid, from his contempt of garments, though he has no wings. Mr. Power, the American sculptor in Florence, has repeated his subject of "A Boy with a Shell to his Ear." There is an excellent "Sleeping Ishmael," "Eve with the Apple," a "Boy Asleep, with his hand on a dog's head, and a new "Lying Gladiator." In alabaster vases and statuettes Barbetti of Florence bears the palm. There is a bronze repetition of the "Castaway," the statue of the London Exhibition in Trafalgar-square last summer. A pair of magnificent carved doors in wood, also by Barbetti, and some ivory carvings by Giusti, of Siena, stand at the end of this gallery.

Patent Heliographic Printing.—The object of this invention is to extend the application of photography, by substituting for the salts of silver (used in the ordinary printing of a photograph) an imperishable and cheap material, "printers' ink," and printing the impression at the printing press now in use, thereby, rapidity of production, and, consequently, cheapness, will be the result.

The Working Power of Coal.—Professor Rogers estimates that nearly one-sixth of the total annual produce of our coal mines is used for the production of mechanical power alone, from which a power equal to that of 66,000,000 able bodied men is obtained. Each acre of a seam yielding three feet of pure fuel is equal to about 5,000 tons, and possesses a reserve of mechanical strength equal to the labour of 1,600 men during their whole life; and each square mile of that same bed contains 8,000,000 tons of fuel, which is equal to 1,000,000 men labouring through twenty years of their ripe strength. Upon the same calculation, the total annual coal production of the United Kingdom (65,000,000 tons) is equal to the strength of 400,000,000 strong men, or more than double the number of adult males now upon the globe.

American Railways.—In the United States no train is allowed to leave a station until the preceding train has left the station beyond. The engine driver and stoker have a kind of roof over their heads which protects them from the weather, and enables them more conveniently to look out ahead. A cord connected with the engine-bell runs through every carriage. The breaking of axles on sharp curves is provided against by the use of Bissel's patent truck. Every passenger carriage will hold about sixty people, and is furnished with velvet or plush spring seats, while the floors are covered with oil cloth. The backs of the seatshave circular pivots by which they can be so adjusted that passengers can ride with their faces or their backs to the engine. The carriages have a filter containing iced water to enable passengers to quench their thirst; and if these filters are not provided, waiters attend to the passengers and furnish water gratis. Boys are allowed to travel by trains to sell lemonade. Almost every train has one or two dressing-rooms attached to it. In winter a lighted stove is in every carriage. On many railways there are sleeping carriages, which contain comfortable couches. A smoking carriage is attached to every train. A special carriage for passengers' luggage is provided, and nothing is given out without a counter check.

To Preserve Cut Flowers.—Most people like to to preserve bouquets of natural flowers. Many methods have been recommended, but they fall short of the object to be attained. In short, the water becomes putrid, and is obliged to be renewed at least once a day, without checking the alteration of the flowers, which commence soon after their separation from the plant. The following method, which has completely succeeded, consists in introducing a spoonful, more or less, of powdered charcoal in the water contained in the vessel, and immersing the lower extremity of the stems of the flowers in the charcoal. By this proceeding the most beautiful results are obtained, as the flowers are preserved without sensible alteration, without it being necessary to renew either the water or the charcoal, or by giving them any other attention. The water is preserved quite clear in the vessel.—*Cottage Gardener.*

The New Library in the Middle Temple.—The benchers of the Middle Temple are busy making preparation for the inaugural ceremonies attendant on the public opening of their handsome new library. They are intended to take place in the early portion of this month; and it is stated that his Royal Highness the Prince of Wales will take a leading part in the ceremonial. It is intended to make his Royal Highness an honorary bencher on the occasion.

Coal Imports and Manufactures.—The *Belfast Newsletter* has the following:—"To judge of the rate of our local manufacturing production by the importation of coals at Belfast—usually considered a fair test—it would seem to have been somewhat greater since the commencement of the present year than during the corresponding period in 1860, inasmuch as the coal import this year up to the present time shows an excess of 10,385 tons. It is certain that our spinning mills, weaving factories, printing and bleaching works, &c., have their engines running longer time than in the majority of cases of those on the other side of the Channel; but we are certain that the increase in the arrivals of coals at this port must for once be otherwise accounted for than by any conjectural extension of manufacture. We know that, on the contrary, there has been a considerable falling off in production, as compared with last year."

Spanish Railways.—Agents of the Spanish Government are now in the neighbourhood of Birmingham, endeavouring to negotiate for the supply of iron rails to the extent of 12,000 tons, besides about 50 locomotive engines and some 600 railway carriages. The nature and extent of the trade of Birmingham with Spain is now of considerable local importance, there being strong indications that the Spanish Government will become large customers for railway engines and carriages. During the first seven months of the present year Spain has taken an increased quantity of English machinery, besides coal, culm, and other articles.

Materials for Paper.—Flax holds the first place among the fibres, which, from their strength, flexibility, and other practical qualities, are fittest for the manufacture of paper. Flax has hitherto been grown in India in large quantities, but almost entirely for the sake of the seed. Various means have, from time to time, been used to extend the cultivation of this useful plant in India, and it has been produced in the Punjab of a quality equal to that of the best kinds received from Russia. The plant which stands next to flax for the quality of its fibre, is the rheca of Assam and other parts of India. This plant grows to a height from three to four feet, and being a perennial, the expense of cultivation is less than that of most plants. It will bear cutting down three times in a season; the first crop yielding course, the second and third fine fibres Probably about ten per cent. of useful fibres may be extracted from the stems of this plant. The Neilgberry mettle, the muidar, the well-known jute of commerce, the safet, bariala, the ambaree, the hemp, the sunn, the jettee, the pine apple, the meorva, the agave-Americana, the fournuaya gigantea, the plaintain, the yuaca gloriosa, the phornium tenax, or New Zealand flax, &c, may also may be employed for the same purpose. All these, except the last enumerated, are indigenous to India, and contain fibres which may be more or less usefully applied to the manufacture of paper, and to textile fabrics.

TENDERS

For Building Protestant Hall, Longford, according to plans, &c., by Mr. James Bell, jun., architect.

Halligan	£1,430	0	0
M'Clan & Co.	1,420	0	0
John Mullin (accepted)	1,400	10	0

TO CORRESPONDENTS.

F. Brothers. London (Cannot positively ascertain; believe Clonmel; under cover to the architect named, will find him); J. P. (Always glad to receive from country readers authentic intelligence of new works in their localities).

[In reply to several queries respecting the proposed asylums, we hear that nothing *definite* has been arranged yet. There *may* be a competition.—Ed.]

THE ARCHITECTURAL MUSEUM,
SOUTH KENSINGTON MUSEUM, W.
ADDITIONAL PRIZES.

Two Prizes of £5 5s. each (given by Mr. MacColla) are offered by the Council of the Architectural Museum for Designs for Gothic and Classic Tile Pavements.

The competitions, already advertised, for Stone and Wood Carving, Modelling, Metal Work, Painted Glass, and Coloured Decoration, are still open.

For particulars apply to the Attendant in the Gallery of the Architectural Museum; at the Offices of "The Builder" and "Building News;" or by letter to the Honorary Secretary, at 13, Stratford-place, W.

A. J. B. Beresford Hope, President.
Geo. Gilbert Scott, Treasurer.
Joseph Clarke, Hon. Sec.

LIFE ASSOCIATION of SCOTLAND

NOTICE OF REMOVAL.

The Head Office for Ireland has been Removed from No. 60, Upper Sackville-street to Temporary Premises at

No. 57, DAME-STREET, DUBLIN,

during the Erection of The Association's New Buildings, Nos. 40 and 41, Dame-street.

THOMAS MACKIE, Secretary.

ROYAL DUBLIN SOCIETY.
ART EXHIBITION, 1861.

EVERY DAY, 10 o'clock to 5 o'clock, and every EVENING (except Saturday), 7.30 o'clock to 10½ o'clock. Admission SIXPENCE, except on FRIDAYS, when the Charge will be One Shilling.

ROYAL DUBLIN SOCIETY.
ART EXHIBITION, 1861.

By Permission of the Colonels Commanding and the Officers of the several Regiments,
MILITARY BANDS
Will Perform during this Week as follows:—
TUESDAY (this) EVENING, 1st October, 87th R. I. Fusiliers.
WEDNESDAY EVENING, 2nd October, 1st Battalion Rifle Brigade.
THURSDAY EVENING, 3rd October, 11th Hussars.
FRIDAY EVENING, 4th October, 15th K. Hussars

THE PUGIN MEMORIAL

(Pugin Travelling Fund).—The donations now amount to about £1,100. At least £1,500 will be required. Contributions are earnestly solicited, and will be received by

J. Clarke, 18, Stratford place, W. } Hon. Secs.
T. Bury, 50, Welbeck-street, W. }

FENDERS AND FIRE IRONS.

J. EDMUNDSON and CO. call attention to their beautiful new designs in the above. They also invite inspection of the following, being a few of the leading articles comprised in their Stock of House Furnishing Ironmongery, viz.:—

Drawingroom Grates. Kitchen Ranges,
Warranted Table Cutlery,
Electro plated Forks and Spoons,
Electro-plate Tea and Coffee Sets, &c.
Dish Covers, Tea Trays, Bronzed Tea Urns,
Moderateur Lamps,
Iron Bedsteads, with Bedding,
Baths, Gasaliers, Hall Lamps. Gas Brackets, &c.

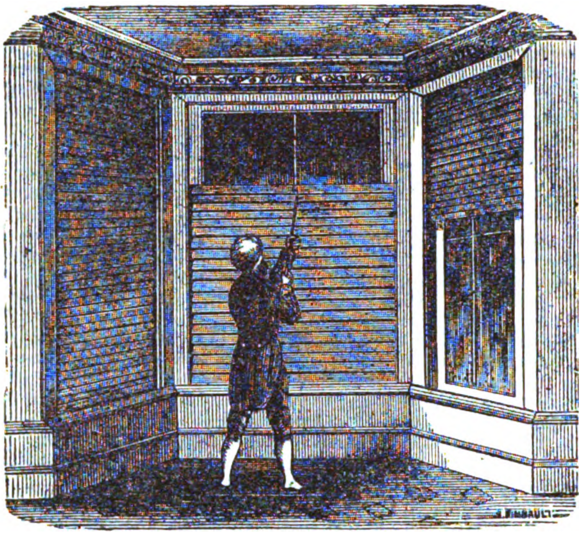
J. E. and Co. are Agents for Milner's Fire Proof Safes, Bradford's Washing Machines, &c.

Ironmongery, Gas-Fitting, and Gas Apparatus Establishment,

34, 35, and 36, CAPEL-STREET, DUBLIN.

IRON CASTINGS—Castings of every description for Gas and Water Companies, Millwrights, Builders, Plumbers, &c., made at

SEVILLE IRON WORKS, SEVILLE-PLACE, DUBLIN.



CLARK'S

PATENT SELF-COILING REVOLVING SHUTTERS,

FOR SHOP FRONTS AND PRIVATE HOUSES.

THE MOST SIMPLE, SECURE, AND CHEAP SHUTTER EXTANT,

In Wood, Steel, or Iron, 2s. 6d., 3s. 6d., and 5s. per Foot super.

The Engraving represents the Shutters being opened without the aid of Machinery of any description.

BRASS SASH-BARS, STALL-BOARD PLATES, &c., &c.

To Her Majesty's Board of Works.

15, GATE-ST., LINCOLN'S-INN-FIELDS, LONDON.

TO ARCHITECTS AND BUILDERS.

Stained Glass.

FLAT LEAD, WINDOW, AND PATENT METAL SASH MANUFACTORY,
107 & 103, MIDDLE ABBEY-STREET, DUBLIN.

M. & R. SILLERY

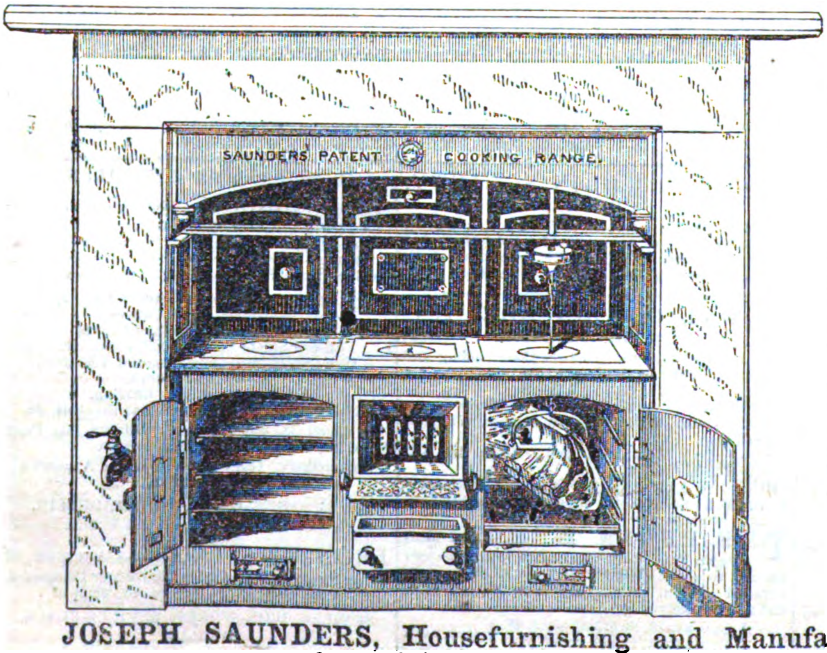
Beg to inform parties requiring the above, that they have erected EXTENSIVE MACHINERY for facilitating the execution of STAINED GLASS, and are now prepared to furnish all descriptions of Work fully 30 per Cent. lower than any other House in Dublin, also of superior Designs and Finish, and respectfully invite an inspection of their Patterns.

PANES, per Foot super.	s.	d
White Enamelled Ground and Clear Ornament	0	8
Ditto, richly coloured	1	6
Enamelled Flocked Patterns for obscuring the view, suited for Water-closets	1	4
Ornamental Enamelled White Panelled ..	0	10

BORDERS, per Foot Lineal.	s.	d.
White Enamelled Ground & Clear Ornament from	0	3
Ditto, coloured	0	7
Ruby Ground, with Bright Ornament	1	3
Ditto, Blue	1	6
Rosettes, from	0	1

Embossed Patterns on Ruby and Blue, with Bright Ornaments—a new and beautiful Description of Work for Panels in Doors Quarries and all other Descriptions of Ornamental Stained Glass, suited for Ecclesiastical and Domestic use. Ruby and Green Signal Lights, and all descriptions of Bent Glasses for Carriage and Car Lamps, in Stock and to order.

SAUNDERS' PATENT KITCHEN RANGE.


SAUNDERS PATENT COOKING RANGE.

ECONOMY OF FUEL.
SIMPLICITY OF CONSTRUCTION.
PERFECTION IN COOKING.

This Patent Range is a perfect combination of the open fire and hot-hearth, and possesses many advantages that are not obtained in any other Cooking Apparatus. The roasting is performed in a newly constructed roasting screen, and in a *bona fide* manner before an open fire (meat baked in an oven is well known to be unwholesome and objectionable). The fire box which contains the fuel has two open fires—one in front of the Range, and the other quite visible in the roasting screen opposite the meat roasting; it is also constructed to consume the greater portion of its own smoke, which passes through red-hot orifices surrounding the fire-box, and escapes in a bright flame under the hot-plate, boiler, and ovens, giving off all the heat due to perfect combustion, acting as a certain cure for a smoky chimney, and effecting the greatest economy of heat and fuel.

The roasting screen is convertible into a baking oven by inserting a sliding plate made for that purpose.

This Patent Range is either fitted with a bottle jack, which gives the meat the natural rotary motion before the open fire (as shown in the above drawing), or is supplied with the usual railed iron stand and double dripping pans. It is made in various sizes and forms, and contains all the necessary requirements of a perfect Cooking Apparatus.

Numerous highly respectable references can be given to parties having this range in use, and every information can be obtained from

THE PATENTEE & MANUFACTURER,

JOSEPH SAUNDERS, Housefurnishing and Manufacturing Ironmonger,
33, DAME-STREET, DUBLIN.

The Dublin Builder.

Vol. III.—No. 44.

SIR WILLIAM CHAMBERS.

RETURNING to our occasional biographies of eminent deceased architects, the subject of this sketch claims special notice, and may fairly be regarded as second to none of any of the celebrities contemporaneous with him in the last century, and born of British parents. William Chambers is said to have been descended from an ancient family in Scotland, Barons of Tartas in France, and possessed of property at Ripon in Yorkshire, but was by birth a Swede, having made his entry into the world in Stockholm, whither his parents, partly for mercantile pursuits and partly relative to the recovery of a sum of money advanced by an ancestor to a former king, had repaired some years previously. The boy William, however, was sent to England very young, and in Yorkshire received his education, which does not seem to have been important, as when but a mere lad he made voyages in a mercantile capacity to the East Indies and China, imbibing in the latter place a fancy for its characteristic architecture which he subsequently turned practically to account. His present occupation, however, not proving congenial to his feelings, he determined on an expedition to Italy to cultivate the muses, and remained there for some time engaged in studying architecture from the remains of antiquity—the substantial memorials of the genius of the great masters, Michael Angelo, Palladio, Scamozzi, &c., &c. At the age of 18, young Chambers returned to London to pursue architecture as a profession, and, through the medium of a private friend, Mr. John Carr of York, became introduced to Lord Bute, whose influence subsequently procured him the appointment of drawing-master to the Prince of Wales, afterwards King George III., and finally he became chief architect to that monarch. Next we find him honored with the commands of royalty to lay out the grounds at Kew, for which purpose he designed buildings and temples in European and Asiatic styles; engravings of which were published, as the author informs us, "by Royal bounty." Mr. Chambers became Comptroller at the Office of Works, and subsequently succeeded Whitshed Reene as surveyor general. About this time the project of building a bridge at Blackfriars was in contemplation, and a competition—in which the subject of our memoir unsuccessfully joined—took place therefor, resulting in favour of the designs furnished by Mr. Mylne. The establishment of the Royal Academy of Arts in London in 1768 was mainly due to the exertions of Mr. Chambers, who filled the first treasurership of that Institution under the Presidency of Sir Joshua Reynolds. In 1771 the King of Sweden conferred on Mr. Chambers the order of the "Polar Star," and King George the honor of Knighthood, from which period we style him, as is right, *Sir* William Chambers.

Amongst the numerous works of this great architect, Somerset House is about the most remarkable for symmetry and beauty of design, but he was also engaged throughout the kingdom by various noblemen and gentlemen—viz., Lord Clive, the Earl of Besborough, for whom he built a villa at Roehampton, in Surrey, with a portico singularly correct and elegant; Lord Abercorn, a mansion at Duddingston, near Edinburgh; the Earl of Wilton, Wilton, near Salisbury; Lord Charlemont, the beautiful marble casino at Marino, near this city, &c. Sir William associated with, and was much esteemed by the celebrities of the time, comprising Goldsmith, Johnson, Garrick, Reynolds, and others, and occasionally visited with his professional brethren a club called the Architects' Society, which met at "the Thatched-house" Tavern. A fatal malady—asthma—seized upon him, and for some time previous to his death he had to adopt artificial means of breathing; but death ultimately released him from his sufferings on the 8th of May, 1796, in the 71st year of his age, and he was interred with all honours in Westminster Abbey. Mr. James Gandon, the eminent architect of our Custom-house, Four Courts, western portico of the Bank, Queen's Inns, &c., and editor of the fourth and fifth volumes of "Vitruvius Brittanicus," was pupil of Sir William Chambers, as also was Mr. Edwd. Stevens, who died in Rome in 1776, Mr. John Yenn, Thomas Hardwick, and Robert Browne.

ARMOUR PLATES.*

In presenting this paper to you, I would especially guard myself against any undue merit or assumption, and rather rest the justification upon a desire to provoke discussion of this institution, feeling that it is necessary some attempt should be made to render this important manufacture of thick plates perfect, that we may send forth to meet the enemy, not the wooden walls of old England, but impregnable iron, and iron-cased vessels which may defy them; and it is by our meeting together thus, and freely discussing such subjects, that greater perfection in the arts and manufactures are arrived at. We cannot but feel that this is a remarkable period—it is one, not of private competition, but a competition of nations, and we must feel that, having entered ourselves and made a fair start in this great national race of competition, we are bound to lay our heads together and to take care we, beyond all question, win the race.

> "England must ever rule the waves."

Before proceeding further, it may be at least interesting to refresh our minds with a slight historical sketch of "Iron and its manufactures," and we shall endeavour to do so in a concise manner:—

Dr. Ure remarks—"Iron is capable of being cast or wrought into any form; of being drawn into wire of the finest texture and of any length, and of being formed into plates and sheets, which may be bent to carry out our constructions and to fulfil all our wants, even to caprice." Iron is of equal use to the arts, to agriculture, and to warfare; from a needle to the scythe, from the ploughshare, watch-spring, sword, or the cannon, to pipes and conduits for the conveyance of gas or water to supply our towns and cities with these modern luxuries, and other its general application for our intellectual advancement. There, however, is no doubt that the working of iron has been known from the earliest period. We find it said of the Cyclops working at the forges of Etna—

> "The workmen lift their arms in turn with mighty force."

Did time permit I know of no subject that would create a greater interest than to trace the gradual advances which have been made from the earliest period to the present time. To start with the reduction of iron, and its general adoption to the wants of man, or to examine the changes that have taken place in the process of its manufacture, from the calcination and smelting of the ores to the puddling, forging, and finishing of wrought-iron; and I cannot but feel that our social condition, commercial prosperity, and mechanical position are due more to the geological structure of our island than to the high moral qualities of the Anglo-Saxon race. We have the physical advantages arising from our stores of metallic ores, limestone, coal, and other minerals, which enable us to supply not only our own wants, but to minister to those of others; and I cannot but refer to that passage of Scripture happily applied to describe the blessings which such a peculiar position as ours confers on its people. In Deut. viii. 9, we read—

> "A land wherein thou shalt eat bread without scarceness; thou shalt not lack anything in it—a land whose stones are iron, and out of whose hills thou mayest dig brass."

There cannot be a doubt that the present position is a remarkable and peculiar one for the iron manufacturer. He finds the ores in exhaustless abundance, interstratified usually with the coal and mountain limestone necessary for their reduction, and in few countries do these essential materials occur in such abundance, or so near together as to give large and profitable productions. We find that between the sixteenth and seventeenth centuries the art of casting iron had arrived at a considerable degree of perfection, and we find extant the remains of blast furnaces which formerly belonged to the kings of England. Mr. Mushet has attempted to deduce the period of the erection of two of these furnaces in the Forest of Dean to have been about 1550, in the time of Edward VI. Now up to this period, wood calcined, known as charcoal, was the only material employed in smelting, but the large consumption of this material created a scarcity and gave a check to the iron manufacturer, which was increased by special Act of Parliament, prohibiting the cutting down of wood for such purposes, and exempting only the forests of Sussex from its general decree. Hence at this time the blast furnaces of the country decreased three-fourths, and the production, which was in 1740 from 180,000 to 200,000 tons, reduced to about 18,000 tons.

We find in 1621 James I. caused the Great Seal to be affixed to letters patent, granting to the then Lord Dudley power to use pit-coal in the manufacture of iron, and it appears his lordship was only able at this time to make about three tons per week; and we find about the year 1760 that Smeaton was the first to introduce great improvements in the blast by substituting large cylinders with closely fitting pistons for the bellows.

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* From a paper read by Mr. Thomas W. Rumble, C.E., before the Society of Engineers.

It is to such men as Smeaton, Truran, Crane, Calvert, Neilson, Rogers, and others, we owe our present position in reference to the manufacture of crude pig-iron; but among other names that stand pre-eminent in the manufacture of wrought-iron, we must not forget that of Henry Cort, a man who expended £20,000 in perfecting his inventions for the puddling and rolling of iron into bars and sections. When we consider his inventions have conferred an amount of wealth on this country equal to six hundred millions sterling, and work to no less than six hundred thousand of the working population, we have reason, indeed, to place his name prominently in the list of great benefactors to this country. Again, the pen would fail to convey the boon that has been conferred upon the manufacture and people by those men who have brought to the present perfection our tilts, steam-hammers, bloom compressing machines, shears, and other mechanical contrivances, giving increased power, and enabling us to produce and give to the world the greatest possible results and advantages at the smallest possible cost, and thus to open out the stores of a merciful Providence to additional myriads of our fellow mortals.

It is quite unnecessary here to run through a recapitulation, or to touch upon the many improvements that have taken place, or even to enter upon that popular controversial subject "the utilisation of the waste or gaseous products from the blast furnaces." It does not come within my province, and I leave it for the abler pens of my brother members of this institution to do it that justice the subject deserves.

In viewing the strength of iron as a material little can here be said. Important progress has of late been made in the adoption by practical men of correct principles as to the action of the particles of a beam in resisting fracture, the knowledge of which principles had formerly been confined to a few mathematicians. They relate chiefly to the action of the straining force, and its combination with that of the bending force, which latter, at one time, was the only circumstance considered. One of their results is, that the neutral axis of a beam, as it is called, is not, as it used to be described, a place of no strain on the particles, but it is truly a place where, although the strain in a horizontal direction, due to the bending force, is nothing, the strain due to the shearing force is a maximum, and consists in a tension in one diagonal direction, and a compression in another, each making an angle of 45 deg. with the horizon.

The late Robert Stephenson, when referring to this fact, proposed a very ingenious method of improving it experimentally. On the one side of an unloaded beam he caused a series of small circles to be drawn; when the beam was loaded, each one of those circles became an ellipse, whose diameters were measured, and found that near the upper side of the beam each ellipse had its longer axis vertical, and its shorter axis horizontal, and thar near the lower side of the beam it was the reverse, for the shorter axis was vertical and its longer axis horizontal; and that at the neutral axis of the beam each ellipse had its longer and shorter axis sloping at an angle of 45 deg. Without going further into the matter, or considering in detail the various strains of tortion, tension, or compression, it may be as well to give the mean of some reliable experiments upon iron and wood. Now, the tensile strength of iron plates is found to be about, say, 50,000 lbs. per square inch, and that of wood as follows:—

Ash	17,000 lbs	Showing Iron to be	2·94	times the stronger.
Teak	15,000 lbs.		3·33	
Fir	12,000 lbs.		4·16	
Beech	11.500 lbs.		4·34	
Oak	10,000 lbs.		5·00	

So that malleable iron plates are five times stronger than oak in tension, or that strain bending to pull them apart. And another point worthy of notice is, that we find the strength of iron plates to resist indentation or pressure by a blunt instrument with a hemispherical end, is nearly in the ratio of the thickness, while that of oak is in the ratio of the square of the depth. From experiments conducted by Mr. W. Fairbairn, we learn the mean bursting strength

Of a ¼-inch plate to be	16.779 lbs., and
Of a ½-inch plate to be	37,728 lbs., while

the experiments on oak were—

For a 3-inch plank	17,932 lbs., and
For a 1½-inch plank	4,406 lbs.

So that a ¼-inch thick is able to resist a force equal to that requireing an oak plank of 3 inches. Hence the superiority of iron over wood for the purposes of ship building, and there is no branch of industry in which the use of iron is of greater importance—for in it we have strength, ductility, and comparative lightness.

We are thus led to a cursory glance at the progress made in the production of our fine ships, even though they may not have the jolly old bows and wooden walls of former days. We find from the various statistics that between 1800 and 1807 vessels composed of iron plates were constructed and used for canal navigation, and that in the year 1820 the late Aaron Manby not only projected, but constructed a sea-going iron vessel which was navigated by, then Captain, now the late Admiral Sir Charles Napier from London to Havre and on to Paris, and for many years run as a steamer on the Seine; between Paris and Rouen. From this time little appears to have been done until 1830, when, owing to many circumstances, iron as a material for ship-building began to develop itself, and has since gone on with an increasing demand. From 1822 to 1830 we may look upon iron ship-building as purely experimental, and it was undoubtedly the experiments of Mr. Fairbairn, John and McGregor Laird that led to the new era in the history of ship-building. It may not be out of place here to mention "in passing" that it was by a series of interesting experiments conducted by Captain Johnston and Professor Airey, that a remedy was first provided in the adjustment and correction of the compass on board of iron ships, and we cannot but instance such vessels as the first iron steam vessel that crossed the Atlantic or the *Vanguard* which ran foul of a reef of rocks on the west coast of Ireland, and of which Mr. Clarke said, "had she been built of wood instead of iron she could not have been saved." Again, there was the *Royal George*, a vessel plying between Liverpool and Glasgow, which fouled on a rock near Greenock with a dead load of about 150 tons, and resting nearly on her centre, and was left high and dry nearly a whole tide without sustaining injury. We may ask, what wooden vessel could have remained in that position without breaking her back? We might again refer to Her Majesty's Royal Brazilian mail steamship *Tyne* which was wrecked on the 13th January, 1857, between Portland and St. Albans. Also we might ask, had the screw steamer the *Canadian*, lost on the 4th of June of this year by striking an iceberg near Belle island, been constructed of wood, could she have lived the 35 minutes, or any of her passengers been saved?—no, she must have instantly foundered.

We now come to the durability of iron ships, and on this point a second thought is scarcely necessary, for time sufficient has elapsed to establish the fact that iron ships last longer, fit for service, than those constructed of wood. It was at first thought that the action of salt water would produce rapid exidation, and hence speedy decay. Indeed this has been we may say the cardinal objection, the stumbling block to the construction of vessels of this most invaluable material. There can be no doubt that, in this respect, we have put on our glasses and magnified the evil. This we are bound to acknowledge, when we find vessels—iron vessels constructed some 15 or 20 years past—still in existence, and what more do they cost to keep in repair than those of wood? They all require an occasional coating of paint or other anti-corrosive matter, to neutralise the effect or action of the atmosphere. Ships, like our keys or other bright domestic instruments and implements, will keep bright and free from oxidation by use, again when the form of construction is taken into consideration, the many ways we have of bracing and staying the weaker parts, a second thought cannot but prove how infinitely stronger and more durable are our vessels constructed of iron. Although it must be admitted that the ignorance and carelessness of some who have professed, and professed only, to be iron shipbuilders, without having the knowledge or appliances, has aided and materially strengthened the idea with the unskilled and those who confound strength with weight, and security with thickness, that iron vessels must be naturally weak; and we can but hope that such men are fast leaving it to those who are fully qualified, and determined faithfully to carry out the work.

We cannot then for a moment doubt the advantages arising from the use or application of iron for such constructions, or gain to the commercial interest by having a larger amount of stowage room. There cannot exist a doubt that its application is as desirable in the Royal Navy as the merchant service, and would have been generally adopted, but for the fear of the effect of shot upon iron plates and its consequences. Shot at high velocities would pass clean through the hull, but the danger and damage is not so great from such projectiles as from a half-spent shot, when the ripping and splintering would take place some feet on every side. This is the chief danger to be apprehended. Such objections, however, are not to exclude this material from being brought into general use even in our navy. The difficulties are to be overcome by experiments, experience, and perseverance. As Longfellow says:—

Are you in earnest? seize this very minute.
What you can do, or think you can,
  Begin it.
Boldness has genius, power, and magic in it.
 Only begin it; the mind grows heated.
 Begin it, and the work will be completed.

If we only turn our eyes over the blue waters of the Atlantic towards the Cove of Cork, and see that magnificent experiment and child of our Scott Russell and the late I. K. Brunel riding like a duck upon water: after what she has gone through, what shall we say is impossible? she has many faults it is true, and from her cross section must in my opinion always roll, which her performance has proved. Yet as a mechanical construction, I am fully convinced, she is the best and strongest yet afloat.

There is, indeed, a wonderful change in the progress of ship-building, and it may not be too much to say, we are at this very minute, though in transition, laboring to accomplish even the rendering of iron ships of war shot proof, if we have not already accomplished the same.

It is true, too true, we received the challenge from our friend the Emperor of the French, who had and has an idea of creating an ocean fleet of iron-cased vessels (pre-conceived by Colonel Paixhan in 1821, nearly forty years since), and when they launched the *La Gloire*, we received the challenge to enter ourselves in a great competitive race for superiority in the construction of ships of war, and having entered we intend to win, and carry off the laurels, if it be possible to render invulnerable armor-casing for our ships, made from iron or other materials.

Our first experiments for the purpose of testing the resistance of iron plate for ships of war against musketry, canister, and grape-shot were performed on the 6th November, 1849, at Portsmouth, under the direction of Captain now Rear-Admiral Chads. But the question of iron-cased vessels only appears to have been taken into the serious consideration of our Board of Admiralty early in 1859, though the first thick-plate experiment took place on the 21st August, 1858, during the time Sir John Pakington presided over that body; and strenuous were the efforts made by our leading naval architects to design such a vessel as should answer all the requirements of the case, giving speed, stability, and due regard to the fighting qualities necessary. Many and various indeed, were the ideas submitted, embodying a construction for war ships differing materially to any ever before constructed, all the designers keeping in view the fact that, if we were to fight, we must "To arms, and force to force oppose." The result of this great competition was the production of the *Warrior*, to be followed by the *Black Prince*, vessels well fitted to bear the flag of Old England and to maintain our supremacy upon the waves of the deep, even were she placed in juxtaposition with the *La Gloire*. It is unnecessary here to refer to the dimensions, accommodation, or construction of the two ships, for it must be readily admitted they will bear no comparison. The *La Gloire* was to be impregnable, but we might ask what British officer would think of exchanging with her the war compliments of shot or shell, when he had the *Warrior*, with superior speed, and the Armstrong guns under his command? and we cannot (though diverging from our province) but ask, even supposing the *La Gloire* to be invulnerable, how long would it take to carry her by the good old English system of boarding.

LIVERPOOL SCHOOL OF SCIENCE.

During our visit some months since—and at the time recorded in these pages—to the Free Libraries of Liverpool and Manchester, we were made acquainted with the fact, that a school of science was in progress of formation in connection with the former establishment, and we have now to announce its inauguration on the 10th inst., the Mayor presiding, and Earl Granville, the Chancellor of the Exchequer, Mr. Fairbairn, C.E., Mr. W. Brown, and numerous others taking part in the proceedings. The secretary read a comprehensive statement explanatory of the object of the institution, describing it in the abstract to be for the purpose of "aiding the industrial classes and others, of both sexes, in procuring instruction in natural history, geology, chemistry, mathematics, geography, mechanical and experimental physics, the school being supported by voluntary contributions, students' fees, and government grants."

Earl Granville deemed it a very high honour and a singular gratification to have been named in connection with the Mayor of Liverpool and Lord Stanley, a nobleman of different politics from himself, as patrons and vice-patrons of the new institution. He moved that it is highly desirable that the means of obtaining instruction in the leading branches of science should be extended in Liverpool. The Exhibition of 1851 showed that however eminent we are in certain branches of science, other nations were fast competing, and some almost distancing us. It was impossible but that some present should have been across the Atlantic, and remarked the progress in the application of science to art by that great nation at a time when they were happily engaged in the arts of peace, and not as now suffering some of the worst calamities of war. He paid a high tribute to the generosity of the Chancellor of the Exchequer, who, rigidly careful of the country's money in other matters, was just if not generous in his support of education and the cause of science. His lordship believed that the exertions of the department of science and art had been most useful in the diffusion of sound scientific instruction throughout the country, and had immensely improved the character and capabilities of science. The result of this extension of scientific knowledge must, in his opinion, tend in an enormous degree to promote the welfare and prosperity of the country. His lordship, in conclusion, drew attention to the local advantages which the pupils of the School of Science had in a town and port like Liverpool, where the products from all parts of the world were collected, and where some of the highest engineering illustrations were also to be found.

Mr. Fairbairn, C.E., President of th[illegible]ritish Association, seconded the resolution, tracing the prog[illegible] of science chiefly in connection with engineering works.

The resolution was then put and [illegible]ried.

The Right Hon. W. Gladsto[illegible] moved "That the School of Science about to be established [illegible] eminently calculated to promote the beneficial objects enumerate[illegible] in the report," and paid a warm tribute to the munificence of Mr [illegible]V. Brown, who in addition to the erection of a free library and m[illegible]um, had given a building also for the School of Science. He n[illegible]d the effect of chemistry upon manufactures, and of geology u[illegible] mining industry, the increase of the supply of gold, and the gene[illegible]dvancement of the wealth and comfort of mankind. The most sc[illegible]tific works had been frequently suggested by the contemplation of [illegible] most humble objects. Watt had gathered his idea of constructi[illegible] a pipe of peculiar strength from scientifically examining the she[illegible] a lobster. To Sir I. Brunel the common earthworm suggested [illegible]hames Tunnel; and Wedgwood derived his most beautiful designs [illegible]templation of natural objects. Following out this train of thought, th[illegible] in tracing the origin of the oar, the wheel, and the plough, ascri[illegible] the first to the motion of the birds' wings when cleaving the air, the second to the figurations of a peculiar kind of hawk, and the third to an intelligent observation of the habits of that very humble but useful animal the pig. The contemplation of natural objects and the application of the experience so gained had brought men from the humblest stations to the foremost positions—for example, George Stephenson and Hugh Miller. The hon. gentleman, in eloquent language, denied that the cultivation of science tended to foster intellectual pride, and contended that though, the truths of science did not lie in that highest region of our nature which was reserved for Gospel revelation, they were yet subsidiary to that revelation, and that the founder of the Liverpool School of Science was entitled to cheer himself with the belief that he had not only been contributing to the intellectual advancement, material progress, and innocent recreation of his fellows, but had been subserving to a high moral purpose, and aiding the work of the teacher of religion. In conclusion, Mr. Gladstone expressed a hope that the institution would progress in a manner worthy of the town of Liverpool.

The Hon. Algernon Egerton, M.P., seconded the resolution, which was carried unanimously.

Mr Wm. Brown moved a resolution pledging the meeting to support the institution just inaugurated.

Dr. Lankester supported the resolution. He described the nature of the studies pursued at the National Schools of Science. It might be said that Liverpool had hitherto got on very well without much knowledge of science; but he asserted that all the great and magnificent works which Liverpool could boast—all her wealth and the greatness of her commerce—were but so many monuments of the triumphs of science.

The Mayor of Manchester also spoke in support of the resolution, which was adopted, and the meeting soon afterwards separated.

OF NICHES AND STATUES.

Architecture, as D'Aviler observes, is indebted to sculpture for a great part of its magnificence; and as the human body is justly esteemed the most perfect original, it has been customary, in all times, to enrich different parts of buildings with representations thereof. Thus the ancients adorned their temples, basilicæ, baths, theatres, and other public structures, with statues of their deities, philosophers, heroes, orators, and legislators; and the moderns still preserve the same custom, placing in their churches, palaces, houses, squares, gardens, and public walks the busts and statues of illustrious personages, or bas-reliefs and groups, composed of various figures, representing memorable occurrences, collected from the histories, fables, or traditions of particular times.

Sometimes these statues or groups are detached, raised on pedestals, and placed contiguous to the walls of buildings, by the side of flights of steps or stairs, at the angles of terraces, in the middle of rooms, or of courts and public squares; but most frequently they occupy cavities made in walls, which are called niches. Of these there are various sorts; some for the reception of statues or groups, being formed like arches in their elevation, and either semi-circular, semi-elliptical, or square in their plan; others used for the same purpose are of a parallelogramical figure both in the plan and elevation; and others, for the disposal of busts or vases, are circular or oval, square or oblong in the elevation, and either sunk squarely or spherically into the walls.

The proportion of the former sorts of these depends on the characters of the statues, or on the general form of the groups placed in them; the lowest are at least a double square in height, and the highest never exceed twice and one-half of their width. With regard to those intended for busts, they are always proportioned nearly alike, being made to fit the shape of the things placed in them, either a trifle above a square in height, or circular or oval, more or less elevated. The manner of decorating high niches, if alone in a composition, as they are in the principal front of the Old Louvre at Paris, is generally to enclose them in a decoration or panel, formed and proportioned like the aperture of a window, which is adorned in the same manner, and bears the same proportion to the architecture they accompany as a regular window would. The niche contained in them is more or less recessed, and is carried quite to the bottom; but on the sides and at the top there is a small space left between the niche and the architrave of the panel. When niches are intermixed with windows, as they were in the front of Old Somerset House, towards the river, and as they are at St. Paul's; they may be adorned in the same manner as the windows, provided the ornaments can be of the same figure and dimensions, but when the space between two windows is not sufficient to admit of this, it is much better to make the niches entirely plain, or surrounded only with rustics, than to contract the aperture, and by that means make the decoration narrower than those of the windows, as Inigo Jones had done at Old Somerset House, or than to adorn the niches in a different manner, as Sir Christopher Wren has at St. Paul's; for both these expedients are irregular, and occasion confusion. The tops and bottoms of these plain niches must level with the tops and bottoms of the apertures of the windows, and neither be raised above nor sunk below them, as D'Aviler teaches; for on this, and on all other occasions of the like nature, a continuity of straight horizontal lines must constantly be aimed at; it being certain, that whenever the eye of the spectator is forced to dance up and down, and hunt, if I may be allowed so to call it, for an outline, the operation is always painful, and the images raised in the mind are always confused. To this, in a great measure, may be attributed the general dislike to the Horse Guards in St. James's Park, which is a building of so complicated a figure, both in plan and elevation, that it is impossible to form a distinct idea of the whole at once.

The same kind of plain niches may likewise be employed in narrower intercolumniations; but care must withal be taken not to squeeze them in between the columns or pilasters. And therefore, when the interval is not sufficient to afford room for a well-proportioned niche, and a space on each side between it and the columns of at least two-thirds of a module, it will be better to have no niches at all.

The size of the statue depends upon the dimensions of the niche; it should neither be so large as to seem rammed into it, as at Santa Maria Maggiore in Rome; nor so small as to seem lost in it, as in the Pantheon. where the statues do not occupy above three-quarters of the height of the niche, and only one-half of its width. Palladio, in arched niches, makes the chin of his statues on a level with the top of the impost, so that the whole head is in the covered part. In the nave of St. Peter's, at Rome, the same proportion has been observed, and it has a very good effect. The distance between the outline of the statue and the sides of the niche should never be less than one-third of a head, nor more than one-half, whether the niche be square or arched; and when it is square, the distance from the top of the head to the soffit of the niche should not exceed the distance left on the sides. The statues are generally raised on a plinth, the height of which may be from one-third to one-half of a head; and sometimes where the niches are very large in proportion to the architecture they accompany, as is the case when an order comprehends but one story, the statues may be raised on small pedestals, by which means they may be made lower than usual, and yet fill the niche sufficiently, it being to be feared lest statues of a proper size to fill such large niches should make the columns and entablatures appear trifling. The same expedient must also be made use of whenever the statues in the niches, according to their common proportion, come considerably larger than those placed at the top of the building. A trifling disparity will not be easily perceived, on account of the distance between their respective situations; but if it be great, it must have a very bad effect, and therefore this must be well attended to and remedied, either by the above-mentioned method, or by entirely omitting statues at the top of the building, leaving the balustrade either free, or placing thereon vases, trophies, and other similar ornaments.

Some writers there are who give to these ornaments the preference at all times, alleging that it is absurd to suppose horses and men constantly standing on the roofs, or stuck up in the niches of a second or third story, in situations shocking and frightful to the imagination. De Cordemoy advises by all means to avoid placing statues too far from the ground, and Le Clerc is for having nothing but tutelar angels on the tops of houses.

To me there appears something ridiculous in this affectation of propriety; and, I believe, it may in general be established, that whenever the image is so different from the original it represents as not to leave the least probability of its being ever mistaken for the real object, this strict adherance to propriety is very superfluous.

The character of the statute should always correspond with the character of the architecture with which it is surrounded. Thus, if the order be Doric, Hercules, Jupiter, Pluto, Neptune, Mars, Esculapius, or any male figures, representing beings of a robust and grave nature, may be introduced; if Ionic, then Apollo, Bacchus, Ceres, Minerva; and if Corinthian, Venus and the Graces, Flora, or others of a delicate kind and slender make may properly have place.

Niches being designed as repositories for statues, groups, vases, or other works of sculpture, must be contrived to set off the things they are to contain to the best advantage; and therefore no ornaments should ever be introduced within them, as is sometimes injudiciously practised; the cove of the niche being either filled with a large scallop shell, or the whole inside with various kinds of projecting rustics, with moulded compartments either raised or sunken, or composed of different coloured marbles; for all these serve to confuse the outline of the statue or group. It is even wrong to continue an impost within the niche, for that is of considerable disadvantage to the figures, which never appear so perfect as when backed and detached on a plain smooth surface. An excess of ornaments round the niche should likewise be avoided, and particularly masks, busts, boys, or any representation of the human figure, all which serve to divert it from the principal object.

The depth of the niche should always be sufficient to contain the whole statue, or whatever else it is to contain, it being very disagreeable to see statues, or any other weighty objects, with false bearings, and supported on consoles or other projections, as is sometimes done; and in the case of niches, the side views become exceeedingly uncouth; for in these a leg, an arm, a head, in short, those parts alone which project beyond the niche, appear and look like so many fragments stuck irregularly in the wall.

CATHOLIC SCHOOL AND CHURCH ACCOMMODATION IN CONNEMARA.

On the authority of the respected pastor of the district, through a letter recently addressed to a Catholic morning contemporary, we present the following particulars respecting the scholastic accommodation for children of his persuasion:—"Eight years ago there was neither a stick or stone on the elevated site on which now stand the magnificent Convent of Mercy and St. Joseph's Female Orphanage. In the former, fifteen nuns reside, and in the second 35 destitute, homeless orphans are fed, clothed, educated, and trained to be good servants. These elegent buildings occupy an elevated position on the summit of a lofty mountain. The Most Rev. Dr. M'Hale, Archbishop, and Mr. Thomas Eyre of Bath, respectively contributed £1,400 and £800. The nuns have charge of three schools—two free schools, and one for the childern of gentlemen, merchants, ship brokers, and farmers. The aggregate daily attendance is over 212 girls and 50 males, under five years of age. Boys over that age go to our other schools. The Franciscan Monks keep a large school, in which will be found over a hundred boys every day in the week. The teacher at Aughrusmore has on her roll 103 girls. The third school is at Cleggan-quay. This is one of the finest school-houses in the province; it was built at the expense of Henry J. Wilberforce, Esq., so well known for his liberality. He is the owner of the large island of Boffin and a large estate in this parish and in Ballinakill. Last week P. M'Cauley, Esq., J.P., put the clergy in possession of this beautiful school-house, and it is now in full operation. In the Clifden district, besides the nuns' and monk's schools, there are five others—one at Streamstown, the second at Kingstown or Ballyconree, the third is at Erislanen. The Catholic school-house in this last-named place was so bad that the clergy were obliged to run the risk of building a new one. The walls are now built, it is a pity to leave them unroofed. The landlord, W. J. Burke, Esq., of Dublin, has leased the site in perpetuity. We come to a long, small old chapel. Two thirds of the flock are outside, bareheaded and kneeling, some of them are bald, others are grey-haired; many women and children are outside, too—the rain comes down plashing on all. A beautiful new building has been in progress about ten weeks in the Rev. Mr. Flatley's district. The walls are built, the side walls measure 96 feet in length, and 20 in height. They are pierced with lofty Gothic windows, the width of the church is 27 feet in the clear. All is ready for the roofing, but the means are all exhausted. £150 would enable him to take from the pelting showers the groups of young and old on whom we saw an hour ago the deluding rain descending."

Some of the directors of the Great Southern and Western Railway (says the *Nenagh Guardian*) including the chairman of the company, and other leading members, with the secretary and engineer of the Castleconnell company, visited Nenagh recently to select a site for the station-house of their line in this town; adding that it believes it is intended to erect it in Church-street; and, trusting that the company will shortly commence the work, as it would afford employment at a time when it is much needed by the tradesmen and labourers of Nenagh.

Repairs and improvements are proposed to be done to Lucan Church under the Ecclesiastical Commissioner's architects.

DECAY OF STONE AT THE PALACE OF WESTMINSTER.

The following is the report of the committee appointed to inquire into the Decay of the Stonework in the New Palace of Westminster:—

TO THE RIGHT HON. WILLIAM COWPER, M.P., CHIEF COMMISSIONER OF WORKS, ETC.

Sir,—We, the undersigned, being the committee appointed "to inquire into the decay of the stone of the New Palace of Westminster, and into the best means of preserving the stone from further injury," have the honor to submit to you the following report, in which we have adopted as the objects of our inquiry the several points referred to us by your letter of appointment and instruction, viz.:—

"I. The extent and position of the decay.

"II. The causes to which it is attributable, taking into consideration the composition of the stone, and the influence exerted upon it by moisture and by the acids diffused in the London atmosphere.

"III. The best means of preserving the stone from further injury.

"IV. The qualities of the stone to be recommended for future use in public buildings to be erected in London."

1. In proceeding with the important inquiry thus entrusted to this committee, we beg to state that we first made a careful inspection of the whole of the buildings, and that after this inspection we proceeded to obtain such evidence as appeared to us best calculated to facilitate the inquiry entrusted to us by examining a considerable number of witnesses who had been connected with the building from the commencement, or who had been concerned in the various processes which had been actually tried for arresting the decay which had occurred; and also another class of witnesses, who had suggested various theoretical remedies for the same purpose.

2. We delegated to a sub-committee, specially appointed, an examination and inquiry into the condition of other buildings erected in the metropolis, in which magnesian limestone had been used; and we particularly called the attention of the scientific chemists, who had been appointed on the committee, to several points peculiarly within the limits of their acquaintance with chemical subjects.

3. We also considered it expedient to invite by advertisement the attention of chemists and others to the subject submitted to the committee, requesting that any plan or suggestion for the prevention of decay, or for arresting its progress, might be brought under our notice.

4. Having thus premised the course the committee thought it expedient and desirable to take, we now proceed to report *seriatim* on the subjects brought under our notice by your instructions, and in the order adopted therein.

I. "The extent and position of the decay."

5. It is extremely difficult to give any very exact account either of the extent or actual position of the decay. It seems from the evidence that it first began to make its appearance in the portions of the palace at Westminster executed at the commencement of the building, about seven years after their execution; and yet, in some of the most recently executed portions—viz., those towards Old Palace-yard, facing Henry VII.'s Chapel, the decay appears to be as obvious as in any other part of the building.

6. In the earlier works—viz., those towards the Thames, the decay is most apparent in the lower portion of the building, and in this portion the decay is confined to what may be called the "zones," or general levels, which would seem to suggest that it depends as much upon position in the building as upon the use of particular beds of stone from the quarries employed.

7. The same remark applies to the part of the palace fronting the approaches to Westminster-bridge, where the decay of the lower portion is considerable; but in the newest work, facing Henry VII.'s Chapel, the decay occurs in positions which are more varied, and under circumstances which it is exceedingly difficult to appreciate

8. We have examined with much care the upper portions of the building, and we cannot perceive that the decay has made any important inroad upon those much more exposed portions, where decay might more reasonably have been expected. The decay, however, occurs again to a considerable extent in the inner courts, which are sheltered in a great measure from external influences, and perhaps the very worst specimen we have noticed is to be found in the small archway leading to the Reporters' Gallery, near the entrance to Westminster-hall, a part of the work as much sheltered as in the nature and circumstances of a public building it could well be.

9. The general result of our observations, confirmed by the evidence, would seem to suggest that the stone used in the Palace of Westminster is much more likely to decay in damp and sheltered situations than where it is exposed to the full action of atmospheric influences. In the east and north fronts, before adverted to, the worst symptoms occur in the ashlar between the upper and lower mouldings of the plinth, and under the first cornice, where the exposure is inconsiderable; but the dampness arising from the drip of the mouldings and from the action of capillary attraction, in cases where projections hold the moisture, appears to exercise an important influence on the condition of the stone itself.

10. It does not appear to us that the decay is attributable, as is commonly supposed, to the stones in the building not being placed upon what is technically called their natural bed, or in the same relative position as they occupied in the quarry: thus, stones which are found horizontally in the quarry appear to have been often placed perpendicularly in the building, and used for purposes of the most delicate decoration without any injurious result. As an instance of this fact we may point out the elaborately carved shields of arms under the range of the first-floor windows; the stones used for those shields, though universally placed perpendicularly to their natural position in the quarry, present, so far as we are aware, few, if any, symptoms of decay.

11. The extent to which the decay on the whole surface has proceeded it is not very easy to estimate. At the present moment the actual decay is doubtless considerable for a building so recently erected; but the change of color in the stone itself, and the "fretting out of the surface," which are suggested as the first symptoms, lead us to apprehend that there may exist much more mischief than at present is actually apparent.

12. One of the witnesses examined, however, and whose judgment as a practical man is of considerable value, is of opinion that the decay, after proceeding to some depth in the stones, stops of itself; that an induration of the surface takes place, and that no further decay ensues. The committee would willingly accept this opinion, if they considered it well founded, but they cannot conceive that it is true to any considerable extent, notwithstanding there may certainly be some few indications which lead to the belief that in some cases it may be correct.

13. At present the decay appears for the most part on the plain surfaces, while the finer and more elaborately wrought portions of the building, unless under projections, are not seriously affected. And, however disappointing and disfiguring these defects may be, especially in a building so recently erected, the committee are of opinion that at present the decay does not affect the stability of the structure.

II. "The causes to which the decay is attributable."

14. This part of the inquiry naturally leads to a reference to the evidence which has been obtained by the committee on the subject of the stone itself. The result of this evidence may be thus briefly stated. The stone recommended by the commissioners for this building was that from the quarries of Bolsover Moor and its neighbourhood, and this stone was actually contracted for in the first instance. Before the work began, however, it was found that blocks of sufficient size could not be procured from those quarries, and in consequence one of the commissioners was appointed to proceed to the spot, to ascertain whether other quarries might not be discovered furnishing stone in beds of greater thickness and of larger dimensions. These conditions were found in the quarries of Anston, and the stone of greater thickness procured from these quarries has been used, not only in this building, but in all the other buildings constructed of magnesian limestone in the metropolis, after the quarries of Bolsover Moor had been abandoned, for the reason above stated.

15. The recommendation of the Bolsover stone in the report of the commissioners was founded on its similarity to that used in the Norman porticoes of Southwell Minster, which were stated in the report to be in a high state of preservation. Evidence has since been adduced, in a letter from Mr. Scott, to be found in the appendix, which renders it probable that the stone of this minster was really obtained from the ancient quarries at Mansfield Woodhouse. The latter quarries were reopened, and a considerable quantity of stone from them (exceeding 20,000 cubic feet) was made use of in the Palace at Westminster; but in their turn they were relinquished from dissatisfaction as to the size of the blocks, though we have it on evidence, confirmed by our own observation, that the stone used from these quarries has stood remarkably well.

16. The evidence brought before your committee on the subject of the stone obtained from the Anston quarries is very conflicting; the contractor and his principal foreman stating that the stone was, with slight exceptions, extraordinarily good, while other witnesses maintain that even in the quarries themselves there are stones in a state of actual decomposition; and one very important witness, a foreman employed at the Palace of Westminster, asserts he knew that certain beds in some of the quarries were liable to decay, and that he abandoned them in consequence. With reference to the selection of stone, the committee venture to remark that it is much to be regretted that the offer made by one of the commissioners, particularly well acquainted with the selection and working of stone, to examine that used in the Palace at Westminster for the moderate salary of £150 per annum, was not accepted, owing to some difficulty in regard to the party who was to be held responsible for this unimportant amount, and that the matter was left to persons who admit they had little or no prior experience of this description of stone, though they evidently entertained suspicions of the durability of some of it which they were employing.

17. With reference to the very natural and important question of the actual causes of the decay of this stone when exposed to the London atmosphere, the committee take the liberty of referring to the report of the chemists, who were members of the committee to whom this question was specially referred. This will be found in the appendix.

III.—"The best means of preserving the stone from further injury."

18. This part of the inquiry referred to the committee naturally divides itself into two questions—namely, as to the steps that have hitherto been taken, whether experimentally or otherwise; and as to those that are to be recommended for adoption hereafter. With regard to the first question we have ourselves examined with care the result of what has been done at the palace itself, either experimentally on the river front, or, as in the inner courts, by actual coatings or washings over large surfaces. With regard to the second question, our inquiries have been earnest and elaborate, and we have examined many witnesses and given much time to the consideration of the various propositions obtained by advertisement or otherwise. As will be seen in a subsequent part of the report, we finally referred this question to the further consideration of the professional chemists who were on the committee.

19. On the first question, the committee are decidedly of opinion that it is not necessary nor desirable to proceed with any general coating, painting, oiling, or washing of the whole building. It is quite obvious, in their judgment, that a very large proportion of the stone does not require any such application; but that what is wanted is some efficient process which should be applied to the surface of any stone that begins to show symptoms of decay, with a view to arrest its progress. The committee believe that the persons to whom the care of the building is entrusted ought to watch it, and note in the very earliest stages wherever decay is perceptible by efflorescence, change of color, crumbling, or slight decomposition.

20. In cases where the decay is important, and evidently occasioned by the fall of rain on an upper projecting or exposed surface, protection should be afforded by a covering of sheet zinc or lead; and if hereafter any composition should fortunately be discovered by which the decaying stone could be at once covered or coated, and the injurious influences of the atmosphere prevented from further acting upon it, the difficulty would be solved. In some cases the decayed stone might be cut out and replaced by a new one. With regard to the processes which have actually been applied, whether experimentally or extensively, your committee are decidedly of opinion that the discovery of a proper mode of treating stones in a state of decay has not yet been made, and there is no evidence whatever on the building itself to induce them to believe that the decay, where decay has arisen, has been arrested or that permanently the decay has been prevented by any of the processes yet applied.

21. With reference to the second question, we found ourselves unable, after much labor, to come to any definite conclusion; and we finally requested the chemists in the committee to examine and report upon it; but those gentlemen state, as appears by their report in the appendix, that the nature of the inquiry is so extensive, and that time is so important an element in the solution, that they are unable to give any opinion upon the subject. They further state that they spent five whole days in the examination of only one suggested remedy, but they are unable, notwithstanding, to give any opinion on even that one suggestion. They allude to secret processes, regarding which they say they can offer no opinion, but they express a doubt of the applicability of any suggestion which would demand the veil of secresy for protection. Concurring in this view, it may be further noted that even if such applications were found successful in sample or experiment no security would be afforded for a corresponding success in any subsequent large operations. They recommend that a series of experiments should be conducted under chemical supervision for a considerable period of time, and the committee are most reluctantly compelled to coincide with them, and to urge upon the Government the adoption of such a course.

IV.—"The qualities of the stones to be recommended for future in public buildings to be erected in London."

22. On this head of the inquiry the committee have been unable, in the time allotted to them, to go into any very extensive examination. It is obvious, however, that although some varieties of magnesian limestone are an excellent and durable material, when not exposed to the deleterious influences of the London atmosphere, yet that in London it is subject to causes of decay which renders it an undesirable and unsafe material for the construction of public buildings.

23. It is equally obvious that Portland stone, well selected, has been used in buildings in London from the date of St. Paul's downwards, under circumstances of great exposure, and with most successful results. Portland stone is a material to be obtained in any quantity and in blocks of any size, beautiful in color and texture, reasonable in price, not by any means so hard as the Anston stone, and yet with a power of resisting the influences of the London atmosphere that leaves but little to be desired. It must be remarked, however, that Portland stone should be carefully selected, an operation which would be the most satisfactorily effected by an agent at the quarries.

24. On this subject the commissioners could of course bring much personal experience to bear; but after the valuable explanation of the principles upon which the decay of stone depends in populous places, as given by the chemists, in their report before referred to, the committee refrain from repeating those conclusions, in which, however, they entirely concur.

25. During the inquiries of the committee, one of their members, Mr. Burnell, who is well acquainted with the architectural and engineering works in France, undertook, at his own expense, a journey to Paris, to inquire into the practice of the French architects engaged in the government works in that metropolis. There, the stone used, the "calcaire grossier," though a carbonate of lime of tertiary age, and therefore of very different mineral composition from our magnesian limestone of the much older Permian age, seems to suffer from decay in a comparatively pure atmosphere, and where wood is chiefly used as fuel.

26. From the evidence of Mr. Burnell, it does not appear that French architects or chemists have been more successful than ourselves either in the use of materials not subject to atmospheric influences, or in the application of processes for arresting decay, when it has once begun. The opinions of the most scientific chemists and architects in France on this subject have, however, in this way been obtained, and it is extremely probable that the inquiries undertaken by them, simultaneously with those undertaken in this country, may hereafter lead to some successful result.

27. The committee have to thank the Government for the facilities given to Mr. Burnell in this important part of the inquiry, by providing him with an introduction which obtained for him the active assistance of her Majesty's Ambassador at the Court of the Tuileries.

28. The committee delegated, as before stated, to a sub-committee the duty of examining the various buildings in London in which magnesian limestone from the Anston quarries has been introduced in the external architecture. The report of this sub-committee forms part of the appendix, and we beg to refer to that report as confirmatory of our opinion of the uncertain character of limestone, and the risk attending the use of it in London.

29. In conclusion, the committee venture to recommend that the architect of the Palace at Westminster, assisted by scientific chemists, should examine and record the actual state of the stonework of the building at the present moment; that experiments should be made by their direction, under various conditions of height, exposure, and aspect, with such preservative materials and agents as the chemists may suggest from time to time, and that researches should be continued into the effects of the various alkaline silicates, the phosphates, and other substances which have been brought under the notice of the committee, or suggested in Germany, France, or elsewhere; that where decay arises from damp, means should be taken to protect the stone, as has been before suggested; that any stone extensively decayed should be removed and replaced; but that in particular the earliest symptoms of decay should be carefully watched, and examined, with the view to the application of some immediate remedy. The committee believe that a very large portion of the stone in the Palace of Westminster is of a very durable nature, and they entertain a confident expectation that a remedy will soon be found to arrest or control the decay when it has unfortunately begun to appear.

William Tite,
Rod. I. Murchison,
Sydney Smirke,
George Gilbert Scott,
George Godwin,
M. Digby Wyatt,
A. W. Hoffman,

E. Frankland,
F. A. Abel,
James Tennant,
George R. Burnell,
Thomas Hawksley,
Charles H. Smith,
Edward M. Barry.

Alfred Bonham-Carter, Secretary.

INSTITUTE OF BRITISH ARCHITECTS.

PRIZES AND MEDALS FOR 1861.

The following has been determined on by the Council.

INSTITUTE MEDAL.

That the silver medal of the Institute be awarded to the author of the best essay on either of the following subjects—

1st. The proper application of wrought and cast-iron constructively and artistically.

2nd. The application of timber work in England constructively and artistically, from the year 1400 to the present time.

3rd. The introductien of Italian architecture into England.

4th. The principles of the application of iron-work in the construction of floors and roofs, illustrated by examples.

These medals are open to all members of the profession, without limitation as to age.

SOANE MEDALLION.

That the Soane Medallion be awarded for the best design, well illustrated by a sufficient number of drawings, for:—

A museum of sculpture and pictures, ancient and modern, with lecture-room to hold 500 persons, and library to hold 5,000 volumes.

The successful competitior, if he go abroad within three years after receiving the medallion, will be entitled to the sum of £50 at the end of one year's absence, on sending satisfactory evidence of his progress and his studies.

The competition for the Soane Medallion is open to all members of the profession under the age of thirty years.

THE PRESIDENT'S PRIZE.

That the prize of ten guineas offered by the President, be awarded to the author of the most approved set of architectural drawings consisting of plan, elevation, and section executed in the best manner, in color, and shaded, and occupying not less than a sheet of Imperial paper. The scale to be one-fifth of an inch to the foot. The subject to be a building of an admirable example, or of original design, such as a chapel, a pleasure house for a garden, a park gate entrance lodge, a moderate-sized villa, or a small market house and room above.

The above prize to be open te all students, whether of the Institute or not.

That a prize of books be given by the Institute to the author of the design that may be considered the second in merit.

MR. TITE'S PRIZE.

That a prize of ten guineas announced at the ordinary general meeting held on the 5th November, 1860, as having been offered by Mr. Tite, M.P., F.R.S., Fellow, be awarded to the author of the best set of sketches or suggestions, in the Italian style of architecture, for public buildings adopted to modern wants, *e.g.*, churches, town-halls, railway stations, public offices, &c., in England.

The competition is open to all associates and students of the Institute. Each competitor is to send in not less than two, and not more than three, sets of sketches.

SIR FRANCIS E. SCOTT'S PRIZE.

That a prize of ten guineas, offered annually by Sir Francis E. Scott, Bart., for the term of five years, be awarded to the author of the best set of sketches for a building of moderate dimensions, devoted to civic or domestic purposes, in accordance throughout with the advance of modern civilization, and designed in harmony with the constructional and ornamental principles that prevailed in the architecture of England, France, Germany, and Flanders, from 1200 to 1500, and in that of Italy, from 1250 to 1400.

The competition is open to all associates and students of the Institute. Each competitor to send in one set only of sketches.

MR. ALEXANDER'S PRIZE.

That a prize of ten guineas, offered by E. Alexander, Fellow, will be given for the best essay on the "Four Ancient Camps near Swindon, Wiltshire—viz., Blunsdon, Uffington, Liddington, and Barbury"—showing how, without injury to the ancient remains, works of a temporary character might be added, to render them available for defence by rifle volunteers and others; taking advantage of the resources of modern science, the railway, telegraph, &c., and of the large engineering works at Swindon.

This competition is open to all members of the profession.

STUDENTS' PRIZE.

(For Students of the Institute only.)

That the subject of the design for the students' prize in books for the year 1861, be—"A dispensary suited for a manufacturing town."

STUDENTS' MONTHLY SKETCHES.

(By Students of the Institute only.)

The following subjects have been selected for the sketches for 1861, and they may be taken in any order, attention only being requested to their being forwarded to the honorary secretaries at as regular intervals as possible:—

A base of a column seen from above.
Canopy.
Corbel.
Mouldings (with sections).
Pinnacle.
Scroll-work in stone or plaster.
Acanthus leaf.
Cross.
Cornice.
Scroll-work in iron or wood.
Capital, moulded, seen from below.
Ditto, foliated.

Further particulars respecting conditions may be obtained from the Honorary Secretaries to the Institute of British Architects, Conduit-street, Regent-street, London, W.

A splendid aquarium has been inaugurated in the Jardin d'Acclimatation in the Bois de Boulogue. The building is a long gallery, terminated at each end by pavilion-formed vestibules, painted in fresco, after the Aquaria of Herculaneum. The gallery is 150 feet long, the glass cases forming one side of it, and the other being left in obscurity. Salt and fresh water fish, crustacea, and other natives of the sea and river, are here in profusion, swimming around the rocks, or attaching themselves to the bottom or to aquatic plants.

CATHOLIC YOUNG MEN'S SOCIETY.

We understand that this society, for some time located on Lower Ormond-quay, has concluded arrangements for the premises on which now stand the old Dominican Church in Denmark-street, and which will be converted into a suitable building for the society's purposes, with spacious reading and lecture rooms, library, &c. Mr. John Connolly (Princes-street) is the builder.

THE OAR.[*]

Probably the most ancient mode of propelling boats through the water by hand-labour was by means of oars of nearly the same shape, and worked in the same manner, as those now in use. And to all appearance there is no likelihood of a change, for although many savage tribes work their canoes and other narrow boats with hand-paddles, and attain great speed with them, yet seamen of civilized nations, whose boats are mostly of a more burdensome character, and whose bodies are encumbered with clothing, have, without exception, given preference to the oar, as an instrument of greater power, and worked with more convenience.

And, truly, there is no more beautiful instrument than an oar, when we consider its simplicity, the ease with which it is worked, and the readiness with which its position is accommodated to the ever-varying motion of the boat and the sea's surface. It has often been proposed—indeed, it is a favourite notion with theorists—to propel life-boats by rotatory paddle-wheels and screws, such as those of steamers; but the proposition is altogether an impracticable one, and its trial could only result in failure.[†] Where great power and velocity of motion can be applied, as by steam, undoubtedly the rotatory form is the most convenient mode through which to apply it, and accordingly, both screws and paddle-wheels work advantageously, until the rolling or pitching motion of a ship becomes very violent, when great waste of power ensues; for instance, when a ship rolls so deeply that the paddles are alternately too deeply immersed, and spinning round in the air; or if a screw ship, when she pitches so much that the screw is raised to the water's surface, or lifted above it. When, therefore, it is considered how much more violent is the motion of a boat in a heavy broken sea than that of a ship, it will be readily conceived that a fixed machine, such as a wheel or screw, even if it could be worked on so small a scale by steam power, would do so at a still greater disadvantage. Whereas the oar, obedient to the quick eye and ready arm, varies its position with every motion of the boat or wave, and in skilful hands is always working at "full power."

But there is another point of importance not to be lost sight of. A paddle-wheel or screw cannot be worked in a life-boat by steam power, but must be so by means of a crank worked by hand. Now it is known to every one that the muscles of the human body are strengthened by use, and that, therefore, persons engaged on any particular bodily labour have those muscles especially strengthened that are constantly brought into play. Thus, a sailor would stand little chance in a walking-match with a professional pedestrian; whilst the latter would as vainly attempt to overtake the former in a race over his ship's mast-head. It follows then, that, apart from its other advantages, the oar is possessed of this especial one, that it is in daily use by the only class of men on the coasts who are available to form the life-boat's crew—viz., the hardy race of fishermen and boatmen who earn their daily bread on our shores.

An oar being, then, the only instrument by which a life-boat can be propelled, too much care cannot be bestowed on it. Its size, weight, length, material, width of blade, balance, mode of attachment to the gunwale; its height above the water, and above the thwart on which the rower is seated, and the distance of the thwarts and oars apart, are all points of much importance on which the speed of the boat, or its power to make way against a head-sea, much depend.

An oar is a simple lever, of what is termed the second order—that is, wherein the weight or body to be moved lies between the fulcrum and the motive power; the water being the fulcrum of the lever, the gunwale of the boat the point at which its power is applied to the moving body or weight, and the rowers' arms being the source of power.

Fir oars have always been considered the most desirable for life-boats, as they do not bend so much as ash oars, and as they float much lighter in the water, and will therefore better support any persons in it in the event of accident. Experiments have been made by the National Life-boat Institution to test the relative strength of oars, when it was ascertained than an oar made from a good white Norway batten, or from a white Baltic spar, will bear as great a strain as any other, each being as free of knots as possible.

The length of an oar must of course be proportional to the width of the boat, and it should be so poised on the gunwale that the rower can raise or depress it or move it in any direction with the smallest effort. An oar should be not less than five inches wide in the blade, or it will expose so small a surface to the water as to cut through it, and so work on a too yielding fulcrum, with comparative loss of power.

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[*] Life-boat Journal, Vol. iv., No. 42.

[†] We confess to be amongst the "favourite notion theorists," who would take exception to this conclusion, as the same principle by machinery and hand-power respectively would be a mere mechanical equivalent, and therefore must, in common sense, be as practicable, to a certain extent, in the one as the other.

The height above the thwarts, of the thowl or rowlock in which the oar works on the gunwale, should be sufficient to enable the rower to lift the blade well above the waves by depressing the loom or handle; but, on the other hand, it must not be so high as to require him to raise his arms above the level of his chest in rowing, in which case he will row with much less force, and be much sooner fatigued. A height of eight inches from the thwarts to the oar on the gunwale will be found a suitable average.

Lastly, the mode of confining the oar to the gunwale of the boat is of much consequence. The most common modes, in ordinary boats, are rowlocks and double pins, between which the oar works; but as an oar is liable to jamb in the rowlock or between the pins, when rowing in a rough sea, and thereby to get broken, or to damage the gunwale, the oars of life-boats have generally been worked in a rope grummet or ring, over a single iron thowl-pin: a further advantage of this plan being that it enables the oars to lie along the outside of the boat when not in use, and thus saves the necessity of unshipping them and getting them inboard on going alongside a wreck, which is a great advantage.

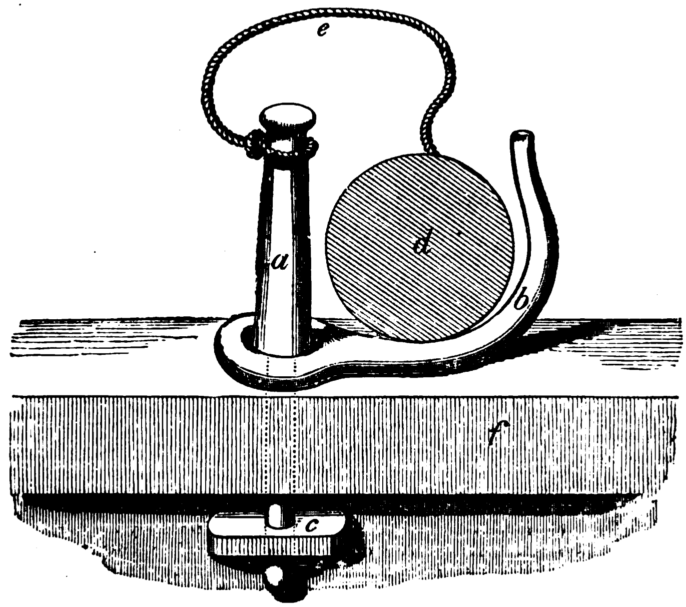
A new description of swivel-crutch, intended as a substitute for a grummet, has recently been planned for the National Institution's life-boats, by its inspector, Capt. Ward, R.N., which is found to have the advantages of the grummet, and to be more convenient in some respects.

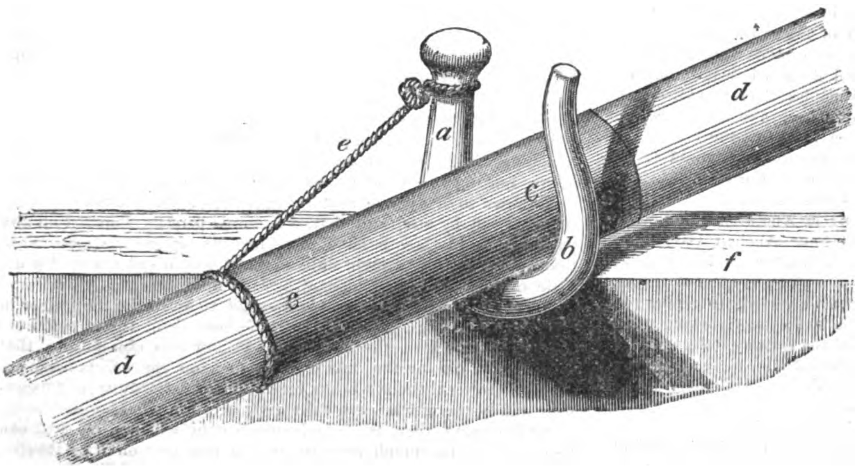
As it will be found to be a very useful kind of crutch for general use in boats, we subjoin a sketch of it.

Figure 1 represents the inside of a boat's gunwale, with a section of the oar (*d*) within the crutch, the latter supported on the gunwale in the position in which it remains whilst the oar is in use. *a* is an ordinary iron thowl-pin; *b*, the crutch, also of galvanized iron, which revolves round the thowl as an axis; *c*, a clamp or chock, which receives the lower end of the thowl; *e*, a short laniard with a running eye, which is slipped over the head of the thowl whenever the oar is required to hang over the side; *f*, the gunwale.

Figure 2 shows the oar when let go by the rower and allowed to hang alongside outside the gunwale. *a*, the thowl; *b*, the crutch; *c*, the leathering on the oar, to prevent chafe; *d*, the oar, as hung alongside; *e*, the laniard spliced round the oar, below the leathering, and nailed on to prevent its slipping round or along the oar; *f*, the gunwale.

The principal advantage of the swivel-crutches over grummets is, that they are of a more durable character, are fixtures, and so not liable to be mislaid or lost, and retain always the same size and shape, whereas a grummet is liable to stretch by use, when the oar will work too loosely in it.





IMPROVED WET GAS METER.

Consumers of that useful and now almost universally adopted commodity, "gas," would hail with pleasure the maturity of an invention which should prove an efficacious check on the present unsatisfactory meter system, whereby the public are completely at the mercy of gas companies, and, without the opportunity being afforded them to test the truth of the registry on which is founded the charge for the article, must pay whatever is demanded. It may be remembered by some of our readers, that in earlier numbers of this journal we devoted attention to the exposition of some of the fallacies that distinguish the present system—the absence of guarantee of correctness in the meters, and the absurdity of meter rent at all, which latter, in a commercial point of view, is as unjust as it would be for the proprietor of a business concern in the city to charge for the delivery (within the boundary at least) of goods purchased at his establishment. However we may take exception in this and other regards to the guiding principles of the Dublin gas companies—who, though nominally rivals, are evidently pulling a cord which none others can lay hold of—we must not be understood to cast any imputations on their wilful *intentions* to wrong the public, and make them pay for what, even according to their tariff, they have not received full value; but as we live in an age when possibilities of error should be made *im*possibilities, it becomes our duty both to expose the disease and suggest the remedy. In London a certain degree of protection is secured to consumers by a recent parliamentary enactment,* which imposes upon gas companies the task of having their meters adjusted in conformity with a fixed standard, and a seal attached by a district inspector denoting that same have been duly tested. Whether this law may or may not extend to Ireland we are at present unable to say, but in any case it must be obvious that if the construction of the meter be either radically erroneous or even partially so, the precaution would be of little practical use during the intervals of inspection. The chief claim for preference before the ordinary meters now in vogue of the patent in question—a diagram of which we annex—is, that it is alleged to substantially maintain "the water level," and for years, too, without requiring any attention. We need scarcely dwell on the importance of such a desideratum if there be truth in the allegations set forth, on which we should not feel ourselves—in the absence of practical experiment—justified in offering a positive opinion.

The following particulars will further explain the nature of the invention, which we may remark is that of Mr. Henry Shaw, of Lower Ormond-quay in this city—whose "patent railway brake" was recently illustrated and described in these pages; Mr. James

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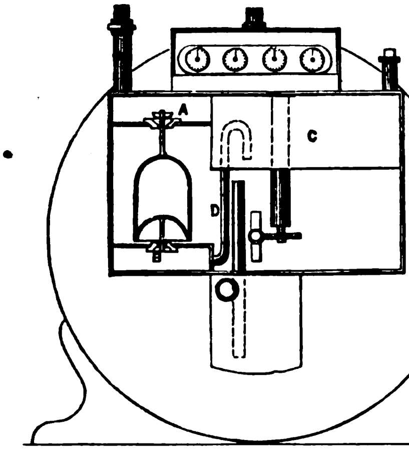
* 22 & 23 Vict., cap. 44.

Meacock, of 7, Snow-hill, London, being the wholesale agent and manufacturer:—

Description of Shaw's Compensating Inverted Valve.



"This diagram shows a front elevation of an ordinary wet meter with the improvement—viz., *c* the reservoir, *d* the supply pipe, and *b* the inverted valve. This valve is in connexion with the ball-float, and is raised and depressed with it: when raised to its seat forms a perfect security against water entering the meter; and when open it will admit such supply of water from the reservoir as will float the ball to its proper level, and no more. The means by which the water line may remain undisturbed, either by the pressure of the gas when first being turned on, or by the action of the wheel in motion, is simple and efficacious; the 'opens' or holes through which the water passes from the one chamber to the other are minute, and no quantity of water can pass while the pressure from the gas, going on, is being equalized in both chambers; and also the motion of the wheel can in no way affect the still water of the float chamber, which secures a steadiness to the light.

"The reservoir may be made sufficiently capacious to hold a supply of water for years, and when emptied will give notice by the going out of the light, caused by the shutting of the valve *a*. The inverted valve *b* is protected from injury by submersion in the pure water, and the concavity of the bottom of the float within which the upper parts of the valve are guarded. The entire range, or fall, of the valves does not exceed the one-tenth of an inch, or what may be equal to a difference of one per cent. each way from the standard measure."

The same objections respecting the effect of atmospheric influence would seem to apply to this in the same ratio as other meters, and if so, the chief claim of the inventor would be materially affected.

INTERNATIONAL CONGRESS.

It appears that the fourth session of the International Philanthropic Congress is to be held in London next year, on the occasion of the Great Exhibition. Among the noblemen and gentlemen who have expressed their concurrence are, Lord Brougham and the Council of the National Association for the promotion of Social Science, the Earl of Shaftesbury, the Earl Ducie, the Earl Fortescue, Lord Ebury, Lord Raynham, the Right Hon. W. Cowper, M.P., Sir Thomas Phillips, Alderman Mechi, Mr. Harry Chester, Mr. Samuel Gurney, M.P., Mr. Edwin Chadwick, C.B., Mr. Henry Roberts, Mr. George Godwin, F.R.S., Mr. T. Twining, Dr. Sutherland, F.R.S., and Doctor Southwood Smith, F.R.S.

ROYAL NATIONAL LIFEBOAT INSTITUTION.

Referring to the performances of the crews of this highly laudable institution engaged on the Irish coast, the following is to be found in the recently published report:—

"A reward of £4 was voted to the crew of the Dundalk lifeboat, belonging to the Institution, for rescuing, after several shore boats had made fruitless attempts, a ship keeper, who had been left on board the barque *Frederick*, of Dublin, which during a heavy gale of wind was totally wrecked on Dundalk bar on the 13th ult. A reward of £7 was also granted to five policemen and one civilian, for swimming off a great distance at much risk of life, in a heavy sea and a strong ebb tide, and saving the lives of two persons who had been capsized from their boat, off Lahinch, County Clare, Ireland. It was stated that two of the constables had on several previous occasions very laudably exerted themselves in saving life. The constables had also received a reward of £1 each from the Inspector-General of police. Mr. Synge had received the silver medal of the institution, in acknowledgment of his exertions in saving life from a wreck on the Irish coast. The demands on the funds of the institution continue, we regret to say, to be very heavy; and payments, amounting to £1,000 on lifeboat establishments, were ordered on Thursday to be made. It is earnestly hoped the public will continue to strengthen the hands of the committee, so as to enable it to carry on, during the ensuing winter, the important and philanthropic operations of this truly national institution. Orders were given for the sale of £500 from the small funded capital of the society, to enable it to meet the heavy demands on its funds."

THE CHANNEL RAILWAY.

However problematical an enterprise may at first sight seem to be, it nevertheless, if endowed with the elements of feasibility, is entitled to impartial consideration, and we should therefore have no right, because difficulties never before surmounted beset its path, to assume its accomplishment impossible. Science has achieved many victories over foes hitherto deemed invincible, and even in the present age we may expect to see great revolutionists and pioneers of improvement arise, who in their own peculiar sphere may take rank with a Watt, an Arkwright, a Rennie, a Telford, a Stephenson, or a Brunel, whose consummated works would, when projected, have been fairly regarded by our forefathers as the offsprings of an overheated imagination. Many of our modern sceptics, too, would, in similarly complimentary style, classify *us* if we hazarded an opinion as to the practicability of a Londoner being transported by rail direct to the French capital without incurring the necessity of changing from rail to steamboat, and steamboat again to rail; but this *we* may, and most probably our children *will* live to see it notwithstanding, or for aught we know the Irish capital may be included in the chain. The project to connect England and France by means of a submarine structure is nothing new, it has occupied much consideration of the respective governments, and designs were prepared and submitted by several parties, *some* perhaps more enterprising than scientific. Mr. Chalmers, therefore, whose recently published work* with this purpose in view is now before us, can lay no claim to originality of conception, but how far he merits an attentive ear before his compeers becomes a question into which we now proceed to enquire. Some dozen schemes—seven of which were by Frenchmen and five by Englishmen—had been previously mooted, and respectively comprised submarine tunnelling, submerged tubes above or below the bed of the ocean, and a mammoth bridge; the practicability of the former being probably suggested by the successful construction of the Thames Tunnel. Mr. Chalmers, however, adopts a submerged tube of circular construction, which would be directly placed between the South Foreland and Cape Blancnez, a distance of eighteen miles, firmly held down by great iron boxes filled with rough stones, the whole surrounded by an embankment also of stones 150 feet wide at base, 40 feet high, and from 40 to 120 feet below level of low water; the ventilation to be effected by *three* shafts, one mid channel and the other two about a mile from each shore, thus rendering the distance between each air aperture some 4½ miles. A double line of rails is provided for, sustained by a horizontal flooring of girder construction; the ceiling of the tube is horizontal, and, together with the former, acts as a strengthening tie or brace. There is likewise a vertical partition between the "up" and the "down" lines.

The projector estimates the cost at £12,000,000 sterling, and the time occupied in completion to be *three* years. Thus in possession of heads, we come to examine details more closely—first, as to the practicability, not of constructing it (for this must be admitted), but the means to be employed in laying it, whether in part or whole; secondly, if the provision for ventilation be sufficient; and thirdly, with reference to vibration. To construct a perfectly watertight tube, 18 miles in length and some 30 feet diameter, and to put all its component parts together on land, would present no great difficulty to our modern iron masters; but when once completed, it must naturally occur that the machinery requisite for successfully submerging the monster in its integrity into its marine bed, would cause to pale before it into contemptible insignificance that employed in raising the Britannia Bridge, or in the launching of the *Great Eastern*. On the other hand, assuming that it is to be fixed in portions, how are these to be constituted under water into a compact whole? To these questions the author supplies the following:—

"The tube will be constructed in lengths of 400 feet each, and launched and towed to their positions: each length will be furnished with temporary bulkheads: there will also be interior divisions to regulate the space to be filled with water in submerging: for, during this operation they will be made to retain a portion of their buoyancy, and be drawn down by means of chains passing through pulleys attached to massive anchors on the bottom of the Channel: the chains will be made to indicate, by change of colour or otherwise, the progress of descent: the anchors will be four in number, and so placed that their respective chains will be attached to the outer corners of the end boxes: the length of tube will thus be secured at its four extreme corners; and the other ends of the chains will be connected with machinery on board vessels, which machinery, when set in motion, will have a uniform speed, causing the tube to descend in a perfectly horizontal position; and, as the pulleys through which the chains pass will be so arranged as to retain the portion of chain that passes through them—allowing no back-slip, the tube in descending will gradually acquire the steadiness of the bottom of the Channel, getting rid of the unsteady motion of the surface. When a length of tube has been safely submerged, a supplementary chain having previous to submersion been attached thereto, will disengage a key that secured the submerging chain to the corner of the box; and being also attached by a longer branch to the submerging chain, the submerging chain will by this means be brought back to the surface; for the latter being then slack will drop into a recess below the pulley (which revolves only one way), through which it can be withdrawn without the pulley revolving."

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* The Channel Railway. By James Chalmers. London: Messrs. Spon, Bucklersbury.

Referring to the immersion of the tube and its staunching under water, the projector explains his design, which, in the absence of a diagram with referential letters, we thus interpret:—"In commencing to submerge a length of the tube, a wire cable attached to the end of a bolt is passed through the projecting portion of a flange covering upper half of tube, while *one* length of the tube is on the surface of the water, the end of the bolt being previously fastened inside the *other* length of the tube already in its place and loaded down; a strain is kept on this cable—in nautical phrase it is kept taut—while the tube described on surface is descending; and, on nearing its position, the bolt guides the flange till the projection rests on the cone surrounding the bolt holes in same; the projecting upper half of flange being a semicircle, overlaps and rests on flange, guiding the ends of the tubes together when they are joined. The *one* tube being in its place and loaded down is empty inside of the bulkhead, and the *other* tube having been brought into its place in the manner already described, by means of strong plate glass dead lights in the bulkhead, aided by powerful reflecting lamps, when the flanges come together, then a valve near bottom of tube is opened, allowing the water between bulkheads to escape, and the end pressure on the *other* tube forces the flanges together with a power of about 2,000 tons, or 500 lbs. per square inch of bearing surface; and the flanges having some elastic substance between them, a water-tight joint is thus effected. Workmen then pass into the division between the bulkheads, and by bolting flanges together make a permanent joint; while this is being done the *other* tube is loaded down, and when sufficiently so the bulkhead is removed and the operation repeated at other end, which is also furnished with a bulkhead and valve same as described, and so on till all are joined together. After the joint is made the bolt is withdrawn and the hole stopped. The tubes are joined to the ventilators in same manner as to each other . . . . and the wire cable is attached previous to their being placed in position. The work of joining the tubes will commence at mid channel ventilator, and proceed towards those near extremities on ascending gradients, the water inside tubes flowing towards deep sea ventilator, where it will be pumped out."

The actual *practical* mode to be adopted in *accomplishing* that described above is not by any means clearly defined, and the reader is left very much to his *own* judgment as to how *so* and *so* of the author's proposition is really to be effected. We cannot assume that this junction of the tubes in the bed of the sea where the smallest leakage defect would hereafter prove a most disastrous calamity, and where such impediments are naturally presented to workmen employed thereon, is *quite* so easy a matter as the author seems to suppose.

We are equally sceptical respecting "the ventilation," which at least should be as complete as in an ordinary land tunnel, wherein sometimes the atmosphere is oppressive enough; precaution against similar objection being doubly—trebly—necessary in this instance for obvious reasons. The deep sea ventilator is undoubtedly a gigantic construction, 132 feet in diameter at bottom, tapering, and with a lantern elevated considerably above high water mark, to which two others of smaller proportions, and placed about a mile from the respective shores, act as accessaries; nevertheless, without going into actual calculations—which perhaps the author *may* have *rightly* done—we apprehend that much more efficient provision than that suggested would be found to be required; and not by any such complicated and expensive construction mid-channel—which is decidedly objectionable for many reasons, and would lead to probabilities of accident—but from the ends *only*. Furthermore, our opinion as regards the vibration is precisely opposite to that of Mr. Chalmers, who says "the noise in this tube can be reduced to a minimum, unlike tubular bridges suspended in the air; the sound and vibration of the iron will be deadened and neutralized by the equability and elasticity of the pressure without; and as the situation of the roadway will admit of a perfectly united rail, the sensation travellers will experience on entering the Channel railway, will be akin to what we feel *after walking on a gravelly road with thin shoes, when we step upon the downy sward of a smooth green lawn.*" Our author here evidently digresses to the poetic, though we should have no objection to his indulging a little in that strain, if it were accompanied by reason; but there is nothing to justify any other supposition, than that the vibration, instead of being *diminished*, would be intensely *increased* by the embanking in—as proposed—of the tube in "a mass of rough stones," in a few years converted into a "solid, impermeable mass," through which a train would rattle to an unbearable extent. In short, Mr. Chalmers' project has not yet solved the problem satisfactorily, though the public are doubtlessly indebted to his enterprise for suggestions which may be improved on either by himself or others. We may here appropriately give place (without desiring at present to offer any opinion upon its merits) to the particulars of one of the projects included—though not referred to as specially as others in Mr. Chalmers' work—in the enumeration on other page, and which was submitted conjointly by Mr. Richard Turner, of this city, and his son, Mr. Thos. Turner, architect and C.E. (then of Adelphi, London), of Belfast. These gentlemen propose the route to be between Dover and Cape Crisnez, about the same mileage as the route adopted by Mr. Chalmers, but manifestly less advantageous as regards communication with the interior of France:—

"The projectors purpose to cross the channel by a tube laid on a level bed 96 feet under low water, formed in continuation of existing lines of railway, made by excavating the shallows adjoining shores, and filling in the deepest portions with the ballast found on the coast. This tube to be secured by gravitation, and covered by a mound of Ballast, so the submarine roads within the tube will be as firm and as steady as a rock. The tube to be made on land in docks, constructed for the purpose on the spot, in lengths from 10 to 1,500 feet, and as each length is formed it is to be rolled forward through the dock along the level surface prepared for its reception. The dock would then be emptied and another length formed and connected to the one preceeding, and so on to the end until the channel is crossed. Each length of the tube would be constructed on a carriage with wheels, and thus rolled along the level bed by means of a chain railway. The carriage would form part of the tube, and would therefore remain with it, and be embedded in the mound of ballast. Each length of the tube would of course have a temporary stopped end, to be staunchly secured in the dock openings, so as to prevent the water from entering while the succeeding length is being made. The tube is proposed to be elliptical in form, and to be constructed of cast and wrought iron plates, forming a double casing with cellular arrangement between, and the spaces filled with bituminous substance. The interior of the tube thus formed to be lined with brickwork in hydraulic cement (see transverse section.) Thorough light and ventilation would be provided, and complete drainage secured. These are generally the ideas of the projectors, and they have since been engaged in making models and plans to develop their views more fully, and explain the details for the performance of this most important work."

THE EXHIBITION BUILDING, 1862.

Participating in the general interest associated with this great national undertaking, we have given frequent notices of the progress of the building, and will continue to do so to completion, whether from personal observation or otherwise. In the following account, collected from a comprehensive article in our able cotemporary, the *Building News*, will be found the latest particulars:—

Notwithstanding the chronic disorder with which the building trades have been unfortunately so long afflicted, there has been no hitch in the great work which Messrs. Kelk and Lucas are, with untiring energy, pushing forwards at South Kensington. Everything goes on there with steady mechanical regularity. Two months ago we thought the site crowded with materials—gigantic stacks of bricks, forests of leafless timber, and tons upon tons of stubborn metal—but it was bare compared with the sight which now meets our eyes. The huge scaffolding, reared to fix the nave and transept ribs, which excited our wondrous admiration a few weeks ago, is dwarfed into comparative insignificance by the framed polygonal wooden towers, strutted and bolted into one unyielding mass, from which the vertebræ of the colossal domes are to be adjusted. One of these splendid specimens of scaffolding is completed, and the other nearly so. They are alone worth a visit to South Kensington, and are built in eight or nine stages or floors, with projecting landings, where the large ribs will come. Braces, halved and bolted together, make the whole work as solid as a block of granite.

Entering the building, we are astounded as we stand in the centre of the temporary frame, and look upwards at the seeming confusion with which the ponderous timbers interlace each other, whilst at the extremities of it the iron columns, some 2 feet in diameter, backed by smaller companions, stand ready fixed for the ribs which are to give shape and size to these conspicuous features.

Right and left of us the transept ribs are being fixed, but the accumulated scaffolding altogether precludes any appreciation of the work done. Proceeding westwards into the nave, we come suddenly into a quiet spot where the roar of mingled labor ceases, and which the onward progress of the travelling scaffold leaves perfectly unincumbered and finished, with the exception of the glazing. We can here grasp at a glance the whole form of the central avenue, realize its size, and appreciate its effect. It is 100 feet high by 85 feet wide, and has been carried out, without alteration, as Captain Fowke designed it. The ribs rest on coupled columns, and carry joists and boarding which bind the whole securely together. The light enters by clerestory windows immediately under the rib springings, and above the roof of the adjoining galleries. The completed portion at once naturally provokes a comparison with its predecessor, and it at once attests its superiority in the absence of those diagonal ties which proclaimed the inherent weakness of the 1851 construction. Here the ties exist in the peculiar forms which constitute the design. In the possession of diagonal, instead of horizontal light, Captain Fowke's design possesses also a decided advantage, whilst the arched roof carried out the whole length of the building enlarges the best architectural feature of the former building. It is grander also on account of its increased size. The double row of galleries on either side are likewise finished, so that nothing but the diminishing perspective lines of the nave, ending in the expanding dome, is wanting to the unfurnished effect of this portion of the building. Emerging from this tranquil spot, where the roar which arises from the distant mingled work reached us but indistinctly, we see truck after truck moved along the tramways to the travelling scaffold, bearing portions of the overarching ribs. They are fashioned, after Captain Fowke's peculiar principle, of three thicknesses of timber breaking joint and bolted together, and braced outside in the spandrels formed by the principal rafter, having internally a polygonal-arched shape, and externally the ordinary roof slope. A more soundly constructed or cheaper roof it would be difficult to design. About two-thirds of each side is hoisted at a time, and the centre pieces are then supplied and bolted together by the workmen on the scaffold. Immediately the ribs are fixed the rafters are secured to them, and the diagonal boarding laid. The sashes are supplied, and the "traveller" moves forward on its especial tramways to where fresh columns are awaiting their loads, and leaves all behind it complete. Ahead of the traveller, gangs of workmen are busy laying down the four lines of rail for it to move upon. Trenches are being dug, piles driven and sawn off, sleepers and rails laid, on to which the huge scaffold-framing glides steadily to take up a new position for its mighty work. All this time the little engine is screaming, the tackle glides snake-like along the ground, men wave blue and red flags, and materials of every description are run up to their appointed places.

Passing a large batch of shanties, black with coal-dust and smoke, whence issues, amidst the roar of the forges, the dead groan of the heavily-hammered metal, our ears are greeted with the hissing sound of the steam saws and the stifled shriek of the planing machine, mingled with the dull rattle of the engine bands. Farther on we find that another hoisting engine has been fixed with its "crab," around which the rope comes and goes almost without intermission. Stacks of bricks and heaps of mortar are now scarce about the site. The 8,000,000 are nearly used up, but instead we have iron columns, struts, and girders, trussed girders, and stacks of timbers. As we approach the western end, where the carpenters are busy building the scaffolding of the other dome, we see that the double row of galleries on either side of the main avenue are finished, or nearly so, the entire length. The roofs are on and the boarded floors are being laid. The corresponding galleries, which join them from either side of the entrance hall in Cromwell-road, are likewise in a very forward state. Turning into the north-western transept we soon gain the *annexe*, and find its entire length and breadth—some 1,000 feet by 200 feet—completed. The lightness and elegance of these four open galleries is at once apparent. The roof is a modification of that over the main avenue, or rather that is an amplification of this one. The timbers forming the polygonal arch are bolted together, but in this case the central portion of each roof is glazed, stiffening pieces instead of braces are used in the spandrels, and the springings for the arches are very nearly on the floor of the galleries. It has a very handsome appearance, and kindles a feeling of regret that it at least is but a temporary affair, to be removed with the contents it will shortly shelter. This *annexe*, as our readers will recollect from former descriptions, runs parallel with the western wall of the Horticultural Society's grounds, between it and the Prince Albert's-road. A corresponding site on the opposite side next the Exhibition, has been, on account of the continuous cry for space, looked at with longing eyes by the Commissioners, and there does not seem any doubt about their gaining possession of it and furnishing thus some 200,000 feet of additional accommodation for intending exhibitors.

The lowest arcades of the horticultural grounds will also be finished and used by the Exhibition Commissioners. An additional floor, devoted to dining-rooms, will be built on them, from which the luxurious first-class man will look over the magnificent grounds, studded with gay flowers, and adorned with terraced lawns, lined with the, perhaps, finest range of terra-cotta arcades in the world. His view will be stopped by the magnificent conservatory, which has not yet had justice done to its artistic or scientific qualities, whilst immediately in front of it will be the memorial of the Great Exhibition, whose marvellous success stimulated the erection of the present building, and altered the whole character of the South Kensington estate.

Retracing our steps, and proceeding to the southern side of the nave, we see that the brickwork at the south-eastern angle, which has always been the most forward portion of the work, is complete, with the exception of the towers, and that the carpenters with the roof are following closely upon the heels of the bricklayers as they migrate westwards. The roof of the picture-gallery is partially fixed, and countless principals in course of framing are occupying the workmen under the shadow of the walls. The roof is of peculiar construction, but it is the same, if we mistake not, which has been successfully used in portions of the South Kensington Museum. The following description will perhaps explain the principles of its construction:—The two principal rafters are separately trussed, as we would truss girders. They are then placed one against the other, and a band of iron connects their centres. A vertical piece of framing on each side hides the truss. The central portion of the roof between this framing is glazed, and the remainder of the roof is masked by a sweeping curve, which connects the underside of the vertical framing with the wall surface on which the pictures are hung. This picture-gallery will form, when completed, a splendid feature of the building. It will extend the whole length of the Cromwell-road front, and be consequently 1,150 feet long by 50 feet broad. As we approach the south-western corner of the building, passing the three lofty arches which are the entrances from Cromwell-road, we arrive at the least finished portion of the work, where the workmen are some six weeks behind their companions at the opposite end, but there is no doubt in any one's mind about the final completion of the whole building by the stipulated time in February. It is now more than half done. In the corresponding period of the year 1850 the first piece of ironwork only was delivered for the Hyde-park building. The exterior has still a large shapeless appearance, and it is more difficult to judge of its ultimate effect than it is of any portion of the interior.

ARRANGEMENTS FOR THE DUBLIN WATERWORKS.

The committee have directed the requisite surveys of the line of pipeway, and of the two reservoirs, to be made by and under the direction of the City Engineer, Mr. Neville. Mr. Carter, who made the surveys for the parliamentary plans, has been engaged, with other assistants, to survey the reservoirs and take the levels of the whole line; and the committee being anxious with the least possible delay to give the requisite notices to the Board of Works, which are preliminary to the official valuation of the lands to be purchased and taken, engaged Mr. J. J. Byrne, of this city, to survey and map the entire line of pipeway from the tunnel to the Circular-road, under the direction of the City Engineer. The maps of all these lands are now nearly completed, and in a very few days the committee will be able to lodge them with the Commissioners of Works, in accordance with the requirements of the act, and procure the appointment of the official valuator. Some stormy discussions have taken place in the Town Council subsequently, with reference to the project, between the promoters of the bill and the opponents respectively, but which are outside our province—after the quantity of space already occupied—further to record.

ART ACQUISITIONS TO THE BRITISH MUSEUM.

Further discoveries of antique marbles have been made at Cyrene by the expedition under the command of Lieuts, Smith and Porcher, who have, as noticed in the *Athenæum* (from which journal we collect these particulars), already sent a valuable consignment of similar relics of Art to the British Museum. What the Trustees intend to do with these works it is difficult to surmise, the hideous sheds which have for some years disfigured the grand portico in Great Russell-street being almost filled with the beautiful sculptures Mr. Newton brought home. Some of the new marbles, which were in fragments, have within the last few days been put together and may now be seen, on application, at the British Museum. They consist of a splendid statue of Apollo, about seven feet high with the lyre in one hand, resting on a stump, round which circles a serpent. The head of the god, which, as is most common in statues of the period in which it was executed, is rather small, has a noble and dignified expression; the hair is clustered and knotted behind, crowned with laurel, which last is characteristically somewhat stalky, that is, the leaves are small in proportion to the size of the stalk sustaining them. The original surface of the whole work is in a wonderful state of preservation, being very clear and white and sharp. The one hand resting on the lyre, the other has been thrown up above the head, as in the statue of the Apollino; the figure is naked above the hips, where the drapery is gathered in free folds, to fall to the feet, which are sandalled, the sandals bearing a great heart-shaped shield or stud holding the thong between the toes. These extremities are rather large, and therefore a little out of proportion. The lyre is a good deal broken, and, as might be expected, imperfect; it is decorated with a row of small shields along the frame, such as the Amazons are usually represented as holding on their arms. There are holes in the bow for metal strings. On the stump by the side of the statue is a bow and quiver. A statue of Bacchus rather smaller than the preceding, does not equal it in design or execution, being liney, and is decidedly later in date. This work is also naked to the hips, the robe, however, returning behind the back and drooping from one shoulder in front. It is perfect in preservation, with the exception of one arm lost and some very trifling injuries to the draperies; with the remaining arm the statue holds a bunch of grapes. A small statue of Jupiter Ammon, represented, as on the coins of Cyrene, horned, and, as such a unique example in sculpture, we believe. Amongst these works are also two other small statues, one certainly representing Juno; these are hardly so meritorious in design or execution as even the Bacchus. Far superior to these are two minor statues, and several finely wrought fragments, notably one of a leg, a portion of a draped male figure and six hands, all of which are worthy of attention. To us the most interesting of all these discovered remains is a small but most admirably designed group of a nymph struggling with a lion; the boldness and vigour of the execution of this small work are also considerable. Two well carved figures of boars and a score of less important fragments make up the list of statues in this interesting addition to our national collection.

ORCHARD HOUSES.

Referring to an article on this subject, which recently appeared in the *Gardeners' Chronicle*—an excellent horticultural organ—the following practical remarks have been elicited from an eminent authority:—

" *Orchard-Houses should be all Glass and Wood or Iron.*—I am at this moment building a house 100 feet by 24, all glass roof, sides, and end, and no bricks (how I hate them—ugly, heavy, clumsy things), and no boards. The roof, of course, is of glass, in pieces 20 inches wide; the sides are of longitudinal bars, grooved to let in glass, with a glazed shutter 2 feet in width. The sides are supported by light oak pillars (I should have preferred iron), the roof by light iron pillars inside. It is a leading idea with me that large orchard-houses should be as light and fairy-like in their structure as possible. No bricks, no stone, no cement should be used in building them; all should be glass. There can be no architectural beauty in a structure of glass. The first Crystal Palace was a stack of glass, the present is the same; so that the builder ought to give to all such structures a lightness of construction *sui generis*, and so please the world by a combination of extreme lightness with much strength.

" *Roof Openings.*—Although Mr. Pearson found these necessary in his cucumber house on account of red spider—which, by the way, can always be kept away by the proper application of sulphur—for orchard-houses of the width of 30 feet and under they are perfectly unnecessary. They break the agreeable continuity of a large spanned roof, and are, I repeat, useless. I have an opening under each gable of my 24-feet wide house of about a foot deep unglazed; it is quite amusing to watch the two currents of heated air making their egress when the sun shines. To observe this more accurately, as we cannot see air, I have suspended at each end a piece of cotton wadding. When the weather is cloudy and still, they hang perpendicularly and motionless, but as soon as the sun breaks out, they are carried out by the heated air, so as to be horizontal. From a thermometer placed in the centre of the house, and about 18 inches from the apex of roof, shaded from the sun, I find the temperature is, on the average, 6 degrees higher above than below, the thermometer below being 5 feet from the ground. This increase of heat should not be lost, and I intend to train a vine or two all through the houses just under the ridge board.

" *Pavements.*—Pavements of brick, stone, or slate absorb much moisture, and give it out very slowly, so that in walking in your orchard-house in early spring or in autumn, such pavements feel cold and uncomfortable, and are probably dangerous to delicate constitutions. In my opinion there is nothing equal to gravel. A path made with it, well sifted and of a binding nature, is always dry and agreeable, and seems to give out a healthy atmosphere in which it is a pleasure to breathe."

FINE-ART GOSSIP.

Mr. G. C. Scott's design for the reconstruction of the lantern of Ely Cathedral, which is to be considered a memorial to the late Dean Peacock, who himself did so much for the preservation and restoration of the noble church over which he presided for so many years, is (says the *Athenæum*) to be commenced forthwith. The estimated cost of the work is about £61,000; promises of subscriptions sufficient to justify the commencement of this work having been received, no further delay will occur. Like the existing lantern, the new one is to be of oak, cased in lead; and a grand improvement in the aspect of the entire edifice is anticipated from the fact that Mr. Scott has designed the openings in it in better keeping with the character of the general architecture surrounding it than is now the case. The decoration of the ceiling of the nave, by Mr. L'Estrange, with a series of circles containing Old Testament subjects, inclosed, is advancing, as is the new choristers' school.

On the same authority we are told that the eminent stained glass manufacturers, Messrs. Lavers and Barraud, of Endell-street, Bloomsbury, are rapidly progressing with the execution of the large west window in stained glass for Christ Church, Hants. This is the gift of Admiral Walcot, M.P., to the Abbey Church, and may be said to form part of the extensive restorations made therein under the charge of Mr. B. Ferrey. It is of a perpendicular character, divided into four stages or rows, of six lights each; the total height is 32 feet 6 inches, the width, 12 feet 4 inches. The three lowest stages are traversed by upright mullions, perfectly straight. The head is filled in with tracery, in the central top-light of which is represented Our Lord, with his arms extended in the form of a cross, the triangle and the dove embodying the presence of the Holy Trinity and forming the crown, as it were, to the subject of the entire work, *Te Deum*. In the side portions of this head are disposed the Heavenly Host, a crowd of Ministering Angels, &c. In the smaller intervening spaces are placed the Alpha and Omega, the Martyr's Crown and Palm. In the next lower tier of lights are placed the Prophets, Saints and Martyrs, with appropriate emblems. Beneath this are the Apostles, grouped in threes, in each of the four middle compartments, illustrating the Holy Church throughout the world. Next to the Apostles, and completing this line of compartments, are represented two Bishops of Winchester, St. Swithin and William of Wykeham. In the next and third tier the subjects illustrated are, " When thou tookest upon thee to deliver man," &c., and " We believe that thou shalt come to be our Judge;" the former being illustrated by the Birth of Our Lord in the stable at Bethlehem, the Adoration of the Shepherds, and Offerings of the Wise Men; the latter, by Our Lord sitting in Judgment, surrounded by Angels blowing trumpets and groups of beatified Saints. Beneath these, and forming the foot of the whole work, are six smaller panels or divisions, containing busts of the four Evangelists; and on the outermost spaces St. Ambrose and St. Augustine, each writing, and inspired by an Angel reciting the *Te Deum*. The general arrangement is by Messrs. Lavers and Barraud; the design by Mr. J. M. Allen.

PATENT HELIOGRAPHIC PRINTING.

FOR THE PRODUCTION OF PHOTOGRAPHIC REPRESENTATIONS IN PRINTERS' INK.

The object of this invention is to extend the application of photography, by substitution for the salts of silver (used in the ordinary printing of a photograph), an imperishable and cheap material, " printers' ink," and printing the impression at the printing press now in use; thereby rapidity of production, and consequently, cheapness will be the result.

By photography the most elaborate and minute design can be copied of any desired dimensions, and by the heliographic printing the impressions of those designs can be multiplied, and at the same time preserve the delicate pencil of the sunbeam as the graphic agent.

If then the photograph can be thus printed in printers' ink with the same facility as a drawing on lithographic stone, made in the ordinary manner, or on a metal block, for the purpose of printing by the ordinary letter-press, without the preliminary cost of engraving or drawing, there can be no reason why the most beautiful designs and drawings should not be sold at a price but little above the cost of the paper on which they are printed.

Therefore, the advantages to be derived by the introduction of this patented process may be considered with reference to the following:—

First.—It enables the photographer to give a perfectly faithful reproduction of the scene or object he may desire, without omitting the most minute detail, and if he wish, print on it a graduation of tints and colours with a certainty that these productions are not liable to fade.

Secondly.—The perfect reproduction of manuscript drawings by means of photography, and the transferring of them perfect on to lithographic stone for surface printing, or on metal blocks to print in combination with type, opens a new field to the artist, the architect, the surveyor, and the mechanical draughtsmen, instead of having to rely upon the abilities of the lithographic artist, or wood engraver, to reproduce their design, and render to it the faithful character of the original, the patent heliographic printing process supersedes their labours, and offers peculiar and unique resources.

Copies of architectural drawings, old or new maps, plans, and drawings of complex machinery, which would require much time and talent on the part of the draughtsman, would be available as soon as wanted, and the copy may also be enlarged or diminished from the scale of the original. As soon as the various professions are satisfied of the resources offered by this new art, it will be become an indispensible appendage to every well-regulated publishing and lithographic establishment, as well as government offices.

Thirdly.—For the reproduction of valuable old and rare paintings and engravings of the olden masters. By heliographic printing processes we can produce a faithful transcript of the original, preserve the style and execution, by this means improve the taste, and form a correct judgment of their works; whilst the choicest of our modern works of art, the publishing price of which is beyond the reach of the general public, can be reproduced and published of any desired dimensions, placing the richest of our pictorial illustrations within the reach of all.

Fourthly.—Heliographic printing and copying by means of photography does not require the originals to be in printers' ink (recently printed), they copy alike from written documents or old printed matter and faithfully reproduce any number of impressions in fac-simile and in printers' ink. This art will be invaluable to the antiquary, to the librarian, to the curators of museums, to the legal profession, and to the Government for the preservation in fac-simile of valuable documents which are of so much value that the loss by risk or accident, such as fire, &c., &c., would be productive of great inconvenience and injury. Members of the legal profession are afforded a quick and economical means of having reproduced in fac-simile important documents, wills, &c., superior to any other mode of obtaining duplicates at present in use, and curators of museums will find in this art an endless resource for the reproduction of fac-similes of valuable literary curiosities for the benefit of the curious in such matters.

Fifthly.—The proprietors of extensive publishing, printing, and lithographic establishments will, by the introduction of the principle of the heliographic printing processes, be enabled to extend the resources of their business. As an example, the publisher of a work, by merely furnishing a copy of the book required to be re-published, its pages can be copied by this process and made into surface printing blocks, including the engraved illustrations, if any, in a durable material—zinc, and can be of enlarged or reduced dimensions, to answer as a 12mo, 8vo, or 4to, saving the price of re-setting, reading, and the engraving of the illustrations. The advantages to the lithographer are so varied and important that it is needless to dwell upon them; suffice it to say that they are intimately interested in all that is stated, and also will be enabled to enrich their productions by copying by the process from the works of the best landscape, portrait, ornamental, and map engravers, and are in possession of the means for the reproduction of photographs of external objects to illustrate books of all descriptions, as well as those gems of science and art, stereoscope pictures, printed in colours of a more permanent character than is now obtainable, and will be able to produce them at one-tenth the present cost.

Sixthly.—Map and chart publishers will, as a necessary consequence, avail themselves of a means whereby they can have at a cheap rate many sized maps from one original. And the Ordnance Survey of the kingdom will furnish material for the production of detached maps of cities, and provincial towns, counties, parishes, townlands, estates, and forms for the purposes of the Landed Estates Court, and for the registry of deeds, or for sale at a moderate rate to the public.

And lastly.—Many advantages will be derived by the traveller, the philosopher, and the man of taste by this new art enabling them to reproduce their works for publication at a moderate cost. The botanist and the naturalist will be enabled to retain fac-similes of all objects whether flowers, leaves, trees, insects, or animals of any description that interests them most. These in general will not only contain a correct representation, but sufficient detail to afford a view of their distinctive character. In fact, every one who loves to study nature, either in her outward form by art, or to observe and trace her in the more obscure walks of science, must feel interested in so valuable a discovery, where, strictly speaking, art and science go hand in hand.

The sinking of the Artesian well at Passy has occupied six years, at a cost of £40,000. The result is, however, beyond all previous calculations.

The Birmingham Music Hall, which originally cost £12,000, has been recently disposed of by private contract for £3,400.

Note.—In the descriptive particulars accompanying illustration of the **Imperial Assurance Office**, London, and which appeared in our last number, we should have mentioned that Mr. Paul Askin, of 19, Talbot-street, is agent for the company in Dublin, and as may be seen by our advertisement columns "an acknowledgment" of prompt and satisfactory settlement of claims is recorded.

Miscellaneous.

Lighting Kingstown.—The Secretary of the Hibernian Gas-light Company has addressed a remonstrance to the Town Commissioners of Kingstown respecting the inconvenience experienced by the company in lighting the public lamps only until *one* a.m.; adding that if the present system is to be continued an extra rate of five shillings per lamp must be charged. Mr. Sullivan moved a resolution at recent meeting "that the lamps be kept lighting in certain portions of the town during winter months, viz.—in George's-street, Kingstown Avenue, York-street, and the Cross Avenue, in fact, all the localities where small dealers live, whose occupations oblige them to be up at an early hour. He suggested that a committee be appointed to deliberate on the matter and report to the board." Subsequently, however, the amendment of Mr. Masterson that "a committee be appointed to compute the expenses of keeping the lamps lighted until dawn, 4 a.m., was agreed to." [The extinguishing of the public lamps at the hour named is certainly most objectionable.—Ed.]

Bray Commissioners.—A meeting for election of four commissioners in lieu of those who go out by rotation, takes place this day.

Memorial to Sir H. Pottinger, Bart.—A very handsome monumental tablet of white Carrara marble has just been finished, and will shortly be erected near Mount Pottinger, county Down, to the memory of Lieutenant-General Sir H. Pottinger, Bart., late Ambassador to China. The memorial, which is an elaborate piece of workmanship, and has been executed by Mr. T. Gaffin, sculptor, of the Quadrant, Regent-street, is surmounted with the family badge, and at the base, beautifully carved in solid marble, is the Order of the Bath, supported by a Chinese mandarin, habited, and holding a scroll; and on the other side a Scinde soldier, habited and equipped, and in his hand a Scinde firelock. The following is a copy of the inscription:—"Sacred to the memory of Lieutenant-General the Right Hon. Sir Henry Pottinger, Bart., Knight Grand Cross of the Most Honorable Order of the Bath, and one of her Majesty's most Honourable Privy Council, late Minister Plenipotentiary and Ambassador Extraordinary to the Emperor of China, Governor and Commander-in-Chief of the colony of the Cape of Good Hope, and Governor and Commander-in-Chief of the Presidency of Madras, in the East Indies, &c. Born at Mount Pottinger, county Down, Ireland, on Christmas-day, 1789, and died at Malta, on the 18th of March, 1856, aged 67 years. During his active career of 53 years, from Midshipman to General, he filled many of the most prominent offices under the Crown, with distinguished advantage to his country and great credit to himself; and his unbending integrity, high sense of honor, and generosity of character and disposition, secured him the unbounded respect and esteem of all with whom he became associated in the public and private relations of life. On concluding his successful treaty with China, in the year 1842, he was destined for the Peerage by her gracious Majesty Queen Victoria I., but lost this high distinction through the same hostile influence which was exerted in vain to prevent Parliament rewarding his eminent services to the State. This memorial is placed here by his only surviving brother, William, A.D. 1861."

The Gurney Memorial.—Yesterday afternoon, in the Broadway at Stafford, were opened for the public use a set of drinking fountains, which, together with a handsome obelisk, have recently been erected in memory of the late Mr. Samuel Gurney. The memorial consists of a beautifully proportioned obelisk in grey granite, forty feet in height, executed by the Cheesewring Granite Company, from the designs of Mr. John Bell, the eminent sculptor. On two sides of the base are drinking fountains—the water flowing from boldly-sculptured groups of water lilies in white marble; and on a polished slab forming the front of the base is the following inscription in gold:—

In remembrance of
SAMUEL GURNEY,
Who died the 5th day of June, 1856,
Erected by his fellow-parishoners and friends.
"When the ear heard him, then it blessed him."

Four very handsome lamps, erected by Mr Casselton, of Stratford, stand at the corners of the structure. The height of the obelisk is forty feet, and it contains about sixty-five tons of granite.

The foundation stone of a new Presbyterian church was recently laid at York-street, Kingstown, by Charles Hopes, Esq., of Merrion-avenue Blackrock, Elder of the Church, and its oldest member, who was presented with a silver trowel as a memento of the occasion. The site is nearly opposite to that on which the old church stood, and has been obtained from Lords Longford and De Vesci, in the only place about Kingstown where it could be had in perpetuity. There is a frontage of 160 feet, and the depth is about 200 feet, so that room has been left for a manse, which may be erected at a future period. The estimated expense of building amounts to nearly £5,000. The new church will be a Gothic structure with a fine spire. The building will be completed in about a year, and will afford greatly increased accommodation. Mr. Cockburn of Great Brunswick-street, is the architect and builder.

A Work of Art.—There is now at Messrs. Pictor and Son's yard (Box, Chippenham, Wilts) evidence of the benefit to Art derived from the ever-memorable Exhibition of 1851. A cemetery memorial was sent from Southampton by a young man then comparatively unknown to fame. The *Daily News* wrote a most flattering report of the monument, placing great emphasis upon the various points which the exhibitor had endeavoured to illustrate, and the memorial was, by permission of the artist, subsequently engraved in the *Illustrated News*. A lady of Madrid, in turning over the *Illustrated News* volume some time since, happened to have her attention arrested by the engraving in question, and, instead of employing Spanish talent to carry out the design on a large scale she at once communicated with the artist from whose brain the original idea emanated, ordering him to execute a memorial nearly 20 feet in height. The work is in course of execution, and will be one of the finest examples of mediæval architecture. The plan of the base is triangular; the sub-plinth is richly moulded, and the step immediately above it has in the centre the monogram of "V.B.L.," on either side of which, in circles, is carved a chaste arrangement of the ivy leaf. At each angle will stand figures of Faith, Hope, and Charity, nearly life-size. The corbels on which they are to placed are exquisitely finished and designed. The tendrils of the vine corbels are delicately carved, and the other corbels exhibit some artistic arrangements of the rose and lily. Between the niches, which are to receive the groups of statuary, are arched-shaped spaces for the reception of statuary-slabs for inscriptions, and running round is an ornamental moulding of ball flower and foliated ornament. Springing from six angels, exquisitely carved, carrying shields, ribbons, &c., starts an ogee hexagonal shaped dome, richly crocketted and tiled, terminating at the apex with a calvary cross, around and from the arms of which depend a celestial crown. It is not expected that the work, of which we have given a faint description, will be in a complete state, fit for exhibition, until at least a month hence. The gentleman to whom the execution of this monument is entrusted is Mr. Baker, of Park Street, Camberwell, London. He has placed the masonry work in the hands of Messrs. Pictor and Sons, of Box, whose superintendent, Mr. Gardiner, has most ably carried out, *con amore*, all the details appertaining to his department. We may add that the stone has been selected from the best that Messrs. Pictors' quarries can produce, which is a sufficient guarantee for its quality, soundness, and durability.—*Bath Chronicle*.

Genius and Art.—More knowledge is now necessary to cause a man to be considered a painter than our fathers dreamed of before the Art-treasures of the Continent were open to our study. In America, a man rises to fame and fortune presently if he can give on canvas a lively representation of the woods or prairies which surround him, or the daily life which passes before his eyes; and not only does he think and say that Europe can teach him nothing, but his patrons are too apt to be of the same opinion. So were many people in England when Dr. Walcot (Peter Pindar) brought Opie up from a Cornish cottage, and exhibited him in London as a heaven-born genius. Opie had the sense to perceive, in course of time, the importance of study; but the want of it kept him below his capacity as a painter, and spoiled him in a way which could scarcely happen again.—*Miss Harriet Martineau, in Once a Week*.

A New Clock for the Great Exhibition.—The Commissioners of the exhibition of 1862 have given directions to Mr. Benson, of Ludgate Hill for the construction of a clock, to be fixed in the building now in progress of erection at South Kensington. The clock will be second in size only to the great Westminster clock. The dial is to be from 15 to 20 feet in diameter, and will be placed immediately over the centre arch of the grand entrance in Cromwell-road. The movement will measure at the base 12 feet by 8, or nearly 100 square feet, and will be about 25 feet in height. It will chime the quarters on four bells, and strike on a fifth, weighing about 45 cwt. The whole will be inclosed in a glass case, and as no cost or pains will be spared in its construction, it will, when completed as at present designed, form a very attractive object, in every respect worthy of the building "in which it will be located, and of the reputation its manufacturer has earned for himself."

Minerals.—The value of the minerals raised in the United Kingdom during the year 1860 was £26,404,459, against £24,226,526 in the preceding year—increase £2,177,933. The value of the tin, copper, lead, silver, zinc, pig iron manufactured from the ores of these metals raised during the period was £16,939,717, against £15,447,086 in 1859—increase, £1,492,661.

Perfection of Art in Watch Manufactures.—"The stranger in London cannot fail to be struck with the magnificent establishments of goldsmiths with which the City abounds. Such displays as are presented to the eye are rarely to be met with in any other city in the world; indeed, whole fortunes are concentrated in their windows. Foremost among such establishments is that of Mr. Benson, 33 and 34, Ludgate Hill, and 46 and 47, Cornhill, which may truly be called the Home of Art. Everything exhibits the most perfect taste; and, while the beautiful is thus cherished, the useful is always carefully studied. Mr. Benson has gained a high position for the superior manufacture and artistic designs of his watches especially"—*City Press*.

Benson's Illustrated Pamphlet, post free for two stamps, is descriptive of every construction of watch now made. Watches safe by post to all parts of the globe.

Cartes-de-Visite.—The following is an extract from an extremely interesting and well-written article in the current number of that beautiful serial, *The Art Journal*:—"It seems but the other day that photography itself first appeared amongst us, sent as on a fresh sunbeam, and took its place with the most recent of the arts; and now we see several distinct classes of photographs, to each of which may be assigned the rank of an independent branch of photography. These *cartes-de-visite* in themselves constitute what we may even entitle an art. They multiply national portrait galleries *ad infinitum*. They produce the family portraits of the entire community. They form portrait collections on a miniature scale, but with an unlimited range, and in every possible variety—family collections, collections of the portraits of friends, and of celebrities of every rank and order, both foreign and of our own country. Nobody now needs to enquire what such-or-such a person may be like, or to be left to such surmises as written descriptions may convey of features and figures that cannot be actually seen. An ubiquitous *carte-de-visite* can always find its way with certainty and speed, and it is the best of all possible introductions, as it is the most agreeable of reminiscences. When our friends leave us, they leave with us these precious images which we can always and everywhere carry about with us, to feast our bodily eyes with their graphic representations, as memory is able to treasure up and to pass in mental review incidents that the past has taken with it, and words whose echoes have long ago died away. And when fresh connections are formed, or when new links are added to old chains, the ever-available *carte de-visite* is ready to make known to us here at home, in *propria persona*, a far-away new daughter-in-law, or the number one (or the number whatever you please) of another generation. We now look with commingled surprise and scorn at the painful efforts at family portraiture that preceded the photographic era, and which resulted in either pallid libels, brush-produced upon ivory, or black paper reductions of shadows in profile, cut out with scissors, and closely allied to architectural sections. These black paper enormities admonish us that but a single step intervened between that first tracing of a much loved shadow on the wall at Corinth, and the almost breathing and sentient portrait of the *carte-de-visite*. And let us be duly grateful to him; the same sun that inspired the Greeks with the happy thought of fixing a shadow, now gives us our perfect portraits—portraits that would have turned the very brain of Apelles himself, and which in common justice we ought to have called, not photo but heliographs. And not only in the case of black profiles and feeble miniature "likenesses" does the *carte-de-visite* at once effect the most marvellous of revolutions in collections of family portraits, but also in comparison with the highest orders of miniature pictures the little sun-portraits are well able to maintain their reputation. Thorburn gave up his miniatures just at the right time, as if influenced by a prescient impulse that an artist more potent than even himself would soon be at work, executing first-class miniatures for the million, and reproducing them with a corresponding ease and rapidity. Elaborately painted miniatures now are artistic curiosities, few in their numbers, and rather calculated to associate the present with the past, than to convey ideas in conformity with the spirit of an age that looks forward with so ardent a gaze. Very beautiful little objects are those miniature paintings, when they are really the work of true artists, and they always will be regarded with a loving admiration; but reversing the process that acclimatises plants, they have grown into exotics, while the *cartes-de-visite* are favourites that find a congenial soil in every spot and flourish in every region, multiplying their numbers daily by tens of thousands."

A New Diving Dress. An unsuccessful attempt was made in 1859 to substitute scientific machinery for the simple mode of operation of the native diver. A complete diving-dress and apparatus were brought from San Francisco by a party of Americans, none of whom, however, had much practical experience of such an undertaking. It was hoped that the "scientific" adventurer, safe in his metal helmet and garments of gutta-percha, would be able to ransack those unexplored banks which lie at such a depth as to render them unaccessible to the Indian. The first and only attempt that was ever made to realise this idea broke down in the most signal manner. The most courageous of the party, who had volunteered to make the first descent, no sooner reached the bottom than he made frantic signals to be drawn up again. The instant he was restored to the upper world and taken out of his unwieldy case, he declared, with considerable warmth, that he would never again consent to be the victim of the speculative tendencies of his Yankee fellow-citizens. Unlike the rash diver of whom Schiller had sung, he ever afterwards adhered to his resolution, and nothing could induce him to make a second attempt to penetrate the "secret of the sea." As may be imagined, the discomfiture of the foreign innovators caused general satisfaction amongst the followers of the old traditions of the Buceo.—*St. James's Magazine*.

A link of communication between the important towns of Carrickmacross, Bailieborough, Shercock and Kingscourt, and their seaport, Dundalk, has long been felt to be wanting, and the proposed junction line between Carrickmacross and the Dundalk and Enniskillen Railway, completely fills up the gap.

The Dublin Builder.

Vol. III.—No. 45.

THE OPENING OF THE SESSION.

AS usual there is "a bustle" throughout the kingdom, consequent on the opening of the respective scientific, artistic, and professional institutes, and promises of a vigorous campaign are already apparent. For the initiative in this, as well as in almost every other regard, we must look to the emporium of the world—London—and there, the Architectural Association has had its opening meeting and *conversazione*, and the Royal Institute of British Architects will hold *its* meeting on the evening of the 4th inst., Mr. Tite, President, occupying the chair, and delivering inaugural address; Mr. Scott, R.A., the eminent mediæval architect, is afterwards to read a paper on "the conservation of ancient architectural monuments and remains." The president (Mr. A. W. Blomfield, M.A.) of the association delivered an inaugural address, in the course of which, after referring to the numerous perils and vicissitudes through which the association had passed, he glanced at the forthcoming Great Exhibition, remarking that it cannot fail (if time be used properly) to produce a good effect in developing what he apprehended to be the great end and object of the association, viz:—"Mutual assistance and improvement in prosecuting the study of architecture as an art," and referring to the proposed "diploma," proceeded in the following terms:—

"The subject has naturally excited much interest amongst ourselves, more especially as I believe it was by the association that such a proposal was first started. Many (I believe I may say a large majority) confidently foretell that such an examination, when fairly set going, will have the effect of raising the standard of the profession, and of excluding ignorant and incompetent persons from practising as architects. This result is no doubt much to be desired; but as I have already publicly expressed my opinion, with the reasons for that opinion, and found myself in a small minority, I will not enter on the subject now. I cannot help noticing, however, that in the course of the various discussions which I have read and heard, several theories have been alluded to as acknowledged truths which have struck me with extreme surprise. For instance, I have heard it casually stated, as a matter of course, at one of these discussions, "That a young architect should study every style, in order to be ready to meet the possible wishes of his client." Now, of course, in pronouncing this theory to be simply monstrous, I have no wish to set a limit (especially in this direction) to the study of all that is great and good in art of every period and every clime, but the idea of attempting to carry out the theory of practising every known style, to me, I must confess, suggests nothing so vividly as the conjuror's inexhaustible bottle, which is always ready with a modicum (and that sufficiently bad, be it remembered) of any liquor that may be asked for. The counter theory is that a man must be full of one style, just as a bottle must be full of one wine to give it really good."

After a comprehensive review of various other topics of interest, the president read a letter from Mr. G. G. Scott, architect, from which we extract the following:—

"I cannot help thinking that yours, as a junior society, has the means of doing fully as much good as the senior institution, and that without in any degree clashing with it; for there is no reason (but the reverse) why many of your members should not be Associates or Fellows of the Institute. You have, however, in your own society more ample means of actual and practical self-improvement than we have; and as ours is an art, the education to which ought never to stop, and which needs continual rubbing up to prevent retrogression, I think the society which does most to promote what may be called the self-education of its members, is the one most practically useful; nor do I think this one jot more needed by or appropriate to young architects, than those more advanced in age and practice. We all need it equally, for, as I said before, our education should be constant and irrespective of age, but it is the good fortune of younger men to have fewer hindrances to it, and to have minds more fresh and more susceptible of it, so that they should 'strike while the iron is hot,' 'make hay while the sun shines,' and work themselves up to the highest degree of perfection and artistic skill they can, while opportunities and susceptibilities are favorable. It would do us all good, if we could be put through a course of elementary art of one kind or another every year, just as soldiers have to do with their drill. We old fellows cannot do so, and are, therefore, in danger of retrogression. Younger men, in some form or another, can do so; and such a society as yours might greatly facilitate it. I do not think the oldest and most established members of your society should think it beneath them to practise together at stated period, those branches of drawing, modelling, &c., &c., which tend to make a man a true artist, not in the sense of being a landscape painter or skilful representer of buildings (useful as these accomplishments are), but rather those kinds of art which make a man a skilful architect in the highest sense—*e.g.*, the drawing and designing of sculpture ornament; of figures as used in architecture and as combined with architectural ornament, of animal life (both natural and imaginary) as used in the same way; the drawing and designing of painted decorations, with and without figures and animals; the designing of mosaic work, pavements, and inlaying; the designing of metal-work in manners suited to the different metals and differing modes of treating them; and lastly, modelling, and the actual execution of any of these works."

The president then concluded his highly valuable address, for which he received with acclamation the thanks of the meeting in these terms—

"Fourteen or fifteen years ago, when Mr. Ruskin wrote that beautiful simile of the Mountain Ridge, the culminating point of Gothic art, up to which all had been progress and after which all was decline, he expressed a doubt whether the stir he saw going on was a real awakening or only a movement among dry bones. Since that day, something more tangible has been done, his call has been answered by some at least. A band earnest, if small, and though small, ever increasing, have girded themselves for the work, and are again pressing steadily onwards. After the long night in the trampled plain, they are again climbing the mountain side; the mists are rising, they see clearly before them the point where the travellers of another day began to descend, and to their upward gaze a new morning is already gilding the summits of more distant and more glorious heights. Their paths may not be, cannot yet be, identical; but though they work apart now, if all have the common end of truth in view, then just as the different schools of architecture in France, isolated but working for one common end, ultimately united to produce the matchless buildings of the 18th century, so the true workers of to-day, or rather perhaps their successors of a future generation, must at length meet in a more glorious noon of art than the world has ever yet seen. Meanwhile, let us each and all endeavour to take our part honestly and earnestly in the onward movement, jealously guarding each upward step, but careful that each step be upward; and above all, let our march be temperate without extravagant sallies, or attempted short-cuts, for we have no valley of rest before us, no halting-place half mountain high; no, nor even the old ridge of the lowlier pass; what we seek must be the snowy peaks and the cloudless mountain top, and as in life so in art, our watchword must be 'Excelsior!'"

In the provinces, Liverpool usually foremost, has been forestalled by its Glasgow brethren, though we doubt not that the former will speedily be in the field, and the Architectural Society of the latter city held its opening meeting last week with some attendant *eclat*. The "Sussex" and the "Yorkshire and Lincolnshire" societies have also commenced their labours, the Archbishop of York presiding at the latter, and delivering the following trite remarks:—

"He had always felt the value of this institution, and the great and important benefits it had conferred on the Church and on architecture in general. Certainly when one looked back on what was the tone of Church architecture twenty-five or thirty years ago, when it had reached so low a level, it was through the medium of these societies that that tone had been raised, and at present they had nearly obtained that level and state in architectural building which was reached in earlier days. Even in the life of present architects, he had known an instance in which, on the architect being reminded of a certain church he had built, he said, "Is it possible I could have been the author of such a monstrosity as that!" The architect of the parish church at Leeds—grand as that is—was perfectly conscious of many defects in it, and these defects would have been remedied had he built it ten years later. Certainly it was most remarkable that there should have been such a debasement and degradation in taste, considering the magnificent and splendid models our architects have. On taking one of the bishops of the American church to Fountain's Abbey, he expressed his delight at seeing these monuments of past times, and asked if these were the products of the dark ages, could the present age produce anything like it? It appeared at present that all they had to do was to copy models, form their own taste upon them, endeavour to appreciate them, as well as to manifest that excellent appreciation of beauty, in proportion and in point of grandeur, which had distinguished others."

It is refreshing to see the "ecclesiastic" and "the layman" uniting in the furtherance of so noble a cause.

MR ALLAN POLLOK AS A *FARMER* AND AN *ENGINEER*.

Some of the gigantic steadings erected by this enterprising Scotch agriculturalist on his vast territory in the west of Ireland, have been fully described in previous numbers of this journal, but as our contemporary, the *Agricultural Review* in a comprehensive sketch, brings to light much additional interesting matter respecting the general farming and engineering operations carried on under same auspices, we give the following therefrom :—

"We take Mr. Pollok's *farming* then his *engineering*,* and his doings as a landlord, just as we find them—the same as we might do with any other unfinished operations. No one of any powers of observation can survey Mr. Pollok's works without being interested, amazed, and interested. Difficulties which would have paralysed the energies of almost any other man have been smoothed down; obstacles which would have appalled most men he has walked over with easy step; and now harmony reigns where confusion seemed but lately to be safe in perpetual dominion. We can conceive of no better example of this kind of overpowering confusion than that presented by a large estate just vacated by its numerous tenantry. Hundreds of houses in all stages of ruin; garden walls, field fences, march ditches and dykes; stock yards choked with docks and nettles; swamps undrained, or worse, badly drained; *skulls* of land exhausted of whatever fertility they ever possessed in the hands of hopeless tenants-at-will; roads, worse to be dealt with than no roads all; cairns of stones, and gravel pits; bogs unevenly cut, and fields laid out in defiance of rule and measure. Farms— ay, townlands, and even parishes, in this state, presented no very inviting job for the engineer who was to lay all out in a few symmetrical fields, every inch yielding the highest rate of produce. The engineering has been done; and now the plough, in turning over one furrow, may traverse several townlands in which no mark of home or hearth of man is to be seen, any more than if the furrow were that of a ship on its way in the ocean. Preparatory to the laying out of the land for such an exhibition, much had to be done besides squaring fields and consolidating farms. The land had to be drained, and this on so large a scale that it became a matter of expedition and economy to set up large tile factories on the estate. Thousands of acres have been thus drained, and the climate itself improved by the superabundant moisture of the soil being allowed to escape by underground channels to the sea, instead of rising in vapour from the surface. The eye that saw the necessity for tile-factories and brick-yards saw also that other extensive manufactories must be established; and thus some of the more immediate relations of agriculture to commerce and manufacturing industry are exemplified, without leaving the one estate in the westmost county in Connaught; extensive forges, carpenters' shops, mills, gas works, and a number of other and kindred establishments which are usually to be found only in considerable towns, soon sprang into being there; and, at an early period in the progress of remodelling the estate, the monthly wages bill amounted to £4,000. Thus the carts, ploughs, harrows, gates, and all other implements and machines required in carrying out the most advanced system of farming, are made and kept in repair on the estate. Twelves farms have now been provided with building, some of these farms being on a scale requiring byre accommodation for 700 head of cattle, besides stabling for the complement of horses. These buildings, as might be expected from the manner in which everything is gone about, are finished in the most commodious and convenient manner; not only supplied in every part by pipes with water from cisterns, but lit with gas. The farm of Ganavieen is 4,000 acres in extent; and the steading thereon is unequalled by anything in the country. The inside of the cow-shed measures 210 by 168 feet, and is set off in parallel sections, with the animals facing each other in the opposite rows. The feeding is supplied from the alleys in front, and the manure removed, and bedding supplied by means of a passage three feet wide, behind the stands. The cows are chained to upright posts, and the food placed in vitrified fireclay troughs. The polled cattle and plough bullocks are fed in loose boxes, and the younger description of stock kept in an open shed, the roof of which is supported by upright metal pillars against the inside of the court-yard wall. The stables occupy a separate department of the covered structure, and stalls, loose boxes, harness-rooms &c., for thirty-six horses are provided. This is furnished with a registered corn feeding meter, from which a definite quantity of grain can be taken for each, and the daily consumption is easily ascertained by means of a hand or indicator easily checked. The barn is situated in the centre of the building, with the machinery on the left. The straw and chaff rooms are on the ground floor, from which straw for bedding, and chaff for mixing with other feeding materials, can be readily removed as required. The mill wheel, turned by water, not only threshes the grain, shakes the straw, lifts the corn by means of elevators to the granary overhead, where proper machinery is at work for winnowing, packing and weighing it, till ready for delivery to the mill, but the power is also made available for crushing bones, beans, and oilcake, cutting hay, straw, and chaff, slicing mangels, turnips, and potatoes, cleaning grass and other agricultural seeds, and many other uses, which largely economises manual labor. A shed, 14 feet in width, along the outer wall, is apportioned for implements, cart-shed, tool-house, artificial manure depot, &c.; and between this and the main building is a vacant space of 27 feet in breadth for the ordinary purposes of traffic. The manure pit is situated in the centre of an open yard, to the rere of the cow-shed, and a large tank, lined with cement, is attached, for the reception of the urine, the contents of which are incorporated with the dung, previous to application, or pumped upon a huge heap of bog mould, intended for top-dressing, or more frequently as manure for cabbages. The haggard is situated on a raised surface, on a level with the threshing department of the barn, and contains the produce of 250 acres of corn, in addition to several hundred tons of hay. Both these are made up in ricks 70 yards in length by 4 in breadth, and supported by means of metal stands, connected by means of malleable iron bars. The wheat, oats, and barley are built in consecutive links, suited to the dimensions of the barn. If there be among our readers any having the capital, the enterprise, and the skill requisite to meet the landlord's views, they may be looking forward to a location on the Lismany estates."

THE DUBLIN WATERWORKS.

We were amongst the best wishers for the project for an improved supply of water to this city, to be finally and satisfactorily developed, —which it may be assumed now is in the fair way of being attained, thanks to the amazing ability and energy of Dr. Gray chiefly, who, almost singlehanded, fought a host of assailants in a series of pitched battles, and finally vanquished all — but really, now that all that was desired has been attained, it seems a pity that "a split in the camp" of the opponents, and consequent personal invective should be permitted to occupy so much space in the columns of some of our contemporaries, which might be devoted to much more generally interesting matter. The further after discussion of the waterworks proceedings—opposition or otherwise—must be surely regarded as "a bore," except by the former conclave, some of whose members now seem to display about as much *animus acerbus* as did the fabled Kilkenny feline warriors.

THE GRAFTON-ST. CASUALTY—KEMPSTON'S HOUSE.

Still harping on this truly worn out question, we are obliged to record, that an application will be made in a day or two in the Common Pleas on the part of defendant (Butler) to amend defence, with the view, we believe, of making it more conclusive so as to prevent further litigation. Mr. MacDonagh, Q.C., M.P., will appear for defendant, and Sergeant Armstrong, with other council, for the plaintiff (Kempston). The protracted character of this case, the several trials, motions, &c., &c., by which such costs were involved and lodged in the pockets of the long robe gentlemen as would have built the house over and over again, suggests to mind the old saying that it is "an ill wind that blows nobody good."

We had previously announced that the house in College-green belonging to Mrs. Hayes, stationer, had been taken by the Ulster Banking Company for a branch office, and it is now about being adapted to that purpose, according to plans by Mr. Murray, architect. The front will be tastefully finished and capped by a balustraded parapet. Mr. James Freeman is the contractor.

The Roman Catholic church for some time in course of erection at the North Dublin Union Workhouse is nearly completed. It is a mere parallelogram on plan—some 70 feet by 80 feet in clear, and 16 feet high to wall plate—and adjoins the dining-hall. Mr. Wm. D'Esterre Smith was the architect; Mr. James Freeman, the builder.

The new Roman Catholic church of Killyleagh, which is said to be an edifice of great architectural beauty, was opened on the 20th ultimo.

A new residence for a minister is to be erected in connection with the Independent Church at Sligo. Tenders will be received up to 1st December.

The new Catholic church of Castleblaney, for some time in course of erection, has been dedicated.

An anatomical school is to be added to the Queen's College, Belfast, and tenders are being sought up to 18th inst. for a building suitable for same, and according to plans prepared at the office of Public Works.

A Catholic church has recently been built at Lavey, in the diocese of Kilmore. It was opened for divine worship last Sunday week.

Mr. Hemans, C.E., has been inspecting the course for a proposed line between Bundoran and Sligo, and reports that it might be cheaply constructed, and, moreover, that the Midland Company would thoroughly approve of the undertaking.

A washing establishment is to be constructed at the Curragh Camp.

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* Our contemporary omits—we are sure through inadvertence—that in the engineering operations Mr. Pollok was ably assisted by Mr. William Maxwell, Agricultural Engineer, Ballinasloe.

THE *BUILDING NEWS* AND THE DUBLIN EXHIBITION.

Our able London contemporary has paid this city—we believe—a first visit, and judging from the tone of two descriptive articles in the publications for 18th and 25th ult. respectively, has acquired rather good impressions thereof and of the inhabitants likewise. We wish journalists generally, who wield that most potent of all sceptres, "the pen," and who are often apt, on mere hearsay, to condemn everything "Irish"—because it *is* so—would more frequently come and judge for themselves, and the result would ultimately be the total annihilation of that prejudice and rancorous spirit, of which even still—though happily much less than heretofore—a spark that only requires in certain quarters to be fanned into a flame, exists. The contemporary in question has been recently the subject of a special notice in these columns; pursuing its mission, an independent and comprehensive course of action has always distinguished it; we admire the ability of its conductors, and instead of regarding an enquiring visit with that invidiousness which narrow-minded people would attribute, where the character of avocations is identical, we hail with much pleasure the likelihood of a more intimate acquaintanceship arising therefrom.

The following is collected from the articles in question:—

"With a prospective view to the second great example of this species which will gladden our eyes at Kensington next year, and like the electric light, put out the glare of all lesser stars; it may be worth while to glance at the contents of the 'Exhibition of the Fine Arts and Ornamental Art,' held in the New Hall of the Royal Dublin Society. It is somewhat remarkable, however, that the word 'industry' or 'industrial art' does not occur in the above description, nor does any expression equivalent to 'art manufacture,' lead one to suppose that the simply useful, and often humble, articles exhibited would find a place amongst the purely 'ornamental art' of the Exhibition; but this is corrected in the contents of the catalogue itself. The building in which all this refreshing quantity of art is collected is somewhat of a temporary nature, and is erected in the Royal Dublin Society's grounds fronting Kildare street, being intended chiefly for periodical agricultural exhibitions. Of the building itself we wish to say as little as possible, only our readers should not confound it with the building of the 'Great Dargan Exhibition,' as it is called, of 1853, which stood also upon the Society's grounds (but upon that part fronting Merrion-square), and which is no longer in being. We are glad to observe, however, two buildings growing up on the site, resulting, perhaps, from the good seed sown there; the one, now nearly complete, being a museum of natural history and mechanical science combined, and the other intended to be devoted entirely to the fine arts. A fine open space still remains for a noble connecting central building, which we hope will one day shut out the dreary front of the house which the Royal Dublin Society inhabits, but which derives no small amount of honor and respect from the celebrated names and worthy deeds connected with the history of its walls.

"On her Majesty's birthday (24th May) the Exhibition was opened, and seems to have gone on prospering ever since, and will we trust have, as the Council expect, considerable influence for good on the general taste of the public, which, to judge at least from the selection of pictures, made by the prizeholders of the Dublin Art Union* (we believe), and exhibited on screens in the Central Hall, would be highly desirable.

"It is curious to notice the result of a small body of the public taken at random—such as art-union prizeholders—being called upon unexpectedly to exercise their choice in various degrees: some, to a small extent, with a fair amount of judgment; others, for a large prize, failing to show the least shadow of artistic common sense. We should be glad to feel that these annual tests prove satisfactorily a steady advance in public taste, but this time alone can show—though every effort towards bringing about this desirable result should be heartily encouraged.

"The Central Hall of the Exhibition is devoted to the usual groups of statuary in marble and plaster, fountains in metal and glass, intermixed with manufacturers' cases of specialities, such as linens, lacework, and embroidery, jewellery and bog-oak carvings, with metal castings, household furniture, &c. As might be expected, the usual organ at the end is not omitted, and this one was built for, and gained a medal at, the Paris Exhibition, much to the credit of Messrs. Bevington, who appear to have afforded great gratification to immense numbers by their combination of 'double diapasons,' 'swell manuals,' 'claribels,' and 'tremulants.' Carpets and hangings occupy the side walls and galleries; while small flags and decorations generally complete the *touts ensemble* of an 'exposition.' In the side 'courts' on the left is to be found a tolerable collection of modern pictures to the number of about four hundred, besides about the same number of water colors, miniatures, and crayons; while on the right, a long gallery extending as far as these two modern courts together—in fact, the whole length of the building (some 230 feet)—contains a collection of over five hundred examples of the old masters.

"In addition to these we notice, in one of the galleries upstairs, what is to us a special source of attraction, of course—a series of architectural drawings, and also some monumental carvings and tablets from the hands of artists well known and appreciated in our Conduit-street exhibitions.

"The catalogue in most respects seems a careful production, and contains valuable but brief notices of all the artists and their productions, which appear in the gallery devoted to the ancient schools—but very properly not of those of the modern school. Yet why, when such careful distinction is made, such curiously arbitrary classification should be allowed as appears in a few instances, we cannot imagine. For example, Turner may perhaps for practical purposes, and if desirable in any special arrangement of ancient masters (as in juxtaposition with Claude in our National Gallery), be considered an ancient master for the nonce; but why the name of Danby, or how Mr. David Roberts should come under this designation, we cannot discover; especially when Etty, and Wilkie, to say nothing of a host of others long since departed, appear in the list of modern artists, and as such have no biographical account given of their lives and works. To be sure a sort of apology is appended in a note, which says—'As their pictures occur in the same saloon (as those of the ancient masters), it has been thought better not to admit them here.' Of course not admit them, but why not hang them in their proper position? It seems curious to read amongst the R's—Raffaelle, Rembrant, Reynolds, *Roberts*, Romano, Rubens, or Cuyp, *Danby*, Dolci higher up in the alphabet. The name of Wilkie occurs in both lists, so that like some animal of doubtful gender, or some sponge or other debatable substance which naturalists differ as to its classification with animals or vegetables—Wilkie seems to be considered a sort of connecting link between the two schools of ancient and modern art, by being at once a member of both! Again, what becomes of the completeness of a gallery of modern paintings, where Holman Hunt, Millais, Wallis, and other disciples of pre-Raffaelliteism are unrepresented?

"The architectural drawings, which number only from 30 to 40 frames, range from 266 to 338 in the catalogue, apparently without any cause, and are placed on the line of sight or on the floor,* as it happens. It is true that the collection on the whole is but a poor one, and composed almost exclusively of competition drawings, and 'projects' for various churches and convents in Dublin and elsewhere in Ireland. As such they have probably been pretty well seen and criticised before, but still, being admitted, they surely deserved to be more carefully treated, and if the number tickets had dropped off the frames a very little trouble would restore them, so that the catalogue might not be quite useless for the want of any reference figure at all. Notwithstanding these strictures, however, it must be confessed that the catalogue is on the whole well arranged and generally correct.

"Amongst the best designs exhibited in this department of architectural drawings, we may notice a series bearing the well-known name of Pugin—now Pugin and Ashlin—some of which have been engraved. The suggestion of a new Roman Cathedral and Augustinian Monastery at Dublin seems to have furnished an opportunity to Messrs. Pugin to produce some fine drawings, as also their design now being carried out at Cork (we believe for the church of St. Peter and St. Paul), and a church at Maynooth, to be dedicated to St. Patrick. We doubt if we shall admire the roof of this church at Cork, as shown in the drawings. In this respect, at least, we think we should prefer the design No. 272, by Mr. S. J. Nicholl, of 126, Marylebone-road—also a competition drawing, and one which, being exhibited in Conduit-street if we recollect right, gained the first silver medal of the Society for the Encouragement of the Fine Arts last year. Mr. Nicholl also exhibits photographs of a chapel at Kensal-green, and, in conjunction with Mr. Wilson, a chapel at Leyton, in Essex. Several designs are grouped together under the well-known name of Mr. Goldie, and amongst them (No, 327) a beautiful drawing of the church of SS. Peter and Paul, at Phibsborough, Dublin, which we published in our impression of 6th September last. The general grouping of the various features of the apse and transepts around the base of the tower, which itself is designed with a great deal of feeling, is really very picturesque. The plan of this church is also very cleverly adapted to the site. The design of a church (again to be dedicated to SS. Peter and Paul, who seem to be in luck's way just now), at Berne, we think hardly so good, although it seems to have gained a gold medal somewhere in 1856.

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* It may not be amiss for us to interpose in correction, "the Art-Union of Ireland" and "the Shilling Art-Union of Dublin" respectively, not as above stated, which was a separate institution, when in existence.—Ed.

* Our readers will remember our taking exception, in one of our notices of the Exhibition, at the palpably disadvantageous manner in which some of the best of the architectural drawings were placed.—Ed.

"Designs for St. Andrew's new church at Dublin are exhibited by Mr. Carroll of that city, Mr. Atkins of Cork, and Mr. Lynn of Belfast; the latter, however, seems to be the favored one, as it is marked 'first in order of merit,' but none of them appear much above common-place. There is a peculiar open aisle or arcaded screen, however, with flying buttresses from it to the covered aisle, which we could hardly understand from Mr. Lynn's drawing, and which drawing, by the way, is somewhat 'shady' in its details, and seems got up rather too much with a view to 'effect' upon a committee. Mr. Geoghegan exhibits his new method of shoring-up walls, as used in the reconstruction of the Royal Bank, Foster-place, and published by a contemporary. No. 328—design for a railway hotel—is a poor sketch, even for a student; but the drawing marked No. 267—design for pedestal to the Moore Testimonial—and others in the same frame, are *simply frightful*, and ought never to have been exhibited at all.

"Before we quite dismiss the architectural drawings, we must refer to a sketch in the Water Color Gallery, professing to show Captain Fowke's design for the Irish National Gallery. Surely nothing more is wanting to urge the Dublin public to protest as heartily against this suggested 'job' as the general public here protested against Captain Fowke's meddling with our buildings in Trafalgar-square. The extent of the architectural ability of this favored son of fortune is pretty evident to all of us now, and will be evident to all the world when they come to visit us at Kensington next year. If we mistake not, the hanging of this design for the Irish National Gallery will effectually prevent its ever being carried into execution.

"Mr. Carroll, a Dublin architect, exhibits (No. 350), two architectural models, but they are placed far away from his drawings of the buildings to which they refer. The practice of showing models is one which should by all means be encouraged. Connected with our present subject, we notice a mural monument to the Rev. Geo. P. Brown, designed by Mr. Goldie and executed by H. Lane (we presume of Dublin)—No. 58. There is a great deal of novelty in the arrangement of details. Messrs. J. Hardman and Co. exhibit groups of figures for architectural ornamentation, but with this we nearly exhaust all that is to be found in the way of architectural carving or decoration in stonework. We cannot but think a great deal more might have been shown, especially when we note the name of Deane on the general committee, and remembering the skilful architectural carving of Irishmen at our Oxford Museum, to say nothing of what may be seen by the same hands in the new buildings, not far from the Kildare-street Exhibition itself, we were led to expect a great deal more in this department of ornamental art. In metal work also, Messrs. Hardman exhibit, and Mr. Skidmore, through his agent, Mr. Mooney; but we are again disappointed to find so little to see.

"Of course large quantities of those Irish specialities, bog-oak carvings and arbutus inlay work, &c., must be expected, worked up into all kinds knicknacs—of useful and useless—but very few of these are above the common run, which one sees in our cheap jewellery shops everywhere—*ad nauseam*; and after all, compared with similar work in Germany and Switzerland, these bog-oak carvings will hardly hold pre-eminence, though still they are quite pretty enough and sufficiently low in price always to command a large sale—in fact, form a really important industry, employing a great number of artistic hands and educating them for greater works of genius. Messrs. Goggin (290), O'Connor (210), and others exhibit these articles. Some very good speciments of wood carving applied to furniture, however, are to be found under Nos. 72 and 59, but we shall be disappointed if Dublin does not send better examples to Kensington next year—works where more idea as well as bolder execution will be found. In furniture generally, within the last few years, we may be said to have considerably advanced, not only in artistic design and execution of cabinet-work, but in textile fabrics and the manner of making up and hanging them. In carpets also, and other floor coverings, though perhaps not so much as in curtains and hangings generally, is this improvement to be found, and some examples of really good patterns are to be seen under the name of Fry and Co. and others in the Central Hall. The names of Minton, Wedgwood, and others are well represented in the Central Hall of the Exhibition. Let us hope the Irish imagination may ally itself to superiority of execution, for the purpose of astonishing ourselves and our neighbours in the forthcoming trial.

"Messrs. Edmundson exhibit a great variety of gaseliers, and one especially which we should like to see more of—a way of setting gas jets round a central bowl, which we fancy must be effective when lighted, and may be made very ornamental when not.

"It is quite refreshing to turn to the numerous cases of India work, and the manufactures of China and Japan, where, even with the wildest drawing and greatest absurdity of form, there is always an artistic element which atones for every fault. Let the makers of papier mache only consider this, and see if a little money expended in obtaining art assistance might not even now avail to help this manufacture out of the very low position which it holds amongst the industry of the country. Of all the great variety of articles exhibited it is of course impossible to speak, and we have gone over the chief points which concern architects and their clients particularly. We are not aware if any special days have been set apart as students' days for sketching, but, if not, we trust some means have been used to make this unusual collection available for special study to the students of the Royal Dublin Society School of Art.

"Glancing at the picture galleries, we may first observe, that while we are glad to see such a numerous collection of works of the old masters, contributed chiefly by Irish proprietors, we cannot help regretting that no attempt is made at chronological or any other arrangement, except the fitting of one frame into another, and so covering up every inch of wall space. The committee very properly guard themselves from being supposed responsible for the names which fond proprietors attach to the frames, but making all due allowance for this, there is food for study to those not quite worn out with picture-seeing at the end of the season. Amongst the 514 pictures exhibited, there are sufficient examples of all the schools to have made a really valuable and instructive series, commencing with Paolo Uccello and Botticelli, ending with Rubens, Ruysdael, and Jordaens, leaving the Kauffmans, Gainsboroughs, and Reynolds, to form the commencement of a modern series. Among the 400 pictures in the Modern Gallery, we are glad to observe some of the foreign schools well represented, especially that of Dusseldorf. There is a charming picture by Mr. Catterson Smith, P.R.H.A., called 'A Portrait,' but is something more—a merry little face inside a guardsman's helmet, and next a big sword. Mr. J. R. Marquis, who gives some charming bits of Irish scenery, shows also some Norwegian landscape. We observe C. Hasenflug has, in No. 82, shown considerable skill in 'catching a sunbeam' and making the most of it. The picture is styled 'Ruins of the Cloisters of Walkenrind.' 'Snow at the entrance, with gleam of winter sunset in the interior,' of a few arches and vaults in a state of green old age and picturesque decay forms a good architectural study. We are not aware whether, after the Exhibition is over, the Sotherby collection will be dispersed or not. At any rate the Dublin Committee is to be congratulated on having temporarily attached it to their other series.

"In concluding our remarks, we wish to observe, that whatever of approval we have ventured to express, or whatever of reproach we have felt compelled to throw upon the exhibition arrangements, or the character of its contents, has been entirely with a view to the advancement of true art, and its proper application to manufactures; so that no one who has the same aim as ourselves will regret if we have hit the mark, and been able to point out errors which in future may be avoided. It is as much in the interest of the forthcoming Exhibition, as we said at the outset, as in the present one that we have thought it our duty occasionally to be severe; but we desire the Royal Dublin Society, and the promoters of the Exhibition of 1861, to believe that *we quite appreciate the noble efforts which they have made, and heartily thank them, in the name of the artistic world, for the valuable collection they have produced.* May the results be such as will bountifully reward their patriotic labors!

This project is now *de facto* a matter of the past, being formally closed on the 31st ult., after an uninterruptedly successful run of five months, during which 190,000 visits were paid to the building, 145,000 of that number being paid for at the door. The financial success of the undertaking may readily be estimated by the following facts, collected from the report read by the assistant-secretary at the closing:—

"The expenses of the exhibition, it is needless to say, have been great, but the receipts also have surpassed expectation, and the committee trust that when the cessation of their labours shall enable them to publish their balance sheet, the Royal Dublin Society will not only retain these galleries and other additions made to this building—which have cost at least £1,500—but will also have a moderate surplus applicable to the useful and national objects of the institution. Taking into account the difficult and uncertain character of the enterprize, the committee feel they have reason to congratulate the Royal Dublin Society and the subscribers to the guarantee fund, whose public spirit alone rendered the undertaking practicable, on so favourable a termination of their labours and anxieties. The pretensions of the exhibition were moderate, challenging no comparison with former displays; it was sought merely to bring together such a collection of works of art as would tend to instruct and elevate the public taste and show the progress which Ireland has made in the Fine Arts and in manufactures connected with them, and at the same time to provide a source of innocent and intellectual enjoyment, the means of which are neither so abundant or accessible in this city of Dublin as the friends of improvement and civilization would desire. In all these respects the committee venture to think the Exhibition has been eminently successful, and the results may well encourage our fellow-citizens in future years to engage in a similar undertaking, with the full confidence and hope of a like prosperous issue."

THE TELEGRAPH CABLE BETWEEN MALTA AND ALEXANDRIA.

In announcing the successful laying, after a delay of more than two years, of this cable, the *Mechanics' Magazine* has the following:—

The electrical portion, or "core," of this cable consists, throughout its whole length, of exactly equal parts, by weight, of conducting and insulating material, every nautical mile being composed of 400 pounds of each substance. The conductor is a strand of seven wires of the purest copper (six wires laid round one wire); and is about four times larger, in sectional area, than the conductor of any previous cable, except that of the International Company from England to the Hague. The insulator is a combination of gutta-percha and Chatterton's compound, pressed firmly round the copper in six alternate coatings, three of compound, and three of gutta percha, the latter being of the highest quality attainable at the period of its construction. The copper strand is also embedded in a layer of compound, in order to produce perfect solidity, and to prevent the possibility of tubular interstices between the conducting and insulating materials.

Having being submerged in the Regent's Canal during three days, in lengths of 2,000 yards, it was tested for insulation by the government electrician, and by others on behalf of the Gutta-Percha Company, in the following manner. The copper or positive pole of the battery was connected to an earth plate, sunk in the canal, and the zinc, or negative pole was attached to one extremity of the silk-covered wire, composing the helix of the galvanometer. The conductor at one end of the coil of core, subjected to the test, was then united to the other extremity of the galvanometer's coil-wire, and the conductor at the further end of the core was carefully insulated; the amount of escape or loss constituting deficient insulation was thus indicated by readings on the dial of the galvanometer, showing the angles of deflection marked by its needle during the passage of the current through it, and every coil that was found to be inferior to an agreed standard was at once rejected.

Besides the test in cold water, as above described, each coil of core was subsequently tested similarly, *three times*, in water of the uniform temperature of 75 degs. Fahrenheit, after twenty-four hours' immersion—firstly, before the application of pressure; next under hydraulic pressure of 600 pounds to the square inch, in Reid's pressure tanks; and thirdly, when the pressure was removed; and it is worthy of note, that, in every instance the insulation was about 15 per cent. higher under pressure than before its application.

The core was finally tested by Messrs. Siemens with their own instruments and battery power. Their plan of testing is founded on the principle that all substances in a greater or lesser degree resist the passage of electricity along them, and it, therefore, consists in a mode of stating the values of insulator and conductor respectively by simple numerical expression of their respective powers of resisting conduction, given in units of an ascertained standard, the standard unit in the present case being the resistance of a column of mercury one metre in length, and one square millimetre sectional area taken at the freezing point of water; the results are obtained by comparison of a known and purposely definite resistance (made up of these units) against the unknown and required resistance. The system is carried into practice by constructing a series of coils of silk-covered wire, capable of being combined or disjoined at pleasure, each coil having a different and progressive resistance to conduction expressible in units. These coils are made use of in connection with the battery and galvanometer arrangement, well-known as "Professor Wheatstone's Bridge."

Each coil of core, immediately after being tested, was again placed in the canal until it could be transferred to the works of Messrs. Glass and Co., and from that time until its final submersion in the sea, the entire cable has been continuously covered with water, except only while passing through the sheathing machines and during its progress out of the works into the paying-out ships. The padding around which the external wires are spirally laid consists of the best Russian hemp saturated with Archangel tar. There are three gradations in the thickness of the external wire, which, in all instances, is of the best bright charcoal iron. The deep-sea portion is surrounded by eighteen wires of the gauge No. 11. In the middle portion, intervening between the deeper water and the shore end, the external wires are twelve in number, and of the gauge No. 5, while in the shoal water, near Malta, Tripoli, Benghazi, and Alexandria respectively, there are twelve wires of No. 3 gauge. The diameter of the core is half-an-inch. That of the completed cable is for the deep-sea portion 7-10ths of an inch, for the middle part 9-10ths of an inch, and for the shore end 1 1-10th inch.

The completed cable, as it has from time to time issued from the sheathing machines of Messrs. Glass, Elliot, and Co., has been the subject of constant and assiduous examination, under the care of M. De Sauty, the chief of their electrical department. The battery power employed to test the completed cable at Greenwich has varied from 144 to 200 cells of Daniell's, and the instruments in use have been the horizontal galvanometer, constructed as already described, and also another form of horizontal galvanometer, in which the needle is suspended by a single fibre. The results obtained by these apparatuses have been from time to time compared with those taken on delicate tangent and differential galvanometers respectively, added to which the unit system of Messrs. Siemen's has also been in operation at Messrs. Glass, Elliot, and Company's works during the whole period of manufacture. It is only bare justice to the Gutta-Percha Company, to Messrs. Glass, Elliott, and Company, and to the *employés* of both those firms, to say that they have throughout the progress of this work, displayed the most indefatigable zeal and anxiety, by any and every means to secure perfection of manufacture, and to regain for the science a portion at least of public confidence.

SHAKSPEARE'S DWELLING—WHO'LL BID?

By recent announcement in the public journals we find that "New-place, Stratford-on-Avon—the spot on which Shakspeare passed the last twenty years of his life, and where he died—was not only for peremptory sale on the 25th ult., but the attraction of its 'extensive frontage in the centre of the town' was held out invitingly to *speculative builders*. Mr. J. O. Halliwell urged upon the wealthy admirers of the immortal bard to purchase the property, the sum of £1,500 being probably enough to secure it, proposing himself, as soon as the subscriptions are sufficient to cover the expenses of purchase, to transfer the property to the Corporation of Stratford-on-Avon, on the express condition that the public be always freely admitted, and that no erection of any kind be ever permitted in the gardens. Some years ago it was proposed to raise a monument here to the memory of the poet—but Shakspeare wants no monument but that of his works. The only suitable monument would be one outside the gates of New-place, recording to posterity in enduring marble the honored names of the fifteen through whose interposition the sacred spot has been preserved from the auctioneer's hammer, as we are happily enabled to chronicle as a fact, as the New-place was, through the highly commendable exertions of Mr. Halliwell, secured by private contract on the 22nd ult. for £1,400, half which amount has been already subscribed—Mr. Sheridan, M.P., and Mr. G. L. Prendergast, author of a "Concordance to Milton," contributing £100 each. All honor to these worthy spirits!

NEW MANUFACTURES FROM HUMAN HAIR.[*]

At the meeting of the British Association for the Advancement of Science at Manchester, I offered a few observations on the manufacture of human hair, as an article of consumption and general use, and submitted for inspection some beautiful specimens of articles made from human hair, of a very massive and heavy texture, like pilot-cloth, or that used for travelling or mountain wear. It is, however, capaple of being spun into fine goods, like alpaca, which is but of comparatively recent use. Truth goes farther than fiction. My sister conceived the idea, and caused the collection of about 3,500 lbs. of human hair, in a few months, in Liverpool, by one female, who was merely assisted by her husband and son in carrying it out, receiving from £1 to £2 per week. We had two shawls made from it—cotton warp—(exhibited to the Section). It is is extremely warm and durable clothing; and with care and attention any quantity of the stuff can be obtained. It would appear fabulous to say that 100,000 bales might be obtained from Egypt, and 100,000 from Asia—perhaps 500,000 or a million bales annually, from all parts of the world, even within twenty-one years, and of all sorts, both long and short, all of which is at present wasted, and not enumerated in the articles of commerce or general consumption. I am authorised to state that this hair has been in the possession of Messrs. R. W. Ronald and Son, of Liverpool, for some years, who will afford 100 lbs. weight to any applicant on receipt of a post-office order for £2 15s. (The items making up this sum, commission, &c., are enumerated.) The article is as collected; and heavy foreign sheep's wool, in dirt and grease, being 6d. to 14d. per pound shows its cheapness for consumption generally. The Manchester goods are exchanged for long hair in Germany, which is sold in London, at £4 4s. per ton; but the very shortest is applicable for cloth, and 10d. to 1s. per lb. is a safe price for imports. These 3,500 lbs. are in seven bales, insured in the Manchester Fire Office for £200; so any one can test their existence by policy No. 180,631. The manufactured goods may be shown at the International Exhibition in 1862; and if hair were collected in factories, the value could be quarterly divided, and added to the savings-banks deposit. I would suggest that specimens of these hair-manufactures should be placed in every museum in the kingdom, and trust that the Smithsonian Institution of America will give the question their ablest support. Is not the long hair of the Chinese mixed with silk and worked up by the common people?

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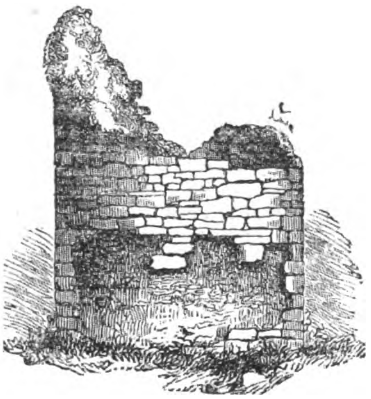
[*] By Mr. William Danson.

KERRY ANTIQUITIES.

THE three accompanying illustrations together with the descriptive matter of some interesting antiquities in the Co. Kerry—an *ultima thule* of the green isle,—are presented through the kind favour of the Rev. Jas. Graves, Honorary Secretary to the Kilkenny Archæological Society, the latter being collected from two valuable papers read before that body by Mr. R. Hitchcock.

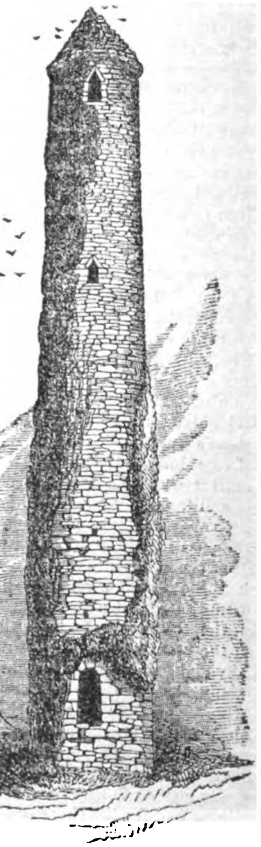


ROUND TOWER, AGHADOE.

Tower of Aghadoe.—What remains to us of this tower stands at a distance of about sixty feet from the north-west corner of the old church, and in the same cincture with the church. The diameter inside is seven feet. The highest part of the tower now standing is about 19 feet from the present surface of the ground; but, as will be seen from an inspection of the sketch, the greater part of the tower is not so high. The stones of which it is built, as well as the style of masonry, seem different from those found in the adjacent old church, both being much superior. A learned friend has favoured me with the inspection of a sketch of a portion of the tower, made by him in the year 1846, showing the cyclopean structure of the exterior facing, and the rubble work of the interior. The old church, like most of our ancient ecclesiastical edifices, is built almost east and west, and still exhibits abundant proofs of its former architectural beauties, particularly in the doorway. It is composed of different kinds of stone, some of which must have been brought from a distance, as none like them are to be found in the neighbourhood. A little to the south of the church, in a square enclosure, are the ruins of a *round* castle, named the "pulpit," having a flight of stone stairs in the thickness of the wall, and indications of there having once been an immensely strong floor of wood in the middle height. One of the ancient Ogham inscriptions has been found in the immediate vicinity of the Round Tower of Aghadoe, and seems to have very early attracted the attention of antiquaries. This stone is still carefully preserved, though much mutilated, in Lady Headley's garden, at Aghadoe House.

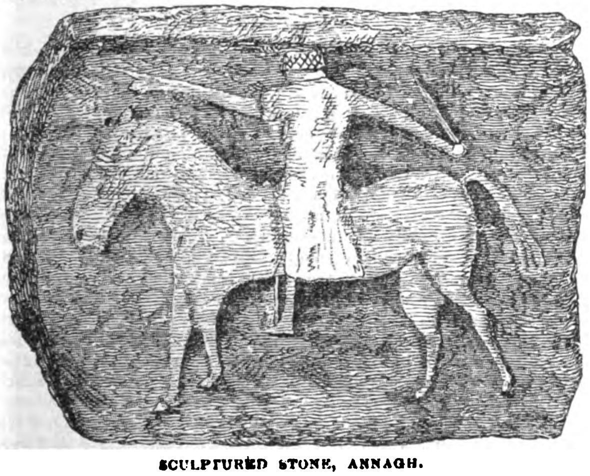
The author then proceeds to cite several eminent authorities, in whose published works notices of this structure are to be found. Amongst them are the following:—

Smith merely mentions the existence at Aghadoe of "the stump of one of the round towers;" but in his "Prospect of the Lake of Killarney, taken from the North," he gives an interesting view of "the ruin'd church," round tower, and round castle. The tower does not here appear so dilapidated as it is now. It may be worth remarking here, that Smith, whether through mistake or not, represents numerous tombstones at the *north* side of the church. This is remarkable, as that side of a church-yard is not considered a favourite one for interments. Weld says, "the tower of Aghadoe was constructed with hewn stone; but, exposed during the lapse of ages, on the summit of a lofty hill, to the influence of the elements, it has yielded to the shocks of time, and at present is in a very perishable state. Its shattered remains are not more than 15 feet in height." A writer, in the third volume of the "Dublin Penny Journal," says—"the turaghan or round tower, stands 54 feet from the north-west angle of the church, and is called the 'pulpit' by the peasantry; all that remains of this ancient structure formed only a part of the basement, not reaching to even where once stood the door. The height is about 12 feet. It measures in its outer circumference 52 feet; its diameter within the walls is 6 feet; and the thickness of the walls 3½ feet. Its masonry is greatly superior to that of the church; the stones are large, regular, and well-dressed. The cut-stone or facing of the north-west side has been all taken away for the erection of tombs in the adjacent burying-ground. Within and without, spoliation has been at work effectually, aided by those worst of pests, the gold seekers; fellows whose unhallowed dreams are most fatal to our antiquities. This tower must have fallen before the last century, but no notice of it in its erect state has survived." Lewis thus mentions the tower:—"Near them are the ruins of an ancient round tower, of which about twenty feet are yet standing." The "Parliamentary Gazetteer of Ireland" contains the following:—"The turraghan and the cathedral, at the mutual distance of 54 feet, crown the summit, or dot the table-land, of the hill; and are surrounded by a thickly tenanted burying-ground. All that remains of the turraghan—called the Pulpit only by the peasantry—formed but part of the basement, and does not reach even to the aperture of the door. Its height is about 12 feet; its exterior circumference is 52 feet; its diameter within the walls is 6 feet; and its thickness of wall is 3½ feet. The stones of which it consists are large, regular, and well-dressed, and exhibit a style of masonry quite superior to that of the cathedral; but they have been peeled from the north-west face for transmutation into tombstones; and the whole ruin wails beneath the inflictions of 'the gold seekers,' and other prosaic spoliators of ancient buildings. The tower, to which this melancholy fragment belonged, must have fallen before the commencement of the eighteenth century, but is not noticed, in its unfallen state, in any record." Mr. Windele gives a very satisfactory account, and says—"The Turaghan, or round tower, stands 60 feet from the N.W. angle of the church, and is called the 'Pulpit,' by the peasantry. All that now remains of this ancient structure is the basement, reaching from the sill of the door downward. The height is about 15 feet. It measures in its outer circumference 52 feet, the diameter, within the walls, is 6 feet 10 inches; the wall is 4 feet 6 inches thick, which measurement diminishes on the inside, above the level of the present floor, three inches. Its masonry is greatly superior to that of the church. The stones are large, regular, and well dressed. The greater part of the facing stone of the north side has been unfortunately taken away, for the erection of tombs in the adjacent burying-ground. Within and without, the spoliator has been effectually at work, aided by those worst of pests—the gold seekers; fellows whose unhallowed dreams are most fatal to our antiquities. This tower must have fallen previously to the last century; but no notice of it, in its erect state, has survived. It has not hitherto, we believe, been excavated or examined. The labour of doing so, we apprehend would be very considerable, as it is quite filled up with the debris of the fallen part, but the effort, it is hoped, may yet be made." In this, and two of the three last extracts, I believe the term "pulpit" is incorrectly applied to the Round Tower. In all the old accounts, written before guides were so numerous and dishonest as they now are, we find it given to the round castle; and it is to this building that I myself have heard the name applied.



ROUND TOWER, RATTOO.

Rattoo Tower.—The dimensions are as follow—circumference outside, 47 feet; height of doorway from ground, 7 feet; height of doorway, 5 feet 8 inches; breadth at bottom, outside, 2 feet 1 inch; inside, 2 feet and half an inch; breadth at top, where arch turns, outside, 1 foot 8½ inches; inside, 1 foot 8 inches; diameter of tower inside. 7 feet 4 inches; thickness of wall at doorway, 3 feet 9 inches. Round the doorway, outside, is a cornice or ornament, and just over it is also some species of ornament, both, however, invisible from where I took my sketch. Inside are three storeys, or sets of stones, all around, projecting, and between each of these storeys are one or more single stones, also projecting, as if for assistance in ascending. There are four windows or apertures at the top of the tower, facing the cardinal points, one of which and a smaller one under it appear in my sketch. The tower stands on a sort of platform of masonry, and in the building of the tower lime mortar is visible. The doorway, I think, faces the east. This tower is, indeed, a stately looking monument, and, with its mantle of ivy, is calculated to strike the beholder with a sort of awe, which he cannot soon forget. Lewis, in his "Topographical Dictionary of Ireland," thus mentions this Round Tower:—"There are no remains of the castle, but those of the abbey still exist, and, together with the adjoining lofty round tower, which is still entire and clothed with ivy, form an interesting and picturesque group." The "Parliamentary Gazetteer of Ireland" states, that "the pillar-tower is now partly dilapidated;" but this is truer of many other towers in Ireland, the tower of Rattoo being almost quite perfect, having lost only a little of its conical cap. Dr. Petrie gives the following pretty detailed description of this tower:—"The Tower of Rattoo, which, like that of Clondalkin, is still perfect, is remarkable for being placed on a terrace or platform connected with a causeway, which extends in a line opposite its doorway. The Tower is formed of roughly-squared, hammered sandstone, the entrance doorway alone being chiselled. It measures 47 feet 9 inches in circumference at its base, and 92 feet in height, the wall being 3 feet 10 inches in thickness at the doorway. The doorway is semicircular-headed, the arch being formed of three stones, and it is ornamented with a flat band, 9 inches in breadth. It is 5 feet 4 inches in height, 1 foot 8 inches in width below the arch, and 2 feet 1 inch at the sill. The Tower is divided into six storeys, that at the top containing, as usual, four large apertures facing the cardinal points. These apertures have sloping jambs, and are, externally, angular-headed, but are quadrangular internally. The intermediate storeys between the uppermost and the second, or doorway storey, are each lighted by a single aperture; but, in consequence of the Tower being enveloped in ivy, their exact situations cannot be determined, with the exception of one in the fifth storey, lately exposed by a storm, and which is angular-headed, and faces the east. The lowest storey is filled up to the level of the doorway. It will be perceived from the section above given, that between the floors of each of the storeys, rough corbel stones project from the wall about the middle of its height; and this is not an uncommon feature in the interior of the Towers, such corbel stones, in one example—that of the Tower of Ardmore, in the County of Waterford—being sculptured with animal and human heads, and other ornaments." Mr. Wilkinson, in his work on the Practical Geology and Ancient Architecture of Ireland (1845), has the following tabular remarks on this tower, which he erroneously sets down as in the county of "*Clare!*"—"Usual height,—conical top nearly perfect,—four large openings at top,—angle-headed outside,—square-headed inside,—door circular-headed, usual size, and usual height above surface of ground." *Construction*—"hard quartzoze sand-stone,—cut stone band round the door, 9 inches wide and ¾ inch projection." Mr. Wilkinson has some good general remarks on the Round Towers.



SCULPTURED STONE, ANNAGH.

Sculptured Stone in old Church of Annagh.—The stone which is the subject of the present notice lies inside against the south wall of the church. It is a block of coarse red sandstone, the same material of which the church is built, and which the adjacent mountain range furnishes; and measures in length 18 inches at one side, and 15 inches at the other; in breadth, 16½ inches at one end, and 15½ inches at the other; and the greatest thickness is about 7 inches. On the face of this stone is rudely sculptured, in bold relief, the figure of a man on horseback, holding in his right hand something like a sword or dagger. What the other hand holds, I cannot exactly say, as it, as well as the greater part of the sculpture, particularly the two heads, is evidently unfinished. The hand, however, seems to be extended at full length, and not holding the horse's bridle. I think the leading idea of the figure that of a warrior pointing forwards, as if to encourage his followers to action; this agrees with the posture of the horse, which seems to be in motion. A sort of saddle, or saddle-cloth, appears under the horseman, but I can see no trace of stirrups, though, as just mentioned, I do a little of a bridle and mouth-piece. The dress is of the frock shape, mitred or seamed from nearly the waist downwards. The resemblance between this equestrian figure and that on the seal of Strongbow may be worth mentioning here, although the latter is turned the opposite way.

A friend, writing to me on the old figure in Annagh church, says:—"The people have a foolish legend, that if the stone were removed, it would be brought back again by supernatural means; but there is no real history attached to it, that I could ever learn." This, to my mind, makes the stone an object of greater interest for our speculations, believing, as I do, that the equestrian figure on it is of ancient date.

Of the history of Annagh church I have not been able to find any account, though I have made some search; but, judging from the style of the building, which in general is plain, and in which there is no lime mortar, though situate in the centre of a limestone district, it is evidently an ancient work. There is, however, a well-finished Gothic south entrance doorway, of very good proportions. Like most of our old churches, this one at Annagh is built nearly east and west. A little to the west, on a tongue of land, is "Tonakilla fort," apparently an obsolete burial-ground, in which are several graves and small gallauns, or pillar-stones. Traces of a *causeway* from the fort across the slob to the mainland are still plainly discernible. About the same distance from the church, to the north-west, stands another group of gallauns; there are also some forts in the neighbourhood of the church. The following is the only mention (quoted from Lewis's "Topographical Dictionary") I have been able to find of this sculptured stone:—"About half a mile distant [from Blennerville] are the ruins of the old church, with the burial-ground, in which is a stone bearing a rude effigy of an armed horseman." It may be interesting to ascertain, if possible, what hero of old the monument in Annagh church commemorates. If conjecture is allowable, I would say that he was probably some old chieftain of the district—it may be a king; but, at present, conjecture is all that I can offer.

ZION CHURCH, RATHGAR.

THIS church, which has been for some time completed, was this day opened for Divine service. It is situated on the road leading from the main Rathgar-road to the Dodder, and is a conspicuous feature. The plan is cruciform, and the style of architecture Mediæval Gothic, after designs by the late Mr. Welland, the then architect to the Ecclesiastical Commissioners of Ireland. This body, however, did not extend their usual auspices to this church, the funds for erection—some £10,000—having been provided by bequest of the late John Gold, Esq., an eminent stockbroker in this city. Limestone is employed in the construction of the building generally, but Caen stone is used for the dressings and decorative portions. The interior, which will accommodate about 850 persons, has fittings of stained deal, and an open timber roof stained and varnished. The tower, with its pyramidal tiled roof, contributes much to the general effect of the building. Preparations are making for heating the building by means of hot water. Messrs. Cockburn and Son were the builders.

NATIVE RAILWAY CARRIAGE MANUFACTURE.

WE are pleased to see that this branch of trade has not altogether left us, nor is it confined exclusively to the workshops of a single public company in this city. At No. 10, North-wall, may be seen some new railway carriages, constructed chiefly of teak, and of admirable workmanship, just turned out from the extensive machine carpentery mills of Messrs. John Martin and Sons, to order of the Dublin and Wicklow Railway Company.

"AMATEUR" ECCLESIASTICAL ARCHITECTURE.

A MODEL CHURCH OF THE 19TH CENTURY!

Ne sutor ultra crepidam, is a popular maxim that it would be well for the community generally, and for the artistic credit of the age we live in, if certain of the laity—and ecclesiastics too—bore more constantly in mind. It may be possible partially to reconcile the fact of a wealthy dunderhead perpetrating a monstrosity in the shape of a domestic gazebo, and paying "through the nose" for his whims and fantasies; but it is not so where the quacking system comes to be applied to ecclesiastical structures—which are public property—and of late years unfortunately, these would-be "church doctors" have become very numerous, and *more* unfortunately have had plenty of patients to experimentalize upon—a system which it has always been our especial care to expose, and whether found existing amongst priests or parsons we alike accord to each their deserts. But we are forced to remind our readers that some of these "doctors" have a *peculiar* way of having their *own* way, and to shield themselves from the consequent odium, they nominally secure an architect's services, who, instead of being permitted to pursue a course of independent action, and exercise his skill and taste to the best of his ability, becomes perverted into a mere creature of his learned—and probably reverend—client, and must do *whatever he is told*, however repugnant to his feelings. In the columns of our daily contemporaries, are to be constantly found most earnest "appeals for funds," the "present church accommodation" is graphically shown to be "most inadequate to the requirements of a largely increasing congregation," and the smallest donations in aid of the good work will be most thankfully received, &c. A committee is most usually formed to aid in transmitting "the begging-box" through every available channel, but as the composition of the former being generally of a very heterogenous character, its members' notions of architecture are usually held in supreme contempt by the worthy pastor, who would fain impress on each the necessity of observing the proverb we above quoted, however disregarding himself the maxim that those who *preach* ought to *practise*. Now, we are never disposed to question unduly "good intentions"—though we may pause for a moment to consider their very unenviable concomitant—but with all due respect for them, we cannot concede that they ought always to screen from blame a party, who rejoicing in their plenitude, falls into the error of vandalizing an existing structure on the one hand, or raising a hideous block of nothingness on the other.

In a recent No. we congratulated our citizens on their being accidentally relieved from the perpetration of one of these proposed monstrosities in the erection of a great barn church on City-quay, after an obtrusive builder's design;[*] but we regret to say, as bad—if not a worse—specimen of architecture, is now in course of completion unfortunately in one of our most important and populous suburbs. Midway on the Rathgar-road may be seen a calp stone pile—intended, we presume, for a Roman Catholic church—presenting on plan a parallelogram, some 105 feet by 90 feet in the clear, walls 50 feet high, roof of ordinary pitch, an apsidal termination at one end, a portico being designed to occupy the other. Our readers will perhaps say there is nothing so extraordinary in *this*; but peeping internally what do we find, a nave 45 feet in clear and 50 high, with a *flat ceiling*, *square headed* clerestory windows, an arcade of *eight semicircular-headed* arches, with piers 7 *feet* 6 *inches wide* and 4 *feet thick*, separating nave from aisles; the latter being 19 feet wide and lighted *from above* by *skylights* in roof, with *flush lights in ceiling*. *O tempora! O mores!* what a church of the nineteenth century! But we desire distinctly to note, that neither should the able and worthy architect—whose name it must be admitted is, unfortunately for his professional character, associated with such an abomination—responsible for the paternity of "the design," nor are we in any way indebted to him for the particulars recorded in the above notice. Another huge pile, and quite as ugly, comprising in plan that of a Grecian cross, with great dome at intersection, has been for some time completed—the portico excepted—and at a considerable cost, under the *same enlightened auspices* on Rathmines-road in *same* district. How can journalists be too loud in their praises of those who, while ministering to the cause of religion in rearing structures to the Most High, simultaneously contribute to the advancement of national art?

THE KILKENNY AND SOUTH-EAST OF IRELAND ARCHÆOLOGICAL SOCIETY.

Having at various periods availed ourselves—and we do so in the production of the present number likewise—of the opportunity afforded, of obtaining from the transactions of this highly laudable institution, some of the valuable papers read at its periodical meetings; and in consequence, confessing ourselves—and our readers too—debtors to the society in no small degree, we feel that a special review of its history and proceedings will be esteemed by all as a mere graceful acknowledgment of favours and possibly contribute to more extended appreciation. It appears that this society originally having the appellation of "Kilkenny Archæological" only, was instituted in the early part of the year 1849, to preserve, examine, and illustrate all ancient monuments of the history, manners, customs, and arts of our ancestors, more especially as connected with the County and City of Kilkenny. At first consisting of but a few persons, and those confined to one locality, it rapidly extended its influence; persons of all ranks and classes contributing to its support; the members now numbering over 600, residents not of Kilkenny alone, but of various parts of Great Britain and Ireland; and at their own request enrolled, comprehending many individuals well-known in the literary world.

The limits of the society however becoming extended beyond the original boundaries, some corresponding change of name was felt to be desirable, and at a general meeting in March, 1858, it was unanimously resolved, that The Kilkenny and South-East of Ireland Archæological Society should be the future title of the Association, and that its principal, but not exclusive, sphere of operations should extend from Kilkenny as a centre, to the South-Eastern Counties of Ireland.

At its quarterly meetings, papers on Archæological subjects are read, reports of corresponding members received, and objects of antiquarian interest exhibited. Local secretaries and corresponding members have been obtained in many parts of the country, whose duty it is to inform the society of all antiquarian remains discovered in their districts, to investigate local history and traditions, and to give notice of all injury likely to be inflicted on monuments of antiquity, in order that the influence of the society may be exerted to preserve them. A sum of upwards of £140, contributed specially for that purpose, has been expended in the preservation of the ancient and beautiful Abbey of Jerpoint, in the County of Kilkenny. A library and museum have been formed, and many valuable donations have already been received. A pamphlet, with illustrative woodcuts, supplying brief hints and queries intended to promote the preservation of antiquities and the collection and arrangement of information on the subject of local history and traditions, has been printed and circulated. The society's "Journal" (imperial 8vo.) for the years 1849 to 1861, has been issued, forming six handsome volumes with numerous illustrations—it is published quarterly—each number containing the proceedings of the previous meeting. These volumes comprise papers of general interest on the history and antiquities of Ireland, and are now in the hands of the members. Amongst the contributors are several distinguished Irish archæologists.

But although the exertions of the society have so far been successful, yet much remains to be done. The raths, Tumuli, and early earthworks of the south-east portion of Ireland, would richly repay examination; original manuscripts, tending to throw much light on the history and antiquities of the various counties within the scope of the Society's operations, exist in abundance, and are well worthy of publication; the castles, abbeys, churches, crosses, and other ancient monuments of the district, many of them fast crumbling to decay, all demand illustration.

However desirable—both in a national and an archæological regard—may be the various objects above enumerated, we must remind our readers that they can only be effected *by a large accession of new members*, for, the subscription having been fixed at so extremely low a standard, united and general co-operation alone can enable the society fully to accomplish its mission.

The names of those who desire to join the society will be received by the Rev. James Graves, Duncannon, Co. Wexford—who since its establishment has proved not only a zealous officer but valuable contributor to its transactions—and by the local honorary secretaries.

CORK SCHOOL OF ART.

The students of this school—as always has been their wont—have distinguished themselves again at a recent display. Ten drawings have been selected for national competition, and 21 medals obtained. Her Majesty's Inspector, Mr. Eyre Crowe, has just visited the school, and it is announced to be progressing both numerically and otherwise. By the report for 1859–60 we learn, amongst other matters, that "with occasional changes and fluctuations, the school has been successful and efficient in its operations. Its utility has been felt and acknowledged by various classes, who avail themselves of its advantages—students, teachers, artizans, operatives, and competitors for civil appointments. Whilst all the classes have been worked so as to render the Institution as locally useful as possible, the number of medals and other distinctions awarded are the best proof that it continues to hold its high position amongst the other Schools of Art as a Prize-taking Institution. Since October, 1860, it has been entirely under the care of Mr. James Brenan, in whom the Committee have the fullest confidence. Under his efficient management all the classes have been diligently and systematically conducted, with steadily increasing numbers; and the mechanical class has become an important and successful feature in its operations."

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[*] See page 646 ante.

The Master states that "the class for mechanical drawing has been moderately attended, not so well as he should have expected in a city like Cork, where there must exist a demand for workmen able to make plans, elevations, working drawings, &c.; but hopes that in a short time the manufacturers of Cork will see the importance of inducing their operatives to attend this class.

Also that "an arrangement has been entered into with the Board of National Education, Dublin, by which a certain number of pupils from the National Schools of Cork may attend the evening classes of the School of Art, free of all expense."

We hope soon to have the official statement of progress during current year.

CHURCH OF SS. PETER AND PAUL, MOATE.

The foundation stone of a new Roman Catholic Church, as above designated, was laid on the 27th ult., and the building, which will be erected after designs by Mr. John Bourke, architect, is provided to be cruciform on plan, with nave, aisles, transepts, apsidal chancel, side chapels, baptistery, tower, &c.; the dimensions in clear being 110 feet by 52 feet, by 68 feet across transept; height to apex of roof 60 feet. The Norman style is observed throughout, and the nave is to be separated from aisles by lofty arches springing from cylindrical columns with characteristic capitals and bases. At intersections of transepts and chancel with nave, four great arches are introduced, which will have a very imposing effect. Light will be obtained for the nave and aisles by semicircular headed doublet windows in clerestory and flank walls; and for the transepts through triple windows; the chancel and western gable being also perforated. A tower with spire rising to a height of 105 feet from ground line will terminate one of the aisles. We have very few good examples of this style in Ireland, and are glad to see symptoms of its revival.

DEDICATION OF A CATHOLIC CHURCH AT ATHLONE.

We previously alluded to the fact that a large parochial church, to be dedicated to St. Mary, was in progress of erection at Athlone, and it is so far advanced towards completion as to admit of the ceremony taking place on the 16th ult. The site of the building is exalted and advantageous, though in proximity to the old church, which was in every respect unsuitable. Early English was adopted for the architecture, and the interior comprises nave, aisles, transepts, chancel, side chapel, sacristy, porches, organ-loft, baptistery, tower (with stairs to organ-loft), and spire, 190 feet high; measuring in the clear 130 feet by 57 feet, and across transepts 66 feet. The west front contains a moulded door underneath a great window of five lancets, each alternate opening being filled with glass, and the intermediate opens being intended to receive figures. This window, which forms a triple lancet on the interior, is furnished with slender columns, and the upper part of the gable is filled with a recessed wheel window. The chancel and side chapels are lighted by richly traceried windows filled with stained glass, and the central window contains an exceedingly artistic representation of the Nativity of our Lord, and has been procured from Caen in Normandy. The transepts are lighted by triple windows of graceful design, and the aisles and clerestory are lighted by double carped lancets. Cylindrical columns of Wicklow granite, supporting richly-moulded arches, divide the nave from the aisles; four great arches from the junction between transepts, chancel, and nave. The roof is of open timber work, with carved tracery. Mr. John Bourke was the architect.

ORIGIN AND CONCLUSION OF "BLACK MAIL" IN CARLOW.

In the beginning of Edward the Second's reign, the captain of the Kavanaghs left in possession of part of Carlow by the Earl and Countess of Norfolk, kept that portion as his own, and got possession of a great part of the counties of Carlow and Wexford, and called himself MacMurrough. The O'Tooles and the O'Byrnes, who occupied the Dublin and Wicklow mountains, which are conterminous with the county of Carlow, became his allies; and growing in strength, they kept all the country between Carlow and the east coast—which is thirty miles and more—as their own; and so, adds Baron Finglas, "began the decay of Leinster." The possession of the Dublin, Wicklow, and Carlow mountains by the three tribes of the O'Byrnes, O'Toole's, and the Kavanaghs, in effect cut off the communication of the English with their settlements in Wexford and the South of Ireland. They hindered the passage of the king's judges and officers, who might otherwise have circulated in the parts beyond the Barrow, and thereby exiled the ministrations of the king's law out of Carlow, situate in the midst of Leinster." "Whence," says Sir John Davis, "grew that Irish bye-word, that they dwelt by west of the law that dwelt beyond the Barrow, which is within 30 miles of Dublin." From his position on the hills that approach the Barrow at Leighlinbridge, MacMurrough commanded the passage to that place, and from the days of King Edward III. until the end of the reign of Henry VIII., MacMurrough was paid a yearly stipend of 80 marks from the king's exchequer, being in fact so much "*black mail*" paid to him for liberty to pass towards Leighlinbridge, and to abstain from harrying the English settlers in his neighbourhood. When this payment was not duly made, as sometimes happened from want of funds in the exchequer, he proceeded to enforce it by attacking the English inhabitants in the counties in the locality. It may be easily conceived how deeply galling to the English government was this state of things. Accordingly, in the following reign, when King Richard II. landed at Waterford with 4,000 cavalry and 30,000 archers, he marched through the Kavanagh's territory, and accepted their fealty and submission.*

EMBANKMENT OF THE THAMES.

The readers of this journal have been already apprised that a committee of enquiry, recently constituted, investigated, at considerable length, the particulars of numerous designs submitted for this project, and from the published evidence given before it by the several projectors, we collect the following, relative to the design of our respected fellow citizen, Mr. Richard Turner of Hammersmith Works.

Mr. Richard Turner, examined.—As nearly as possible I comply with the terms of your advertisement in the three desiderata of, first, the *sewage;* secondly, the *spacious thoroughfare*, and thirdly, the *improvement of the river.* I will first refer to the street traffic. This road (*pointing to a model*) is 33 feet wide. This is the existing wharf wall; this the level of the water with the road 33 feet wide, and at a height of three feet above it; the road to be continued throughout round the stores, and to come out on this street. But if they choose to take the goods at once direct from the barges, they could do so without coming through these stores, and set off to any part of the metropolis; that next the river is 27 feet wide, and the top road is 90 feet wide; and then on the side I overhang 5 feet in addition to aid for shops; as millions of people would be upon this road, they would require, from time to time, refreshments and to purchase many things; there would be a good trade at those shops. This would be a fine promenade overlooking the river; it will become purified comparatively into a beautiful pellucid stream. I propose to dredge along here, which would not cost anything to signify, because the gravel would be required in this embankment. This embankment is 150 feet altogether in its width into the river. I propose this to be the sewer (*pointing to the model*); but at the same time that is capable of modification. It can be either nearer or deeper from the surface as may be found most useful or desirable; but I thought this the best position to place it in, inasmuch as manholes might be introduced from the surface; but being a cast-iron metal sewer, a cylinder of eight feet diameter, it is not likely to require anything to be done to it. The sewer might be increased from six feet to nine, coming from Victoria-street, Westminister, and by the time it comes to the city it might be nine feet in diameter. So far as the present wharfingers are concerned, they would be greatly benefited by these new arrangements, and when completed it will be then seen what an immense improvement it is over the present primitive system; and therefore instead of any renumeration coming to them, it must come the other way, for every one of them would be benefited amazingly, particularly if you give them all this land, even though you retain the streets. They would have no control over the high level street; but at the same time it forms a convenient cover to them for their goods. If they were to give us something for it, we might possibly finish it for them. At the front and rear, it is all covered with glass and ironwork, and that makes a complete store of it from side to side. The lower part would be for heavy traffic; the one above for teas, spices, and light goods, which require to be lofted, and they would come across and be lofted by these foot bridges, In that way they would have valuable stores. With the Temple Gardens we do not interfere prejudicially. The authorities there behave most generously, for they invite all the community to the enjoyment of those Gardens; we do not disturb their view, but rather make it pleasing, This (*pointing to another model*) is 35 feet high, and the pillars are 50 feet apart, and though our street runs longitudinally by the inhabitants of the Temple, it does not do them any harm, but forms an interesting prospect for them. The four acres of ground reclaimed would be a great boon to them. They would do the ornamentation, and if they gave it to me to do, I would do it nicely for them. In that way they would have a capital winter garden, and the centre would suit for the drilling of their own volunteers; it would be a nice promenade, and supposing a thunder shower came on, all the garden visitors could go there for shelter and be very comfortable.

Chairman.—How much do you take from the river in your general line?—I propose 150 feet from the present line of the river; that would not be the maximum projection, because there would be some places so as to render the curve of the river more pleasing to the eye, where it would be perhaps 180 feet; but I begin at Westminster Bridge, and we come down at both ends by ranges of wide, handsome steps upon a noble esplanade 1645 feet in length coming to Whitehall Place, communicating with it, and also with the new 90 feet street at Whitehall Place end where it terminates, the effect of which would be very good.

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* From a paper by J. P. Prendergast, Esq., relative to the Barony of Idrone, County of Carlow.

There would be no carriage way on it?—None; but if desirable that could be added. The Duke of Buccleuch and his neighbours I thought would be annoyed if there was a street opposite their houses, and the necessity for horse traffic there did not seem to me to exist, as it divided so much and diverted at Charing Cross in so many other directions, I thought it best to avoid introducing its continuance here. This esplanade would be only for pedestrians, so that there could be no possible objection to having that there, particularly as we would interpose a high railing in front between their terrace and this esplanade. Still they would have a good view of the river over that 70 feet esplanade.

You propose to come to Whitehall Place and there begin your road?—Yes, only the top level street, 90 feet wide. It would begin to dip then from Waterloo Bridge and gradually get under the new railway bridge, at Hungerford. The high level street terminates at Whitehall Place. But in Scotland Yard where there is a great deal of traffic, I do not deprive them of their water; on the contrary, I make it more convenient for them. I give them the facility of getting in and out freely, as I have no locks or dock gates, at this or any of the entrances for barges; I carefully avoid all complicated machinery. We do not interfere with the property in those docks; and again at Whitefriars we leave them not only uninjured, but greatly benefited. We have four 50-feet openings, through which the barges could go in sideways and we have a bridge to cover the opening at once.

Capt. Burstal.—That would not take a 60 feet barge in sideways?—No, but we could make a 60 feet opening if it were wanted. We can make the girders strong enough to give an opening of 80 feet. The wharves would be approached in that way; the opening would be covered by the bridge, which might be a rolling bridge, for which we have a patent.*

Chairman.—A bridge across those openings?—Yes.

What would become of the traffic during the time?—The bridge is drawn in a moment. I have brought a model of the bridge. That would occur only here and there, where our barges must be allowed to go, for the purpose of preserving the wharves in their present integrity. Our 90 feet road commences at Blackfriars and goes along to Whitehall.

Where are the people to go to when they get to Blackfriars Bridge from the westward?—I would be glad to hear that the Commission would entertain the road beyond Blackfriars Bridge into Cannon-street; but I understand by the advertisment of the Commissioners that it was to end at Blackfriars Bridge. All the streets along here (enumerated by the witness) have lateral communication for equestrians.

That is to the high level street?—Yes, but for pedestrians every street, lane, and alley we communicate with, both to the top and the bottom streets, and see how much that would increase the value of that property.

Have you made any estimate?—I have gone into that with a good deal of attention and care, and being connected with iron works I have proposed that nearly all should be iron *(pointing to the model)*, these pillars are three feet in diameter, filled solidly within with lias lime concrete. The under pillars are nearly 5 feet square, but at the bottom they have flanges which makes them 7 feet 6 inches. This would be the passanger railway, and that would be a goods railway, but this would be solid *(pointing to the model)*. I have brought a model of the railway by which I proposed to cross the channel to France *(producing the same)*.* It is the same principle here. There is a double line of railway there, and as this would be at a low level under the surface, we have a lift, so as to allow people to descend or ascend by stationary engines who do not wish to go down by the steps. I suggest that the trains should be drawn by chains and pulleys and work hydraulic cranes along the wharves, and the lifts up and down, inasmuch as there would be people going down every five minutes, and we should, I believe, to a great extent, on this line, upset the omnibus traffic.

Have you contemplated any engineering difficulties in making a railway below the level of high water?—There would not be the slightest difficulty that I can anticipate. There is a company behind my back worth several hundred thousand pounds, ready to come forward at once. I could give any guarantee that within two years you would have the whole completed. I would have three relays of workmen from end to end within the twenty-four hours. I would make the coffer-dam by the metal piles and face plates to begin with, and within that they would execute this work very rapidly under roofs that would be moveable and lit by gas at night so as to work all nights and days.

In the meantime the trade would be stopped?—No; I would undertake that every wharfinger should say that his trade was not interfered with. We would give every facility for conducting the trade; we have the barges well provided for; we utilize every inch of ground which we reclaim. I consider that we meet all the desiderata of a spacious thoroughfare, providing for the sewerage, and improving the navigation, and we dredge outside here to a considerable depth, so as to float the barges at low water, and never to see dry or bare banks any more.

Mr. Thwaites.—What is your estimate?—My estimate is £930,000, including the two railways; or it is 360,000 less than that, omitting the railways; but I thought that the railways would sell for £700,000, and therefore it would be a good speculation to embark £360,000; but that includes everything given up ready for use, the bridges and all the et-ceteras. Messrs. Holdsworth, who are great iron people in England and Scotland, would be ready to undertake it.

I do not believe that there would be one farthing to pay for compensation; I would undertake to say that we would conciliate every one to our plan. I have reason to suppose that; I never asked them about compensation, but I think that compensation would be the other way,—that when the works were done, the benefit would be such that they would be entitled to pay for being improved so much. But that would be wisely left to hereafter.

Chairman.—Do you think, if the road were this height, with the enormous traffic this would have to sustain, it would remain in good order 50 years?—I believe it will remain for centuries quite perfect; it would be equal to the bridge at Westminster, and it would be constructed very much on the same principle. These are of iron, but they would be filled in with concrete, and they are of immense size; those girders are double, and then there are solid girders above them, and then wrought-iron joists with buckle plates for sustaining the ballast.

Chairman.—Have you had communications with the wharfingers?—Yes.

Do they approve of a solid embankment?—I made this plan as I thought best to suit their requirements, and I fully believe, if so carried out, it will do so more perfectly than any other mode proposed for simplicity, stability, and utility, and for accomplishing all other purposes required by the Thames embankment, and as to the various dimensions I have suggested, they, of course, are quite easily capable of being modified either to less or more, as may be deemed advisable. But I submit that the general principles embrace all that can be wished for in the most efficient and permanent manner.

MONUMENTS AND MEMORIALS.

It is proposed to erect at Galway a memorial to the late Earl of Eglinton and Winton, as a token of public appreciation of the services rendered during the period of his vice-royalty towards the establishment of Galway as a transatlantic port.

The Committee of the M'Ennery Testimonial Fund, are about to receive designs in competition for a monumental memorial to the late Roman Catholic Dean of Ardfert, bearing the above name. We understand that a lithographed plan of the site is in course of preparation, and may shortly be had by intending competitors.

A sum of £20 will be given for the approved design for a pedestal and base on which is to rest, in the town of Banbridge, a statue to the late Captain Crozier, R.N., Mr. Joseph R. Kirk, R.H.A., sculptor. Photographs of the statue are being prepared for distribution; and the statue itself may be seen in course of completion at the sculptor's studio in Jervis-street.

There is a talk at Missolonghi, says the *Patrie*, of erecting there a monument to Lord Byron.

Review.

The Office and Cabin Companion. By J. Simon Holland. London: Atchley and Co.

The purpose of this little book is essentially utilitarian, being designed to present facilities to marine engineers, naval architects, and others engaged in the construction and management of steam vessels, to calculate by reliable data founded on a lengthened practical experience, the precise capabilities of engines of certain construction, whether screw or paddle, and the consequent attainable speed of the ships. It also treats of the expansive and compressive forces of steam; theoretical and nominal horse power; the area of funnels, velocity of pistons, &c., illustrated by some diagrams, and accompanied by copious tables, which would seem to have been very ably and laboriously produced. Referring to the table for finding the true mean speed of a vessel, the author remarks, that "it was calculated as much to ensure accuracy as to save time, the author never having had luck to fall in with a table that gave the apparent speed in a correct manner; one table in much use containing over *thirty-three per cent.* of errors, a fact which in itself shows the advantage of a new work that can be depended on as an authority."

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* An illustration of this patent principle as applied to the bridge spanning George's Dock was given in the *Dublin Builder* for April, 1860.

* Alluded to in our last number.

Though somewhat outside our province, it requires the exercise of little penetration to see that it must prove a desideratum to the classes above enumerated.

The tombs of Keats and Shelley at Rome are about to be restored. Mr. Severn the newly appointed British Consul in that city has resolved to give them his early attention. They have fallen into great decay. It is proposed to substitute a "Greek Altar," with a medallion portrait on the front of it, for the simple headstone which was placed over Keats' grave in 1821.

In some excavations just made at Acoz, near Chalerio, in Belgium, a number of old Roman tombs, containing coins, arms and amphoræ, were found. The tombs appear to be those of military chiefs; and in the midst of them are a quantity of bones.

Mr. Train has a prospect of success for his street railway in the Pottery district. The trustees of roads in that busy neighbourhood have approved of the plan, and a joint stock company has been formed for the purpose of raising the money necessary to carry on the work. Mr. Train promised to raise £10,000, half the capital required.

Miscellaneous.

DA VINCI'S SKILL IN PERSPECTIVE.—Da Vinci was, by universal consent, a great master of perspective. But the production of very finished specimens of graphical art was the possibility of his time as much as of any other. The first-class draughtsman managed, in one way or another, to do all that could be done: the difference between one period and another lies in the facility of the mode of doing it. Da Vinci wrote on Perspective: the collection of fragments which goes by the name of his work "Della Pittura" contains many references to his work on our subject; of which it is conjectured that manuscripts are still in existence. Ventnri says that Cellini, by his own account had a manuscript in his possession and lent it to Serlio, presently mentioned, who published as much of it as he could understand. This statement is void by indefiniteness. Moreover Danti makes Serlio steal from Peruzzi of Sienna, whom he makes to take his methods fairly from Pietro di Borgo. That this Serlio was a thief is repeated by a score; everything is settled except whether he robbed Peruzzi or Da Vinci. In "The School for Scandal" Sir Peter walks in, a sound man, at the very moment when the whole difficulty is reduced to whether he had just been wounded by sword or by pistol: and further examination may possibly give a similiar ending in the present case. Some make him rob both, for safety. At the very time of writing I chance to light upon one instance of the growth of a story. Bayle has it that Budæus stole three hours for study on his wedding day; Dibdin has got it up to his complaining that he could not get more than six. What I have to do with the accusation is to remark that these and various other charges of appropriation show that there was a strong—and most likely a just—impression of the existence of a great deal of unpublished knowledge. I believe that there is not in existence any proof of Da Vinci's skill over and above what be showed in his paintings and remaining drawings, except the geometrical plates which he drew for the "Divina Proportione" of his friend Lucas Pacioli, published in 1509 These are fifty-nine perspective drawings of solid, both *solida* and *vacua*; the second term means drawn with solid bar-edges instead of closed faces. Throughout the sixteenth century it seems to have been considered a triumph of art to represent complicated solids, with a pyramid on each face. Thus Da Vinci gives an icosahedron, a figure inclosed by twenty triangles, in which each triangle is then made the base of an outlying pyramid: and he gives a number of prickly polyhedrons of this kind. Nothing harder could well be proposed to be accurately represented; especially when the solid was to be formed of bar edges, so that the back is partially visible through the front. Barbaro, to whom we shall come, also delights in this kind of exhibition, which shows how much beyond their neighbours the Italians carried actual performance. I further notice that the word *perspective* does not yet appear in its modern sense: when Paciola mentions Da Vinci's plates he says that his purpose in publishing them is "quod *opticen* instructiorem reddere possent." *Optics*, then, is his technical word for what we call perspective. *Scenography* was a common name; it is derived from the first book of Vitruvius, who describes it as "frontis et laterum abscedentium adumbrario, ad circinique centrum omnium linearum responsus." The word *adumbration* also became common enough, in the sense of a perspective drawing: this is a word attributed to Samuel Johnson, who always got credit for invention when, as not seldom happened, he produced something out of the limbo of oblivion.—*Athenæum*.

GAS OR WATER.—The consumption of Gas now is at least double what it was ten years ago; and the annual quantity manufactured in London is about 8,000 millions cubic feet. One fourth of this quantity, according to reliable estimates, is lost by leakage, condensation, dishonesty, and bad debts; and at least one-half of this fourth—or 1,000 millions of cubic feet—escapes every year into the London street earth. Mr Spenser, as analytical chemist to the New River Company, has traced this escaped gas in its destructive action upon the 4,700 miles of metropolitan gas and water mains, until underground London appears to be one vast grave of iron rotting into plumbage. The twelve gas mains, with their eighty joints, which lie side by side with water mains and telegraphic-wire pipes over the sewers in Cockspur-street, Charing-cross, are not such a happy family as their appearance would lead us to suppose. They are crowded together like tramps in a threepenny bed, and there does not seem to be room for a rat to run between them; but there is no real friendship for all this shaking of hands. The defective joints of the gas mains lead to the enormous leakage just described, and the escaped gas, by its action on the street earth, destroys water pipes in a few years that ought to last for a century. Apart from the foul condition of the London street earth, we are all interested in saving this escaped gas and this destroyed pipeage, for our gas bills include the cost of the one, and our waterbills the cost of the other, While the water pipes are softened. and the gas penetrates the tubes, the water is also adulterated with an undrinkable mixture. I have heard of a letter addressed to a leading water company, which ran somewhat in this form:—"Mr. Blank presents his compliments to the Blank Company, and wishes to know whether they supply gas or water. Mr. Blank is led to make this inquiry, because one of his servants went to the cistern with a pitcher and a candle, and instead of procuring water she blew up the roof of a wash-house."—*Dickens's "All the Year Round."*

UNDEVELOPED TALENT.—There have been very popular writers who were brought out by mere accident. They did not know what precious vein of thought they had at command, till they stumbled upon it as if by chance, like the Indian at the mines of Potosi. It is not much that we know of Shakspeare, but it seems certain that it was in patching up old plays for acting that he discovered within himself a capacity for producing that which men will not easily let die. When a young military man, disheartened with the service, sought for an appointment as an Irish Commissioner of Excise, and was sadly disappointed because he did not get it, it is probable that he had as little idea as any one else had that he possessed that aptitude for the conduct of war which was to make him the Duke of Wellington. And when a young mathematician, entirely devoid of ambition, desired to settle quietly down, and devote all his life to that unexciting study, he was not aware that he was a person of whom more was to be made—who was to grow into the great Emperor Napoleon. I had other instances in my mind, but after these last it is needless to mention them. But such cases suggest to us that there may have been many Folletts who never held a brief many Keans who never acted but in barns, many Vandykes who never earned more than sixpence a-day, many Goldsmiths who never were better than penny-a-liners, many Michaels who never built their St. Peters; and perhaps a Shakspeare who held horses at the theatre door for pence, as the Shakspeare we know of did, and who stopped there.—*Fraser's Magazine*.

A NEW APPLICATION OF PHOTOGRAPHY.—A novel and interesting application of the science of photography is now in daily use at the famous Mettray colony, near Tours, which is a reformatory for young convicts. Every urchin brought to this house of correction has his portrait taken the moment he sets foot in it, and another is made on the day of his leaving. The first portrait represents the rags, dirt, and misery, the physical and moral degradation, the prematurely careworn features, the scowling, cowering, timid, uneasy, and withal ferocious look of the born thief. The second shows the same individual transformed by the magic of judicious discipline, which includes physical comfort and kind treatment—his dress is now clean and neat, and his countenance is redolent of health, contentment, self-confidence, benevolence, and energy. Philosophy had never in any age a grander subject for contemplation than two such pictures.

WATCHES AS A BRANCH OF FINE ART MANUFACTURES.—"Having extended our search through the West-end and the city, after an ordinary good English watch, possessing an artistic design, we have come to the conclusion that but very few of our English watch manufacturers have yet properly appreciated the advance of the public taste for a higher order of ornamentation from improved designs. Small though the watch is, it yet affords ample scope for the display of the genius of an artist. It is, therefore, with much pleasure that we can mention one manufacturer who has given special attention to the artistic ornamentation of watches, and whose productions manifest a decided advance in regard to rules of art and the requirements of an educated taste. The manufacturer here alluded to is Mr. J. W. Benson, whose recenly enlarged show-rooms, at 33 and 34, Ludgate-hill, and 46 and 47, Cornhill, from one of the conspicuous features of this great city thoroughfare. The display of gold and silver watches, together with ormolu clocks of rare designs, is quite imposing to the passer-by. Here the purchaser of a watch is afforded every facility of choosing one suited to his purpose and means, and possessing at the same time all that can be desired in finish, taste, and design."—*Globe*.

Dundalk and Carrickmacross Junction Railway.—This railway is intended to connect the town of Carrickmacross, in the county of Monaghan, and the rich agricultural district surrounding it, with Dundalk, an important sea-port town, having regular steam communication with Liverpool four times in the week. This proposed line will also complete the railway communication between Dublin and Belfast, so that farmers in this district can send their stock to the markets in Belfast, Dundalk, Dublin, Drogheda, Newry, or Liverpool, at a comparatively small cost. It is proposed to make use of the Dundalk and Enniskillen Railway, as far as Innishkeen, distant from Dundalk about eight and three quarters statute miles—at this point the proposed line will branch off to the southwest, until it reaches the town of Carrickmacross, distant from Innishkeen Junction six and a-half miles, making the total distance from Dundalk to Carrickmacross, by rail, fifteen and a-quarter statute miles. The engineering character of the proposed line is most favourable, being better and easier than most Irish lines. There will be no tunnelling, no viaducts, no deep cuttings, or high embankments. Estimated cost per mile, including land works, permanent way and stations, £5,800. Mr. James Dillon is engineer in chief.

The Exhibition of 1862 Catalogue.—The Railway Passengers' Assurance Company claim the honour of giving £600 for the last page but *one* of the advertising wrapper of the two shilling Catalogues of the Exhibition of 1862. It is said that Mr. Benson, the eminent watch manufacturer and jeweller, of Ludgate Hill, secured the back page for £1,000, and was subsequently offered £,1000 for his bargain,

Constabulary Buildings, Phœnix Park.—Extensive additions being about to be made by the Board of Public Works at this depot, the contractors desirous of tendering meet at the Custom house this day to decide on a measurer.

London and Paris Squares and Gardens.—A London correspondent of the *Opinion Nationale* says:—"In our new and delicious gardens at Paris the delighted child of some poor persons plays and gives itself up to the transports of joy natural to infancy when placed in such a surrounding, while, seated in the midst of verdant foliage and of flowers, the mother mends the clothes of the family. What would you Parisians say were these little elysiums closed to all but a couple of dozen children of the quarter, and their noble and wealthy parents? Think, then, of the immense and numerous squares of London that are rigorously shut against the working classes, and that the rich and aristocratic alone have access to them, for they are cultivated exclusively for them. When these gardens are kept for the happy and privileged few, there is much loss of health, morality, and recreation to the people. The square of Lincoln's Inn-fields, six times larger than your Square du Temple, is fresh, blooming, and deserted. The rich, however, disdain it, and the poor can only look into it. Some benevolent person demanded of the parochial authorities that this unfrequented square should be thrown open to the public, but obtained only a peremptory refusal. A people thus treated is not free. No, a thousand times! although from time to time they throw potato peels at the heads of lords who displease them, although the Radical press says what it pleases of the aristocracy and caricatures of them are engraved, and although Mr. Bright is indefatigable in pronouncing privilege as a national leprosy—and it is a leprosy that engenders many others."

Monument to the late Earl of Aberdeen.—The tenantry on the Aberdeen estates in the vicinity of Haddo House having a wish to erect some memorial to the memory of their late distinguished landlord, held a meeting recently to consider the subject. The wishes of the present earl were previously consulted as to what the memorial should be, and it appeared that he had expressed his preference for a square tower, to be erected at the hill of Thrie. This was accordingly agreed to by the meeting. The amount already subscribed is £500.

Fifty Years Since.—Half-a-century ago all the great capitals of Europe, although then not half their present size, were dangerous residences to their honest inhabitants, and unmanageable in regard to police supervision, owing to the difficulty of obtaining sufficient artificial light during the long dark nights of winter. The growth of population that has since taken place, and the development of the resources of our own and other countries, would probably have been impossible without the discovery and rapid introduction of some means of economically and effectually lighting the streets and alleys, which had long served as the haunts of thieves and dangerous characters of all kinds. It is not too much to say that in this matter alone the introduction of artificial light has been the main agent employed in effecting a social improvement, compared with which all others are secondary. The millions of cubic feet of gas now burned nightly in our streets are beyond comparison, the best, the most permanent, and the least expensive source of security that could have been introduced, and have served, more than anything else, to check those deeds of wrong and violence that darkness cannot fail to shelter, and invariably fosters.—*Popular Science Review.*

Lifeboat Services.—During the last twenty-one months the lifeboats of the National Lifeboat Institution have providentially been instrumental in rescuing *four hundred and ten* lives from shipwrecks on the coasts of the United Kingdom. For these and other services. either in saving or in attempting to save life the Society has voted £2,133 as Rewards. Who that has seen some of these lifeboats put off in the very fury of the storm, has watched their successful fight with the elements, and has seen the same boats return, laden with human life, that has not felt a deep emotion, such as one cannot but experience when witnessing some heroic and self-denying act! The Institution has already paid this year £8,420 on various lifeboat stations;—since 1850 it has expended altogether, £50,730 on similar establishments. The demands on the Lifeboat Society continue to be very heavy for payments on lifeboat establishments which have just been completed. It is therefore earnestly hoped that the public at large will continue to strengthen the hands of its committee in carrying out the great and national objects of the Lifeboat Institution; and that many persons may be found, from a feeling of gratitude for the services performed by its life-boats to suffering humanity, to respond to the Institution's appeal. Contributions are received by all the bankers in the United Kingdom, to the credit of the Society, and by its Secretary, at the office, John Street, Adelphi, London.

Death of Sir William Cubitt.—Sir William Cubitt, F.R.S, the eminent engineer, died on Sunday last, after an illness which for some years had prevented him from following his profession. He was in the 77th year of his age, having been born in 1785, at Dilham, in Norfolk. In early life he assisted his father, who carried on the business of a miller; but quitting this occupation, he was apprenticed to a joiner. In his new employment he soon acquired the character of a first-class workman, and became especially skilled in making agricultural implements. Not long afterwards he adopted the trade of a millwright, and obtained ample employment in the erection of machinery. In 1807 he promulgated his invention—which has since been so commonly adopted—of the self-regulating windmill sails. Shortly afterwards he became connected with Messrs. Ransome and Son, the celebrated agricultural implement makers of Ipswich. Messrs. Ransome's business extended beyond the mere manufacture of agricultural instruments, and, accordingly, Mr Cubitt was extensively engaged in the construction of gas-works. In connection with prison discipline his name will ever be remembered as the inventor of the treadmill, which has since been introduced into nearly all her Majesty's gaols. The innovation, however, did not take its place amongst the institutions of the country without being subjected to a large amount of ridicule and opposition. The first treadmill was erected at Brixto gaol in 1817. In 1826 Mr. Cubitt settled in London as a civil engineer, and immediately was engaged in works of the most important character. In 1827 an act was passed for the improvement of the Norwich and Lowestoft navigation, and Mr. Cubitt was appointed engineer. The object was to open a navigation for sea-going vessels from Yarmouth or Lowestoft to Norwich. To effect this Mr. Cubitt united the river Ware with the Waveney, thence to the small lake of Oulton Broad, through Lake Lothing, with a passage onward to the sea, 700 yards long and 40 wide—Lake Lothing being thus formed into an artificial harbour, the tide-lock of which will admit vessels 84 feet long and 21 feet in beam. This undertaking was completed in 1829. Among his subsequent employments he designed the South Eastern Railway, including the removal of the South Cliff by blasting, which feat was accomplished under his superintendence. He was officially appointed, being then President of the Society of Civil Engineers, to exercise a superintending watchfulness over the construction of the building for the great Exhibition of 1851, in Hyde Park. He received the honour of knighthood for thus contributing his scientific experience in carrying out this national undertaking. The last great works upon which Sir William Cubitt was engaged were the two large floating stages in the Mersey at Liverpool, and the new iron bridge across the Medway at Rochester.

Fatal Fascination.—A remarkable circumstance has tended to interfere considerably with the brilliancy and steadiness of the magneto-electric light with which some of the squares of Paris are illuminated. The attraction which any bright light at night exercises upon insects is notorious, and every evening—especially after a very warm day—clouds of insects collect around the intensely brilliant points of light, each being irresistibly drawn towards the bright poles of ignited carbon, where they are of course instantly broiled to death. The numbers that crowd to it are so enormous that the light appears at times to be almost extinguished by burning insects, and every morning the bodies of these unfortunate suicides are found heaped up by tens of thousands at the bottom of the Lantern. For this reason it has been found necessary to encase the lamp in glass, instead of having the carbon poles exposed to the air. This is, however, attended with considerable loss of light, as even the most transparent glass has been found to obstruct upwards of ten per cent of the incident rays.

The Dublin Builder.

Vol. III.—No. 46.

THE GRANITIC ROCKS OF DONEGAL.

MR. R. H. Scott, accompanied by the eminent Professor Haughton, made in the course of last summer a "mineralogical tour" of the county Donegal, and the results of their explorations are set forth in an interesting and comprehensive paper read by the former—as elsewhere noticed—at a meeting of the geological society on the evening of the 13th inst. One fact worth specially recording, is an exception found by them in the constituent elements of the granite of this district as compared with that of the counties Dublin, Wicklow, and others throughout the province of Leinster, which almost everybody knows is composed of the ordinary quartz, feldspar and mica in proportions, varying with certain veins; such variability affecting the quality of the materials respectively produced. Of the former the authors say "it is of a peculiar composition, as it contains two feldspars. one of which is orthose, or common feldspar, while the other is not albite, as in the granite of the Mourne mountains, but oligoclase, a mineral which contains less silica than albite does. it is so common in the granites of the Continent of Europe that, according to Professor G. Rose, of Berlin, it is an essential constituent of all granites. This point Irish geologists will be hardly willing to concede, as the Leinster granite does not contain oligoclase—at least it has not yet been discovered in that district.

Another important fact is also elicited—

"That wherever the crystalline limestone was seen in the granite or close to it, there was found in contact with the limestone a bed of a peculiar rock to which Mr. Scott gave the name 'sphene rock;' it contains sphene in great abundance with white, orthose feldspar and green epidote, and is hardly to be distinguished from the sphene rock of Norway. From all these facts the authors of the paper were disposed to form some conjectures as to the origin of granite, or rather as to the origin of the Donegal granite. The character of the rock is essentially gneissose, it lies in beds corresponding to the general lie of the strata of the country."

The tourists then proceed to detail more particularly, and in the following terms, the results of their mission:—

"The tour commenced at Castle Caldwell, in the County Fermanagh, where the oligoclase granite is found in veins in the gneiss of the district. In this locality it contains copper pyrites and molybdenite both of which substances are rare constituents of granite. At times veins are found from which the oligoclase has entirely disappeared, and the granite of these veins consists of pink orthose with quartz and black and white mica. When this is the case, schorl appears to be very abundant. These veins of pink orthose are the source of the china clay which is abundant there, and for which a factory has been erected at Belleek. The main granite axis of the country extends from Ardara along the valleys of Gweebana and Glenveagh up to Glen, and prolongations of the axis were to be found at Unismenagh, near Dunaff Head, and at Ardmalin. This granite contains generally the two feldspars with black mica, and is also remarkable for containing sphene, a rare mineral, also found at Newry, and in great abundance in Norway. In fact the whole of the rocks seemed to be very similar to the granites of the Scandinavian peninsula, which are so common, as boulders, over the whole of the north of Europe."

Again, referring to the igneous qualities of the granite as affected by the presence of oligoclase and quartz in the same rock, the authors of the paper state that such "has been supposed by Professor H. Rose to be fatal to the purely igneous theory; however this is disputed by M. C. St. Claire Deville, one of the honorary members of the society, the papers are to be found in the *Philosophical Magazine*. The grounds of M. Rose's statement are that oligoclase and quartz if melted together would form common feldspar, and he supports his view by certain facts relative to the density of quartz. Mr. Scott expressed his opinion that the fact of the sphene rock and crystalline limestone occurring together support M. Rose's view. The presence of the garnets in the limestone makes that rock run to a glass when burnt. It does not, therefore, appear likely that it can ever have been in contact with a rock which was actually in a state of fusion. If this had been the case it would be probable that the feldspar of the sphene rock, which is orthose, would have been converted to oligoclase by the action of the limestone, as is the case at Carlingford, where, however, anorthite, a more basic mineral than oligoclase, has been produced by the addition of limestone to granite. It appears that granite might be produced by other means than simple heat, as each of its constituents may be found in positions into which they were never introduced in a state of fusion—a fact which is proved by the occurrence of feldspar in quartz veins near Lough Mourne. It appeared, therefore, that the whole of the rocks had been originally stratified, and had been subjected to certain actions, which are usually termed metamorphic, and in which very considerable heat, together with liquids of strong solvent powers, seem to have been employed. The result of this action had been to convert some into granite, some into gneiss, and some into crystalline limestone and mica-schist. Among the rocks found in Donegal was a syenite which resembled the syenite of Carlingford, described by Professor Haughton, but differed from it in containing oligoclase instead of anorthite, as above stated. The district examined was very rich in minerals, and there is no doubt that a careful examination will greatly increase their number."

After some acknowledgments of the valuable assistance rendered by local parties during the explorations, especially by Mr. Harte, the County Surveyor, Mr. Blake proceeded to read a paper on "The Primary Rocks of Donegal;" in which he described the structure of the rocks of the primitive series and their continued vertical structure all through from Sleiveleagne to Horn Head on both flanks of the granite range, consisting of alternate bands of slate gneiss, limestone, and on the northern portions of bands of syenite, porphyry, and limestone. He referred to the difficulty of reconciling the vertical structure with the horizontal deposition of the primitive rocks, noticing the discovery by the Mineral Exploring Company of the Heatite at Croby Head now being applied by English capitalists to manufacturing purposes. He also referred to the causes of the formation of the bog iron ore found at Carrick.

The President said he did not agree with Mr. Blake's views relative to the impossibility of the horizontal deposition of the primary rocks. He most fully acquiesced in the accuracy of Mr. Blake's observations of the directions of the joints, &c., and therefore he regretted that Mr. Blake should have departed from the region of facts and gone into theory. At all points where he and Mr. Scott had been able to check his observations, he had found them very correct. The only point where they might be doubted was at Armagarry, where the limestone beds did not appear to be vertical. After offering some remarks derived from his own observations in confirmation of Mr. Scott's paper, the president in conclusion said that some of the specimens of beryl granite resembled specimens which had been given to him many years ago by Dr. Croker, which had been found in South Australia.

Professor Jukes said he was glad to see that geologists were beginning to examine the mineralogical construction of rocks. He was disposed to think that there might be two origins of granite.

Dr. Sidney also alluded to the kind facilities afforded by Mr. Harte, who was in the highest degree entitled to their thanks. The papers were amongst the most important that had ever come before them.

ARCHITECTURE UNDER THE DYNASTY OF NAPOLEON III.

Reviewing the probable effects on the architecture of the age of the great works for some time being carried on in Paris under the auspices of the present occupant of the imperial throne, the *Building News* has the following:—

Notwithstanding many faults, they mark an important epoch in architectural history. Foreign visitors are naturally struck with their magnificence, and carry home favorable impressions of the transformation which has taken place within the last dozen years in the appearance of Paris. Foreign architects may not be of one mind as to the faultless character of the work; but, in order to satisfy their employers, they are bound to study them, so that when an opportunity occurs they may have a fair prospect of rivalling or excelling them. If, as unquestionably they do, they excite the admiration of the wealthy and the educated classes—the employers of architects—architects must work in the same style, or produce something better. The rigid Gothicists naturally look coldly on the façades of Lesoufacher, Cendrier, Davioud, Ruprick-Robert, Labrouste, and other famous men whose genius has planted the borders of the new thoroughfares. They lament, perhaps, the opportunity which has been disregarded of reviving the glories of Mediæval art, by rearing pinnacles and gables, turrets and oriels, and other forms of pure art such as, five centuries ago, encircled liked a jewelled belt the lovely towers of Notre Dame. They connect the prevailing taste for Italian art in the French schools with the wanton destruction and scalpings which Gothic monuments have endured in France. They are equally grieved to see the so-called "restorations," the indifference to architectural traditions, and the sacrifice of venerable work in the rampant desire to have something striking, and to make memorable the reign of Napoleon III. A revival of ancient art, or a due respect for old monuments was, however, simply impossible in a revolutionary age. There is nothing in anterior French history which would lead us to expect such a thing. A nation's art and literatnre must take its form and color from its politics, and from the spirit which it kindles in the people. The active, restless spirit, which changes periodically its form of government, and dashes mercilessly down all objects of political reverence, will not bend the knee to any style of art which is historically associated with the unpopular times. Napoleon seeks, perhaps, to settle the disordered elements and reconsolidate the scattered fragments of French thought. He wishes to identify himself with the new system. By forming squares and gardens, building barracks, asylums, workmen's quarters and museums, increasing the supply of water and the facilities for drainage, he sets men thinking upon practical questions and enlists the aid of science to the detriment of abstract theories of art. The present buildings in Paris may not be all that we could have wished, but they are what we ought to have expected, and they are better, perhaps, than could have been erected under similar political disadvantages by any other nation. All special theories of architecture and studies of different styles have given place to the absolute necessity for building extensively and rapidly. The shops and hotels of twenty years ago were inconsistent with the new public buildings. The new thoroughfares will really be the channels through which the policy of the French Emperor will flow, whilst the buildings which line them will be the foundation upon which the future architecture of France will be established. An improved character, more than sufficient to justify our faith in the ultimate beneficial effects of the new streets upon architectural taste, may even now be seen in the French capital, more especially in that portion which lies to the north. beyond the Rue du Faubourg Poissonière, in what is called the artists' quarter of Paris. Here we may see the earliest blossoms of the future French architecture, and if its summer's ripening fulfil the promise of its spring, it will assume one of the loveliest forms which Italian art has for centuries planted either on its own or any other congenial soil. The "painter's house" in the Place Ventimile, and the "house of an architect" in the Cité Malesherbes, by M. Amoudru, should be visited and especially studied by every architect staying in Paris. There is a freshness about the design of them, and an elegance and purity in every line of detail which is not always seen in the Boulevard houses. When, however, so many minds have been set at work on the reconstruction of Paris, there must, as a consequence, be an infinity of materials for the English architect's study. There is sufficient similarity of climate to render the same forms and the same materials, with more or less modification, available in both countries. An increased intercourse between the two peoples, must, in some measure, assimilate our habits, and lead each to take advantage of what the other has done. Some of our buildings are no doubt fully equal to, if they do not surpass, any of the modern French architecture, and some of theirs is as bad as any that we have perpetrated, but there is this remarkable difference—a difference seen also in the works of French painters—their architects seem to work within certain well known and recognised rules, ours to wanton in unbridled liberty. They could not build in such dissimilar styles as we do. We could not produce miles of new streets, from the hands of many different architects, bearing so striking a family likeness, and of such uniform excellence. They have, for the time, a national style; we have not.

ON THE RELATION BETWEEN THE POWER AND SPEED OF STEAM-VESSELS.[*]

When the relation between the pitch of the screw and the speed of the vessel is considered, and also that the pitch must be determined and the screw made before the vessel is tried, it must be obvious how important it is that marine engineers should clearly understand the laws affecting the motion of solid bodies in fluids. A few words will not, therefore, be out of place on this important subject.

When a steam-boat makes a voyage between port and port, she, in effect, excavates a canal between those ports, the transverse section of which corresponds with the immersed midship section of the vessel.[†] It is true this canal is immediately filled up again, but yet this canal is really cut, and the work of the engine is expended in cutting it.

After uniform motion has been attained by the vessel, the work of the engine is transferred to the water pushed out of the canal. Now, for similar speeds the work per mile, or per hour, must be as the immersed midship section of the vessel. The work given out by the engine multiplied by a constant co-efficient will therefore equal the midship section, and we shall have $C\ W = M$, where C is put for the constant, W for the work done by the engine in foot-pounds, and M for the midship section of the vessel in square feet. This of course only holds good for vessels of similar form. But it may happen that although we have several particulars of two vessels, one of which has been tried and the other not, we may not have their midship sections. In such case we may still effect our object provided the immersed portions of the vessels are similar, and we have one of the linear dimensions of each, because "all homologous sides of similar figures, whether curvilinear or rectilinear, are proportional; and the areas are in the duplicate ratio of their homologous sides." If, therefore, we have the length L, or depth D, or breadth B, of each of the vessels, we may use L^2, D^2 or B^2, instead of M. Where neither L, D, B, nor M, can be got we may still compare the two vessels if we have only their displacements, because the volumes of similar solids are as the cubes of their homologous sides. So that the cube roots of their displacements will be to each other as are their lengths, breadths, or depths; and as the midship sections of two similar vessels are to each other as the squares of their lengths, breadths, or depths, so also will their midship sections be to each other, as the squares of the cube roots of their displacements, or in other words, we may use $D^{\frac{2}{3}}$ instead of M, where D is put for displacement. To make this more clear, let us take two vessels of the simplest form, that of a parallelopipedon; the small one, eight feet long, one foot broad, and one deep; the large one, sixteen feet long, two broad, and two deep. Here the midship section of the large one is four times the size of the small one; so also is the square of the length of the large one four times that of the small one; the same with respect to the squares of their breadths and depths. Now, the displacement of the small one will be 8 cubic feet, and of the large, 64 cubic feet; the cube roots of these numbers are two and four respectively, and the squares of these cube roots are four and sixteen, the large one being four times that of the small one, the ratio of their midship sections. So that with vessels of similar forms of displacement, we may use either the midship section, the squares of any one of the linear dimensions, or the squares of the cube roots of their displacements, or, in other words, their displacement raised to the two-thirds power.

Hitherto we have taken no account of the speed of the vessels. For similar speeds the work of removing the water from the canal will be as the quantity; but for different speeds the work will be as the quantity, and also as the square of the velocity given to the water. Every body offers a resistance to being put in motion in proportion to the square of the velocity of that motion. This is clearly exemplified in the case of falling bodies. So that the work, and therefore the fuel necessary to generate the power to perform that work, will be as the midship section, and as the square of the velocity. Again, reverting to our canal. If a vessel go from port to port at twice the velocity, she will go in half the time; there will be four times the work to be done in half the time, therefore there must be eight times the power. If she go with three times the velocity, the work will be nine times, and the time to do it in will be one-third; the power must therefore be twenty-seven times. The work, and therefore the fuel between port and port, must be as the square of the velocity, and the power must be as the cube.

DISCOVERIES IN THE TEMPLE.

The *Critic* gives the following particulars of recent operations on a site replete with hallowed associations, the results of which, as may be seen, are, in one sense, to be deplored as partaking of vandalism, while in the other they must be regarded with interest as revealing a very important archæological discovery:—The demolition of Dr. Johnson's house and the adjacent houses on the west side of narrow Inner Temple-lane, and the erection in their place of a row of well-arranged suites of chambers, in external appearance bald and repulsive-looking, has lately been followed by similar demolition (sweeping away Goldsmith's house, No. 5), and new buildings on the eastern side, on the part of the Middle Temple, whose property they are. The houses now removed, completely concealed the north-west of the Temple Church, and some, in fact, actually abutted on it, one being built over the porch, and the way-farers had to go through an archway under it to pass from the lane into the Inner Temple. The demolition has revealed a portion of the church which had not seen the light of day for two or three centuries, and which had escaped the destructive hand of the restorer, viz., the western wheel-window of plate-tracery over the porch, three of the long, narrow, round-headed windows of the round, with the capitals remaining, but attached shafts gone; the original corbel-stones (at a lower level than in the restored portion of the church), and the original masonry of the whole of the north-west wall of the Round in a perfectly fresh state, though rough and seamy from the usage received by the builders of the now demolished adjacent houses. Striking and suggestive is the contrast presented by this solitary genuine fragment of the church with the spurious work of the restorers of 1827, who refaced the whole exterior then accessible to them with large blocks of Portland stone, and made the whole look as little like an Early English, or ancient church, as might be. This stone, by the way, is already, in parts, decayed, while the Godstone firestone of the twelfth century builders still remains—mutilated, but not decayed. Besides revealing an authentic buried portion of the original church in all the eloquence of its picturesque effect and honest construction, the demolition has thrown open to view, in all its naked deformitiy, what was built not to be seen of man—the paltry and abortive quasi-transept, and excrescence dating from the grand restoration of 1841, when it was built to receive the organ, &c. A side view of the master's house (a seventeenth-century building), to the east of the church, is also opened up. Much of the exterior of the porch is of brick, of the same date as the demolished houses; as also is the brick parapet at the lower part of the roof of the Round. The houses in Inner Temple-lane, next the church, and those forming the south side of what was Church-court, are not to be replaced. Those on the north side of Church-court (facing the church), and at the corner of Inner Temple-lane, are being replaced by a row of brick houses with stone dressings, in a kind of sublimated gin-palace style—that showy, bullying, vulgarly-pretentious one, essentially marked by brutal emptiness of all art and all feeling, which may rank as one of the styles of the day, the one that addresses itself to "practical men." The open space between the houses and the church is being lowered by the removal of accumulated earth, and will remain an open flagged terrace, borne on arches, as a safeguard against damp. The exposed roof of the porch has been protected by a temporary pent-house roof. We believe the benchers of the two inns have still to decide what to do with the newly-discovered exterior portion of the Round. Would that it could remain as it is! Every restoring touch will rob us of something of the real work of the twelfth century masons. But above all things, let the benchers beware of imitating the example set by their predecessors and Sir Robert Smirke in 1825-27, and substituting a casing of smooth stone for the mixed surface of rough wall-work and finished ashlar-work, which forms so great a charm in this fragment of the original structure.

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[*] The Office and Cabin Companion. By J. Simon Holland, Assoc. I.N.A.

[†] This was written before the delivery of Mr. Scott Russell's recent lecture at the Institution of Naval Architects.—J. S. H.

THE NEW WATER PURIFIER.

Our attention has recently been called to a new water purifier manufactured by the Silicated Carbon Filter Company, Battersea, and as it comes before us with the recommendations of such men as Drs. Letheby, Lancaster, and others of high repute, and having been adopted by Government, and by the Metropolitan Free Drinking Fountains Association, we consider it deserving of notice at our hands. The invention is that of Mr. Dahlke, a German chemist, and consists of an intimate combination of carbon in its most effective form with silica in a highly comminuted state, as they exist in the celebrated Torbane Hill mineral. The compound is formed into blocks of any required size, through which the water percolates, and in so doing becomes purified. This purification is not merely mechanical, like that which is produced by the ordinary water-filters, but it is also chemical, for we have it in the evidence of undoubted authorities that water containing lead in solution is entirely deprived of any traces of that deleterious body when passed through this filter. The advantage of the new filter in this respect cannot well be overated. Upon the various organic impurities contained in water the filter also acts with an equally effective purifying power. Thus, we are told, that the nitrogeneous products, as ammonia, which is a sure indication of organic matter in a state of poisonous decomposition, becomes changed and rendered harmless by the oxidation which the filter induces. The quantity of organic matter with which the water supplied by town pumps is impregnated has been estimated to range from 1·5 grains per gallon to 8·8; the common salt from 2·7 to 25; the sulphate of lime from 2 to 29; the alkaline nitrates from 2·1 to 24·6; and the combined ammonia from 0·5 to 2 grains per gallon. "These results," as we read in Dr. Letheby's report in the *Times* of Friday, August 2nd, 1861, "shows that town pumps are not only charged with decaying organic matter, but also with the saline products of its oxidation: the ammonia, for instance being a sign of present putrefaction, and the alkaline nitrates of a past, besides which, the existence of so large a quantity of common salt is suggestive of the filthiest impurities, as, for example, the fluid matter discharged from the human body, and the percolations from cesspools and sewers. Most of such waters are bright and sparkling, and they have a cool and agreeable taste. They are therefore much sought after for drinking purposes; but the coolness of the beverage and the briskness of its appearance are dangerous facinations, for they are both derived from organic decay, the water being liable at any moment to become charged with the active agents of disease." The chemical influences of Mr. Dahlke's filters upon all these impurities being most decisive and certain, the extreme value of the invention, both in a sanitary and economical point of view will be at once apparent. By the prices at which the articles are sold, it is obvious that they are suited to the requirements of every portion of the community, and we believe they are already largely sought after.—*The Building News.*

Mr. D. K. Clarke, the author of the ablest and most comprehensive work on railway machinery yet published, has been appointed superintendent of fixed machinery in the building of the World's Fair, to be held in London in 1862.

MICHEL ANGELO'S MANUSCRIPTS.

We (*Athenæum*) hear from Florence that the sifting, arranging, and copying of Michel Angelo's manuscripts is nearly completed, and that their publication is near at hand. We speak of those manuscripts left three years ago to the town of Florence by Casimo Buonarotti, the Turean Minister, in which legacy was comprised the old family house of the Buonarroti, with all the objects of Art it contained, and a sum of money destined to keep a conservator of the Buonarroti Museum. The manuscript collection proved to be far more important and comprehensive than was at first anticipated; and with the help of it, the life of Michel Angelo will have to be written anew Since July, 1859, the Signor J. C. Casalucci, D. Gaetano Milanesi, director of the State archives, and Carlo Pini, inspector of the Museum, have been engaged in the arrangement, and are preparing for print, a selection of the papers. The number of Michel Angelo's letters is about 300; but far greater is that of the letters addressed to him, among which are found the names of many of the greatest artists and other celebrities of the time. Of the artists, we may name Bartolommeo Ammannati, Baccio d'Agnolo, Valerio Vicentino, Angelo Bronzino, Giuliano Bugiardini, Baccio da Montelupo, Sebastiano del Piombo, Il Rosse, Andrea and Jacopo Sansovino, Tribolo, Giovanni da Udine, Vasari and Francesco d'Olanda, the Portuguese miniature painter, whose interesting Memoirs on Art and artist life in Rome at the time of Paul III. were published by the Count Athanasius Raczynski, in his book, 'Les Arts en Portugal.' Among other celebrities of whom we find letters in the collection, are Francis the First, Cosimo I. de' Medici, Piero Sederini, Benedetto Varchi, Vittoria Colonna, Catherine of Medici and others. These documents throw light on many an unknown or half-known fact, on many a circumstance which neither Condivi nor Vasari could sufficiently explain; they help us to understand why some of Michel Angelo's grand projects were not, and some only partly, executed, as the Façade of San Lorenzo, the row of statues for the Chapel of Piccolomini at Siena, the sepulchre of Julius II., &c.; and they show the great artist, as man and citizen, in the brightest light. Moreover, they allow us a fair insight into the history of the art and artists of which Michel Angelo formed the centre, and to whom he was the readily-acknowledged and much-honoured oracle. No wonder that the publication of these documents should be eagerly expected. An obstacle to the printing lies in a condition of the testament, according to which neither manuscripts nor sketches were to be made public—a condition which will be submitted to the decision of the magistrates.

ROCKVILLE, COUNTY DUBLIN.

The *Agricultural Review* in a series of "horticultural sketches," notices this mansion, the seat of Thomas Bewley, Esq., and thus describes the minor orchard houses. The dimensions are as follows:—length, 60 feet; breadth, the same; height, 22 feet; the sides, roof, and one end are glazed; the roof is a ridge and furrow in three spans, double glazed, with an interspace of four inches, with Hartley's rough plate muffed to produce the necessary shade. We are under the impression that Mr. Bewley originally intended it to be a tropical orchard-house, the gutter beams of the valleys at first being simply supported by metal pillars, now by ingeniously-devised and admirably-constructed buttresses, with pointed arches springing from them, which serve to divide it into centre and side aisles, and give it the appearance of the interior of some crumbling fane, or "minister of old time;" an impression further conveyed by the vegetation which appears to grow so naturally from the apparently mouldering joints of the stonework. The subdued light, the agreeable and soothing temperature, and an atmosphere peculiarly quiet and still, produce a calm quite in keeping with the idea. The entire breadth at the extreme end is taken up by an ingeniously constructed mass or curtain of rockwork, which, besides its speciality, serves to conceal numerous caves, crannies, and passes, well adapted for the growth of plants that affect such habitats. Advantage is also taken of it to form an easy ascent, quite in character, by which the visitor can obtain an elevation from which a charming *coup d'œil* of the whole is obtained. In the construction of the stone and rockwork, the following materials are used:—For the first, Ballycorus clay slate; for the second, coarse red granite, quartz, sandstone, conglomerate, and tufa. There is no jumbling of these; each is kept separate, and due regard taken to adapt the plants selected so as to suit their growth, and produce the most pleasing effect. A broad shelf at present runs round the sides and one end, which, as well as the color with which it and the interior are picked out, were done when the house was destined for another purpose. Being rathe incongruous, and not in keeping with its present character, M Bewley purposes removing the former, replacing it with rockwor and coloring the roof with more sombre and suitable tints, w h will add greatly to the effect.

WHAT AMERICAN MACHINERY HAS DONE FOR ENGLAND.

THE Hoe printing press, the machinery for making Enfield rifles, sewing machines, Colt's revolvers, Silver's marine governor, reaping machines, and now Thompson's boat machinery, are American inventions. Lynn now undertakes to supply England with boots and shoes at about half English prices, all made by machinery. Clocks are turned out at the rate of thousands a day, and for sale at half a crown or less, and no mean piece of household furniture at that, are all done by machinery. Chairs, and all kinds of cabinet furniture, which are wrought out by the daily toil of the hand, are turned out in the States with the whiz of the sawing, boring, planing, and shaping machinery; a large variety of iron wares, such as locks, &c.—formerly bought of England at hand labor prices—are now made by machinery infinitely superior for the purposes intended, and at much lower prices. Pianos, by far the most elegant and best in the world, are made wholly, from the elaborate carving outside to the completion of the musical arrangements within, by machinery, and for comparative qualities at about one-half of the prices in England, where nearly all portions, even in the largest establishments, are made by hand, with old fashioned legs, and cup castors, too, that look in modern times as if trousers were needed to cover their naked feet; in short, machinery for an endless variety of manufacturing purposes abounds in the United States to an extent not suspected in England.

STREET ARCHITECTURE, AND ITS PROPER TREATMENT.[*]

AMONG the distinguishing features of our age, none more plainly marks the progress of that phase of civilization which has respect to mental accomplishment rather than physical utilities, than the increased appreciation of art which is spreading among all classes of our countrymen. It is now perceived, not by select artistic circles alone, but by the great mass of those who represent the opinions of the nation, that while art yields enjoyment pure and holy, eminently fitted for the relaxation of our minds, it has further power to civilize, elevate, and, in a high sense, educate mankind. Hence, within the last few years many museums and schools for its study have been formed, and so much encouragement has been given to it in various ways, that few need be entirely ignorant of its history or unconscious of its more subtile beauties. What a subject of joy ought this to be to those directly concerned in the work of the fine arts; how necessarily must the interest of a nation impart to them renewed vigor, and cause them earnestly to strive and satisfy its artistic demands. And, as of the three sisters, architecture feels most plainly the effects of this revival, and the course of a few years having so changed the estimation in which she is held, that while formerly she was thought of but by few, now but few are willing to be ignorant of her doings, so architects are particularly called on to preserve and encourage this interest, and to be ever forward to use their utmost abilities for the advancement of their noble art.

Actuated by some such motive as this, and perceiving the desire deeply felt and strongly expressed by all who value art for an improvement in the architecture of our streets, the Architectural Association has offered a prize for an essay to be composed by its members, and has fixed the subject as "Street Architecture and its Proper Treatment." In reply to this offer I beg to submit the following, hardly so much with the idea of saying that which shall be new and original, as of setting forth in order some of those opinions which are more or less prevalent in the profession; and while the faint hope that the prize may fall to my lot is doubtless the motive power which causes the making of this attempt, it is rather to the mental culture obtainable from the study and thought requisite for the production of such an essay that I look for the reward of my labour.

Necessity of Improvement in our Street Architecture.—That there is need of improvement in street architecture requires no proof to any who look on the but slightly relieved ugliness of our towns; nor is the reasonableness of the demand less apparent, when we consider how few have time to spend in galleries of art, or in seeking out the renowned works of architecture. Surely it is a duty to bring beauty into contact with man's daily toil, that his mind may experience and be relieved by its mollifying influence.

Deficiencies of Former Art.—To trace out the steps whereby architecture lost the universal sway it once possessed, would introduce us to many variations in the national mind, and would require an historical treatise. One consideration, however, presses itself forward in our endeavour to account for the fact, that so many of our domestic buildings exhibit a total absence of art—Architecture became impliable, and refused to bend itself to the ordinary requirements of common life, chiefly owing to the curbing of originality by a system of copyism, which sought more to introduce certain acknowledged forms, than to erect noble and consistent structures, suited for and expressive of the ends for which they were intended. Architecture was too academical, and was considered too much the property of the initiated few; it was a thing to be learned, and the points dwelt most upon by its professors could not be appreciated without a minute knowledge of its fixed proportions, for which the mass of Englishmen cared nothing; who having therefore no sympathy with architecture, gave a careless and apathetic consent to its introduction into public buildings, but were willing to spend neither money nor attention that it might adorn their private structures.

Some may still possibly imagine art to be too high and too grand a thing to be found in the common-place houses of our streets; or that if high art were widely diffused over all buildings, we should be without foils to show off in favorable light our more pretending edifices; but a consideration of the universal care which nature has betowed on all her works, will answer both these objections. The lofty mountain, grand by its very barrenness, has charms no less real than the apparently more favored valley at its foot; however minute and comparatively insignificant her work, it loses not its elaborate finish; and she obtains her foils, by changing one kind of beauty for another, not by giving over everything to neglect or contempt. Let architects now, therefore, strive to make their art capable of ennobling the smallest matters as well as the most sublime, that it may everywhere be present, and be felt and appreciated by all; for only such art as this can rise to true and venerated greatness; and that experience which is obtainable in common things, will alone enable us to use with telling effect those magnificent opportunities which are but seldom presented to us. Let the rules which our art acknowledges, be those of reason and artistic morality, and its aim be after appropriateness, expression, and beauty, and ere long it will succeed in still more arousing the love and interest of the community. It is true all buildings cannot be equally elaborate or beautiful, but every building may be so suited to its purpose in reality and appearance, and may embrace so much of beauty, to be incapable of being surpassed in the proportion of art which it embodies.

Artistic Improvements of Towns possible.—Lest the present lamentable state of our towns should discourage us, or lead us to imagine that beauty can never reign in them, we may remember how, when we are wandering through a lovely country, the discovery of a quiet village heightens much the pleasure which we feel. The contemplation of man lends a fresh charm to the beauties which surround us; why, then, should not those spots where men most congregate have a power over us peculiarly their own? True, the direct work of the Almighty is less visible in our towns, but there, man His noblest work, is largely seen in all his strange developments, which, if our towns did but contain more that is lovely or beautiful, might be found to compensate us for the fact that it was produced by human agents, not by the Great Architect himself.

Position of Architects.—By the general consent of all, architects are naturally expected to be the principals in forwarding the reforms which are so eminently needed in our street architecture, and on them the duty necessarily devolves; but before they can possibly carry into effect any modes of treatment they may deem advisable, it is positively requisite that they should regain the position which at the present time they most assuredly do not occupy, of being the chief directors in the erection of the mass of the buildings which line our streets. How comparatively few of the newly built houses in the old parts of our cities tell of the artist's labor, while whole acres of land around our growing towns are yearly covered without any arcihtect being consulted. If this continues, architects are manifestly powerless. Their prime duty, therefore, is to regain their proper position by all the fair means within their power, particularly by rendering plainly superior those works with which they are connected, and by endeavouring to educate the public mind that it may be sensible of the absence of art and appreciation of its beauties when presented to it.

Characteristics of Buildings in Towns.—Whatever may be the character of its architecture, there is never any room to doubt when we are in a town; the bustle of people and vehicles, and the continuous rows of shops and houses give at once a distinctive appearance to the scene. But architecture does very much towards the division of towns into lively or dull, noble or despicable, clean or dirty, interesting or the contrary. While, therefore, it is needless to take any steps to mark towns as such, it is very necessary that our erections in them may help to place them on the desirable side in these comparisons.

The different circumstances in which they are placed, and particularly the necessity of using the least possible space of ground, will, of course, render very different the treatment of civic and rural buildings.

(To be continued.)

COMPETITION.—Plans are required for altering the first Presbyterian Church, Derry, and a premium of £20 is offered. Time limited to 14th December.

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[*] Prize Essay, by Mr. Lacy W. Ridge. Read before the Architectural Association, London.

MR. TITE'S PRESIDENTIAL ADDRESS ON CURRENT TOPICS.*

On a similar occasion to the present, two years ago, you did me the honour to invite me to read an opening address, on the occasion of the inauguration of these apartments as our resting-place. On that occasion I endeavoured to bring before you a general review of the state of architecture at that time in Europe, and of its probable future prospects. The interval is not long, but it is marked with important incidents, whether relating to ourselves or the world of art in general. We have lost a noble and beneficent patron and president; and, on the other hand, some of the incidents and considerations which have occurred relating to art in general, and architecture in particular, are most important. These considerations induce me to believe that in my character as president you will allow me this opportunity of suggesting to you such views as occur to me having reference to the past, and such notice of the circumstances which are now occurring as I trust may be interesting and useful to us in our profession.

As to the first, one's mind naturally recurs to the personal or professional losses we have to record. At the close of this paper I propose to refer to the deaths more specifically; and therefore at present I proceed to notice topics of immediate interest; and first, that which assumes the greatest importance at the present moment—THE GREAT EXPOSITION OF 1862. In some concluding remarks I made towards the close of last session, I referred to the position allotted in our modern society to our profession; and this appears to be marked, even in reference to the Exposition of 1862. On the occasion of the first Exposition, as you may remember, the design proposed by a committee of architects for the building was set aside, and a design happily suggested by Sir Joseph Paxton was adopted in its stead. The services of the members of this institute were, however, but slightly resorted to; and the superintendence of the working details of the building was entrusted to a member of the newly recognized branch of our profession, a civil engineer. On the present occasion, also, the claims of British architects, to co-operate in the design of a building which ought essentially to represent the state of the art amongst us at the present day, have been ignored; and foreigners are thus likely to form their opinions as to the merits of English architects from the production of a military engineer. I do not propose to criticise the designs of either of the Exposition buildings, notwithstanding the numerous lessons of "what to avoid" they both furnish. But, in the name of this institute, I think it my duty to protest against the OFFICIAL EXCLUSION OF ARCHITECTS from the councils of those who assume to represent the taste of the nation in the various branches of art.

Unfortunately it would seem that the public in general participates in the species of disfavour which this exclusion of recognized architects from the councils of the past and future Expositions may be considered to indicate; and the cheers with which vulgar unreasoning abuse of our profession is almost always received, ought to inspire us with serious anxiety. I believe, from the bottom of my heart, that the accusations brought against us as a body are essentially false,—that architects generally are honourable, conscientious men; hard students, earnest thinkers, and bringing to bear upon their professional duties such an amount of varied information, practised skill, educated talent, and high-minded integrity, as would in any other profession ensure a far greater share of wealth and distinction than we usually attain. Feeling very strongly as I do on this question, it is to me the more painful to observe the existence of an opinion precisely opposed to my own, in those who might be supposed to have known us intimately; as when such men as the Under Secretary of State for Foreign Affairs did not hesitate to state in Parliament, in the debate on the British Museum, that he advocated the plan proposed by Mr. Oldfield, because it was not prepared by a professional architect, and that the great success of the great reading-room was due to the fact that in that case "the trustees were not trammelled by an architect; and, further, when in a crowded House these opinions met with considerable applause. Again, look at Mr. Layard's remarks in the debate on the Foreign Office, in which we are spoken of most disparagingly. And this being so, I am forced to ask myself whether these things can be true. They say that "there can be no smoke without fire;" and it behoves us therefore to see that whatever fire may exist to cause the smoke now obscuring our fame, it is our duty to trample it out.

DISTINCTION BETWEEN ENGINEERING AND ARCHITECTURAL PURSUITS.

Again, I cannot but regret to observe the almost unanimous recognition of the distinction lately established between the pursuits of engineering and of architecture; because I am convinced that both of them would gain by being studied and practised simultaneously. In former time, and, indeed, until the establishment of the "Corps Royal des Ingénieurs des Ponts et Chaussées," in the middle of last century, no such distinction was admitted. Sir C. Wren and Mansard were both architects and engineers. Perronet called himself "Architecte du Roi." Robert Mylne called himself architect and engineer. Telford began his public career by building a church. It was the development of the canal system which first led to the separation of engineers and architects amongst ourselves; and to some extent this may be explained; for the pursuits of the architect lead his studies rather towards the condition of statical than of dynamical forces, whilst the canal and dock engineer has to deal very frequently with the latter. But in the execution of roads, railways, and such works, there are no conditions which ought to be beyond the sphere of an architect's knowledge; and I very strongly suspect that, if architects had been more frequently employed on railway works, our marvellous net-work of rails would have been constructed at less cost than it actually has involved, and that we should not have heard of so many accidents from "striking centres too soon," or from "the rain washing the mortar out of the arches." It is true that the construction of railways does not afford many opportunities for the exercise of the artistic faculty, the noblest one the architect is called upon to employ. It is a kind of work which requires more of science than of art. But our profession ought above all others to present the union of the art and science; and he is a bad architect, in the true sense of the word, who is incapable of becoming "the best workman" in any of the branches of what I may be allowed to call *statical* construction. I dwell upon this subject because it seems to me that much of the favour with which civil and military engineers are now regarded, and that their employment to the exclusion of architects, in the cases of the Exposition buildings, may be explained by the mistaken opinions which prevail with respect to the pursuits and the abilities of the latter. Not to travel beyond the names I have before noticed, I may be allowed to observe that the engineering works of Mr. Hosking upon the West London Railway may well compare with the architectural achievements of Sir William Cubitt in the first Crystal Palace. Be this as it may, it behoves us at least to render ourselves capable of discharging the ordinary duties of engineers and architects. Hydraulic engineering may require a different mental training, and a course of study of a different character, to that required for building in the open air; but it is absurd to suppose that the man who can build a church could not build a bridge or a viaduct, or that he should be unable to conduct great earth-works or tunnels.

THE FLORENCE EXPOSITION BUILDING.

Before leaving the subject of the Exposition buildings, I cannot refrain from saying that the design, given in the *Builder*, of the Florence Exposition, strikes me as containing far more artistic merit, and as presenting a more satisfactory architectural character than the published design of the proposed building of South Kensington; no doubt because in this instance, as in the instance of the construction of the Palais de l'Industrie of Paris, educated architects were consulted. Passing over this part of the subject, however, I am sure that all my hearers will agree with me in the expression of the deep sympathy excited by the first Italian Exposition. These industrial gatherings have assumed, of late years, a deeper moral significance than could possibly have entered into the philosophy of their founders; and they have become the occasions for eliciting the expression of the most recondite forms of national thought and feeling. An Italian Exposition, held in the city of Giotto, Dante, Michel Angelo, and the Medici, becomes, therefore, the matter for serious reflection to those who wish that in truth Italy should cease to be "a geographical expression" And we, whether admirers of the Broletti and of the town-halls of the Mediæval republics, or of the palazzi, cassine, or churches of the *risorgimento*, must turn an anxious gaze on the first steps of the noble Italian race, in the political risorgimento which is at present taking place in that land, so long cursed with what all considered "the fatal gift of beauty." Our sympathies may be of small import to the Italians in the struggle they have still to go through before they can establish a strong nationality, such as the "advanced civilization" of the age requires; but I am sure that an assembly of architects will unanimously join in the expression of good will towords the Italian cause. May the Exposition of Florence prove the harbinger of the full glory of bright days for Italy.

THE ANTWERP CONGRESS.

The artistic Congress of Antwerp, too fussy and unpractical though it may seem to have been, contains the germs of an organization which may, perhaps, produce for art consequences as important as those produced by our "Association for the Advancement of Science" in its particular sphere. In these days of architectural and artistic eclectism, it would manifestly be advantageous for the student to be able to study, with his own eyes, every local manifestation of æsthetical feeling; for the subtle influences of climate, and political and municipal organization, can never be appreciated unless we have the means of watching their daily operation; and few learned treatises on the art-history of nations enable us to appreciate the nature and extent of the action and re-action of building, or of plastic materials on the visible expression of art. The amount of good to be effected by these gatherings must depend on the manner in which they are conducted. As an isolated experiment, the Antwerp Congress was very successful. It were a marvellous pity that it should remain an isolated experiment.

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* Read before the Royal Institute of British Architects, on the evening of the 5th instant.

PARIS.

Whilst thus alluding to foreign operations, it may be as well to continue our attempts to derive lessons from them, before turning to more decidedly local considerations; and I would therefore strive to point the moral of some other tales to be read in the proceedings of our immediate neighbours. Thus, all travellers who return from Paris are, upon a superficial view of what is taking place there, and it must be added in almost every important town of France, disposed to find fault with the comparatively slow rate at which improvements are effected in London. Within ten years Paris has been, in fact, remodelled throughout; and broad streets, open squares, and fine houses, have replaced the ancient, narrow, tortuous assemblages of dens of filth and impurity. It is to be feared, however, that the real sanitary improvement of Paris has gained little by these changes; and, indeed, so long as the water-supply and the sewerage of that town are conducted on the present systems, little effect can be produced on that infallible test of the value of the sanitary arrangements of a town—*the average death-rate.* I advise those who believe that "they manage all these things better in France" than we do here, to visit the "Intake" of the Chaillot Water-works; or, to ponder over the charge he will have to pay, even in a private lodging for that necessity of an Englishman's life, the daily hip-bath. Nor is this all: for they who knew much of Paris life in former times, must be painfully convinced that the embellishments of the town have resolved themselves into heavy charges on its inhabitants; whilst the utility of many of the costly works now in hand must seem more than questionable. House-rents have risen to fabulous heights in Paris: the poor are driven from their old haunts, and no refuge is provided for them; whilst, unfortunately, the sanitary defects of the old houses are servilely reproduced in the new ones. But, however painfully these defects may strike us on second and calmer thoughts, it cannot be denied that there is something fairy-like in the rapidity and the brilliance of the change actually produced; and we naturally inquire by what financial agency it has been produced. My friend Mr. G. R. Burnell has made some inquiries into this matter, which I hope that he will be able to communicate to you in the course of the session; but, in the mean time, I may say that the impression I have derived from what he has told me is, that the improvements of Paris have been effected upon principles of political economy, and by dint of an abuse of public credit, which would never be tolerated in this country. We hold that local improvements should be paid for by local contributions, and that building speculations should not be assisted by financial corporations, patronized, if not directly managed, by the Government. The opposite principles prevail amongst our neighbours; and, sooner or later, it is to be feared, that they must produce, even if they are not now producing, sad confusion in the finances of the State.

One matter of detail may be worth especial notice from us—viz, the conditions under which the municipality is now able to obtain land for the purpose of effecting any new works declared to be "*d'utilité publique.*" Until 1852 the municipality, under the old law of expropriation, could only take compulsorily the land absolutely required for the establishment of the streets; and the proprietors of the land partially affected were entitled to retain the remainders of their property, with all the increased value conferred by the new frontages. At the very close of the dictatorial power assumed by the Emperor in 1851, a decree "having force of law," was issued however, by which municipal bodies charged with the execution of works of public utility were empowered to take an additional width of land beyond the lines of the intended streets, sufficient to allow the construction of good houses. The effect of this law has been that the municipalities of France have lately been enabled to sell the frontages on the new leading thoroughfares they open at advantageous terms; and thus, at the expense of the landed proprietors disturbed, materially to diminish the cost of the works. If the latter had been discussed by a really representative body, there could be little reason to regard the advantages thus given with jealousy; but, when the works to be executed are simply prescribed by the Central Government, it is to be feared that great abuses may arise from the interference with the rights of private property it may be made to cover.

THE ARTESIAN WELL OF PASSY.

The success of this experiment is a subject of great interest to all who are called upon to deal with the supply of water to detached mansions, or even to small towns; and to us Englishmen it is the more interesting on account of the recent failures to establish similar wells at Highgate, Harwich, as well as at Calais and at Ostend. The boring at Passy, after passing through the same beds as had previously been traversed at Grenelle, reached the water-bearing stratum at a depth of 1,797 feet 6 inches from the surface, and the water rose to a height of 18 feet from the ground. The lower diameter of the well is about 2 feet 4 inches; and the quantity of water it delivers has, after some oscillations, settled to about 3,791,000 gallons per twenty-four hours. At present, the sand and clay brought up by the water are in such proportions that the water is not fit for use,—a fact which was also observed at Grenelle during the first year after the completion of the boring: the water rises at about 82 degs. Fahren. One effect of this well has been to diminish notably the yield of the Grenelle well; and it must, therefore, for some time to come remain an open question, as to whether or not the water-bearing stratum under Paris will be able permanently to maintain these two springs. The discussion of the failure of the attempts to obtain water in a similar manner, to which I have above referred, would extend to so great a length, that I must pass it over slightly at present; but the great lesson to be learned from it seems to me to be, that at the present day our acquaintance with the laws of geology is only sufficiently advanced to enable us to say with certainty what we shall *not* find beneath the surface, in districts which have not been exposed to violent subterranean disturbances: they are utterly incapable of telling us what we *shall* find. At London, Harwich, Calais, and Ostend, the lowest member of the subcretaceous formations, from which the wells of Passy and Grenelle derive their supply, is entirely wanting.

THE LAWS OF METALLURGY.

A very warm and rather acrimonious discussion is now being waged amongst chemists and experimental observers on this subject with respect to the differences between iron and steel; and the names of Binks, Mushet, Bessemer, Frémy, and Caron, add weight and authority to the various opinions propounded thereon. "*Non nostrum inter eos tantas componere lites;*" and Messrs Frémy and Caron may well be left to settle the precise amount of influence exercised by the nitrogen, cyanogen, and carbon, present during the cementation of steel upon the resulting product. The influence these researches may exercise upon the building arts may, however, be very great; and the production of steel by the new methods suggested by an improvement in the theory of the production of steel may possibly place within our reach a material possessed of far more elastic properties than either cast or wrought iron. We must therefore follow with interest the steps of this inquiry, and hold ourselves ready to adopt any improvement it may place at our command. I would make the same remark with respect to the recent applications of electricity to the ordinary purposes of life; and I would urge the members of our Institution to avail themselves, whenever it is possible, of the great domestic conveniences that wonderful agent is able to supply. We in England are behind our French neighbours in this respect.

FIRES.

In domestic matters the most important lesson to be derived from the events of the last twelve months is, perhaps, the one connected with the terrible fires in the river side warehouses. In a city so essentially commercial as London, it must always be desirable to interfere as little as possible with the arrangements or the operations of trade; and we must always bear in mind the fact that every interference of this kind resolves itself ultimately into a tax upon the articles affected. But the terrible effects of a fire when it once bursts out in large stores of merchandise of certain descriptions are such, and are likely to reach so many persons, that it would almost seem necessary to impose some rigorous limitations to the quantity of these goods, or some stringent regulations as to the construction and management of the warehouses wherein they are stored, if these warehouses are to remain in the centre of the town. All systems of so-called fire-proof construction are useless to resist the effects of the heat evolved during the combustion of large masses of certain kinds of goods; and it even seems that the very precautions taken to ensure the non-combustion of walls, floors, and ceilings, only adds to the intensity of fires in such cases, by turning the buildings as it were into species of closed retorts, able to produce a destructive distillation. The only efficient protections against the spread of large warehouse fires seem to me to consist, first, in limiting the size of the warehouses themselves; and, secondly, in isolating them effectually if the goods they are to hold should be susceptible of easy combustion. Whatever sacrifices these precautions may entail, they ought to be borne for the sake of the public in general.

It may be as well here to mention, that in the course of the spring (9th of April last) the theatre of Barcelona was burnt to the ground; so that warehouses are far from being the only structures exposed to this terrible scourge.

RESTORATION OF CATHEDRALS AND CHURCHES.

There is reason to congratulate the country at large, as well as the lovers of our national archæology, on the zeal with which the good work of preserving and restoring our cathedrals has been lately carried on. In the metropolis, the Temple Church is again undergoing repairs under the directions of our excellent member, Professor Sydney Smirke; and Westminster Abbey is in the eminently judicious care of our friend Mr. G. G. Scott. In the provinces, the cathedrals of Ely, Lichfield, Ripon, Chichester, the churches of Waltham Cross, Islip, Taunton, and numerous other relics of former times are being restored; and though, in the case of Chichester, a lamentable accident has occurred, I hope that the efforts to ensure the re-edification of the spire will be successful.

IMPROVEMENT OF THE PUBLIC TASTE.

In more modern constructions I think we may congratulate oursaves as a body on the improvement which is manifestly taking place in public taste, and on the skill with which the members of our profession have availed themselves of the opportunities afforded them of displaying their knowledge and talent. Art questions are now fortunately discussed on all sides; and a truer, sounder tone of criticism prevails amongst us as a nation than at any former period; and from the fact of our enjoying true liberty of thought and action, I suspect that I may add, than can prevail amongst the despotically administered nations of the Continent. It is our special duty, as architects, to avail ourselves to the utmost of these advantages; and to devote our best energies to the advancement of our noble art. This can only be done by earnest, conscientious study, by devotion to our pursuit, and by an enlightened investigation of the various physical and moral laws it brings into play. Architecture is, as I have said before, an art as well as a science. Excellence in it cannot be obtained without labour, or without the sacrifice of ease. We must resolve, if we would attain in its ranks to that "Fame," the last infirmity of noble minds, "to scorn delights and live laborious days;" but the "fair guerdon" we hope to find will amply repay us; for art is its own reward, and its cultivation will at all times compensate for the toil and time expended in its pursuit.

DEATH IN THE RANKS.

In the course of the twelve months which have elapsed since the last annual inauguration of our meetings, death has by no means spared the ranks of those who have been interested in, or who have indirectly assisted, our pursuits. A short notice of the more distinguished of those persons may, perhaps, suggest to many lessons of deep significance, both morally and artistically, and I hope, therefore, you will bear with me whilst I pay the following short tribute to the memories of our late fellow workers.

The losses of our profession, this year, have been of a threefold character; we have lost coadjutors in the more recondite branches of archæology, in the more abstruse branches of mechanical, chemical, and physical sciences, and from amongst our own immediate ranks. Amongst the former may be cited the names of Baron Bunsen, of the Earl of Aberdeen, and of Sir Francis Palgrave; in the ranks of scientific men connected directly or indirectly with our studies we miss such men as Wertheim, Vicat, Sir William Pasley, Eaton, Hodgkinson, Berthier, and Sir William Cubitt; whilst, amongst our own colleagues, we have to regret the loss of Professor Hosking, Mr. John Clayton, Mr. Henry Austin, our late esteemed solicitor and valued friend, Mr. W. L. Donaldson, Mr. George Bailey, and Mr. Robert Grainger, of Newcastle.

After giving a short biographical sketch of each of the above named, the president concluded by stating of the late Mr. Donaldson, Honorary Solicitor to the Institute, that he had at all times so identified himself with the interests of the Institute, and had displayed so much talent, energy, and disinterestedness in advancing its prosperity in all matters which entered into his province, he feared they shall never be able to supply his loss. The tribute of respect that can be offered to his memory, is feared but a feeble consolation to those who mourn his loss, but in the sincerest and most earnest manner did he beg to express, in the name of the whole body of the Institute, the feelings of grief and of sympathy for the loss sustained.

"All heads must come
To the cold tomb;
But still the actions of the just
Smell sweet, and blossom in the dust."

The president, having resumed his seat, again rose, and said there were two or three other cases worthy of notice, one was the death of Mr. Thomas Finden, who died at the age of 77, was a partner of Mr. Lewis, and surveyor of Hoare's brewery; the death of Mr. Woodward, the architect of the Oxford Museum, of the firm of Dean and Woodward, and who died of consumption; and the death of Zwirner, the architect for the restoration of Cologne Cathedral.

RINGING BELLS BY ELECTRICITY.

The chairman proceeded to observe that there was a mode of ringing bells by electricity, so that in a short time a gentleman having an office in the city could carry on communications between his office and his residence, even if some miles distant. There were in the room bells to explain the system, which would probably be referred to more at length before the meeting broke up.

ART SCHOOLS, ROYAL HIBERNIAN ACADEMY.

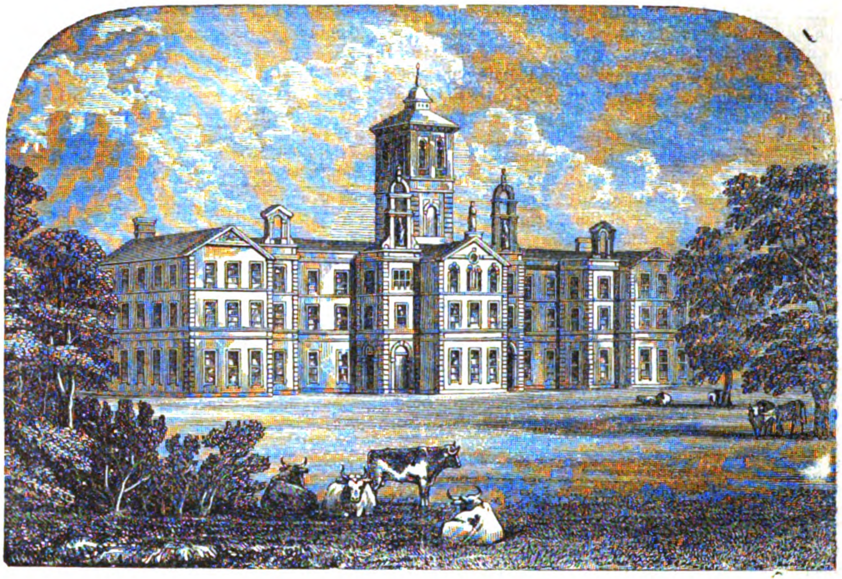
ONE of the changes consequent on the recent enquiry by Mr. M'Leod, Royal Commissioner, into the general state and management of this Institution, was the total reconstruction of the system of admission into its schools of art; and on Monday evening last the winter session opened under the new auspices which we may briefly describe thus in the words of the professor of painting, Mr. H. M'Manus, who delivered the opening lecture:—"Students, to qualify for admission to the schools must in future graduate in the drawing schools of the Royal Dublin Society; they must have passed in the four papers of free-hand, geometry, perspective, and object drawing of the second grade, and produce the certificate from the department of science and art." The lecturer remarked that "this new career of art education was more in accordance with the time;" that "the questions are few, and the papers to be filled by no means difficult, but are yet sufficient to show if the student understands the matter." Adding that "many persons go through this course of primary art instruction without having the least idea of becoming artists, and, therefore, to require those who intend to practise art as a profession to go through a similar course of study cannot be objected to; but the presenting of a drawing by the student to show qualification for entrance to the academy's schools, is not in any way superseded by this requirement, and remains as before."

The following is the programme for the session:—"The hours of attendance will be for study from the living model from seven to nine o'clock every evening in the week, except Saturday. One of the academicans appointed to act as visitors will attend each evening to superintend the studies of the students. The attendance in the school of painting will be from twelve to three o'clock daily, except Saturdays, and the appointed visitors will attend from time to time during the week. The school of the antique, under the superintendence of the keeper, will be open each day, except Saturday, from eleven to three o'clock. In October there will be an exhibition of the works of the students in their various schools, and inspectors from the Department of Science and Art will examine the works, and in conjunction with the president and keeper, will award medals. Lectures will be delivered by the professors—as the council shall require—and for the most part will be delivered upon Saturday evenings, and on those evenings in which there shall not be lectures the library of the academy, under the supervision of the keeper, will be open, which contains many valuable works upon art."

When Mr. M'Manus had concluded his valuable address, in the course of which "he dwelt at much length upon the various branches and modes of study, the necessity of a knowledge of anatomy, and, above all, of a careful study of the antique, the proportion and balance of the figures delineated, and the practice of drawing, instead of painting, from the living model, and from the round; also pointed out the absolute necessity of regular attendance, the observing of order and gentlemanly bearing both in and out of the academy, and concluded by announcing that he intended shortly to deliver lectures upon the true proportions of the human form, and the proper balance of figures," Mr. Sharpe remarked that "he thought the necessity of primary education had been overlooked, and that the academy could not be considered a complete or effective institution unless elementary instruction in art was given inside the academy, instead of trusting to another society to afford it, and that nothing in their character prevented it."

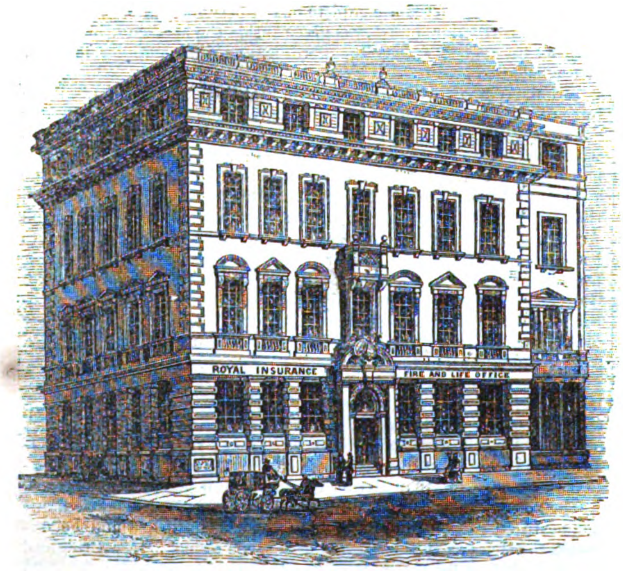
Mr. M. Angelo Hayes, in reply, said that their bye-laws had all the force of the charter—that the same source from which their charter emanated, viz., the government, had also given them their laws which had been most carefully revised; and these laws expressly laid it down that students only be admitted to the schools of the academy who had already passed through the preliminary course in the drawing schools connected with the Department of Science and Art; that it was obvious the government intended the academy to become, so to say, an Art University for those who purposed studying fine art, in contradistinction to the schools of the Royal Dublin Society, which were for the study of ornamental art. It appeared to the academy that those gentlemen who had been up to this new arrangement of studying in their schools, ought not to be precluded from competition for the medals to be awarded. Mr. Crowe, the government inspector, during his late visit to the academy, had led them to expect that the Department of Science and Art would give this matter due consideration, and the matter was being negociated. Mr. Hayes said he had no doubt so reasonable a request would be conceded, for the greatest anxiety was evinced to give every help and facility to the academy in rendering their school efficient and prosperous.

The keeper (and chairman of the evening) Mr. Kendrick, announced that the students in the living model school would be expected to attend on the next evening at seven o'clock. Mr. Bridgford being the visitor for the week—the other visitors were Mr. Thomas Farrell, Mr. Edward Hayes, and Mr. George Sharpe, who would attend in succession. The visitors to the Painting School were Mr. Brocas, Mr. Duffy, Mr. MacManus, and himself (Mr. Kendrick). In the Painting School the draped model and the copying of works would be on alternate weeks, copying of works would be on alternate weeks, commencing with the draped model. Mr. Brocas visitor. Amongst the members present were—Thomas Bridgeford, George Sharpe, Edward Hayes, M. H. Stapleton, the professor of anatomy; P. V. Duffy, Wm. Brocas, B. Mulrenin, M. Kendrick, keeper; J. Falkner, M. Angelo Hayes, secretary; Terence Farrell, J. J. M'Carthy, J. R. Marquis, General Colomb, H.R.H.A.; Thomas Farrell, professor of sculpture; H. MacManus, professor of painting; Patrick Byrne, B. Watkins, W. Osborne, Charles Nicholls, Esqrs., &c.

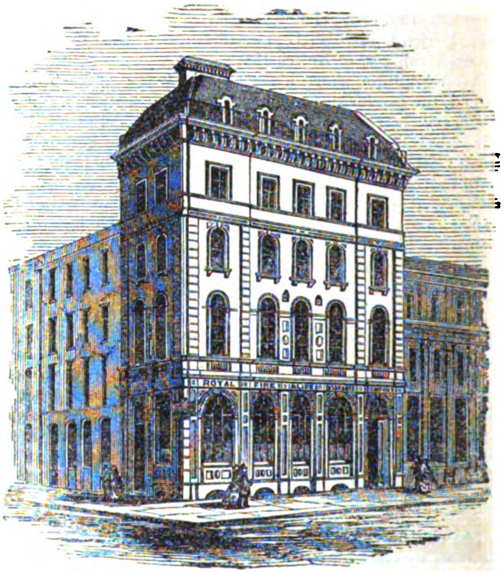


SAINT VINCENT DE PAUL MALE ORPHANAGE, GLASNEVIN.—MR. J. S. BUTLER, ARCHITECT.

WE are enabled to include herein a small view of the buildings—portion of which have been recently constructed—at Glasnevin for the Society of St. Vincent de Paul, and designed, when completed, to accommodate some 120 boys. The style of the exterior, though of plain character, and presenting a calp stone body with granite dressings, displays some novel features, and is effective and appropriate. The internal arrangements are comprehensive, and adapted to their intended purposes, the whole reflecting credit on the architect, Mr. J. S. Butler. Without sectarian identification, which it is always our especial care to avoid, we may observe, that the mission of this society is pre-eminently laudable, and moreover appreciated by the members of all persuasions; and uniting in same, we desire, by insertion of the illustration and this notice, to contribute to its service. A more precise description of the building appeared in a former No.



(LIVERPOOL OFFICE.)



(LONDON OFFICE.)

THE ROYAL INSURANCE COMPANY'S OFFICES, LIVERPOOL AND LONDON.

WE give two minor illustrations of the buildings in which the Royal Insurance Company have their respective offices in Liverpool and London—the former of which we understand is the "head" establishment. Although the scale of the illustrations is smaller than might be desirable to develop their features—a circumstance over which we had no control, as the blocks were supplied—it will be observed that each is distinguished for imposing appearance and architectural excellence, and we heartily wish that the directors of this most successful, liberal, and enterprising company would be induced to establish their Dublin branch agency—which is now twofold, viz., for the north of Ireland, at 49, Dame-street, J. Gore Shields, Esq., local manager; and for the south, at 45, Dame-street, J. R. Curry, Esq., local manager—in as pretentious a structure as either. Just at present insurance companies generally are bestirring themselves to the pursuit of business in Ireland very much more than heretofore—a palpable evidence both of growing appreciation of the system and of international intercourse—and very recently we announced the commencement of some important buildings by a certain few for their local establishments; it may not be unreasonable, therefore, to assume that sooner or later, and in proportion to the ratio of encouragement afforded, "THE ROYAL" will follow in their wake.

LORD TALBOT DE MALAHIDE.

LORD TALBOT DE MALAHIDE.

We deviate somewhat from our previous course in presenting "a portrait" illustration, but feel justified in making an exception to "the general rule" in the case of the distinguished nobleman and art votary, the subject of the accompanying sketch; and we may also remark, that such deviation is not without precedent in metropolitan periodicals of kindred character. It has often been our pleasing duty to record the name of Lord Talbot De Malahide in connection with the scientific and artistic institutions of Ireland, and we confidently assume that we but speak a very general sentiment when we say, that the extent of practical aid afforded by the noble lord to the advancement of art and archæology in this kingdom, but more especially in that portion of it we inhabit, has not been superseded—if equalled—by any other individual in the community. Himself an artist—*con amore*—we find the noble peer almost ubiquitous, where pilgrims at the shrine of art are assembled; encouraging by his example others to "do likewise," and lending his eminently practical mind to their councils.

THE ARTS OF WAR AND PEACE.

Do we live in an age of *war* or *peace?* may we naturally ask when reviewing the chief topics of the day, those in which—seemingly at least—most interest is centred, and to which man's inventive faculties are just now most applied. We are entertained with a perpetual history of "volunteer demonstrations," exuberant professions of "loyal and national attachment," and are told that the *toute ensemble* of civilian avocations—the *pencil* and the *pen*—are comparatively consigned to oblivion, while the *rifle*, the *musket*, or the *revolver* hold pre-eminent sway; drilling becomes "the national system of education," and the merchant's counting-house and professor's studio are alike deserted for a display of semi-military, semi-civilian manœuvres at Wimbledon Common or on Aldershot plains. As *yet*, fortunately, this martial epidemic has not in its integrity commenced to rage in our island—though premonitory symptoms are occasionally apparent in certain quarters—but its ill effects *have;* and here, as well as in "the epitome of the world"—London—the daily press is pregnant with laudations of "the recent successful trial trip" of some "iron plated" naval monster of death, or of some skilfully conceived projectile for the more effectual and wholesale annihilation of fellow-man. Amidst all this bustle to meet "grim-visaged war," the social condition of the inhabitants of our cities and towns, with which the arts of *peace* are so intimately identified, are comparatively neglected; sanitary principles are notoriously disregarded, and all that relates to the preservation of life is treated as little better than *nought.* Perhaps the most palpable and unpardonable defect of the many is the present most unsuitable provision against the ill effects of that ravaging element, *fire.* Our buildings are generally constructed as if more to favour its propensities than to curb them, and—even admitting, under certain circumstances, the reasonableness of the casualty — the absence of precautionary measures against *fatal* results is painfully apparent. Though somewhat late in the field—yet "better late than never"—the attention of our townspeople was, by the recent sad catastrophe in Kildare-street, awakened to the necessity of providing public fire-escapes—our city, with shame be it admitted, being previously without *one*—and with some creditable earnestness the project was consummated. But the apparatuses in vogue being clumsy and defective, a philanthropic and ingenious spirit sought a remedy, and successfully produced an escape on a totally different principle, and at once, simple, facile of application, cheap, and affording perfect safety in ascending and descending. This we had a recent opportunity of seeing practised in the courtyard of the Commercial Buildings, and in briefly describing its features and just claims for general adoption, we note that the patentee is a mere lad, by name William Clayton, of 40, Waterloo-road. The telescopic principle is adopted, and double ladders, which when elongated attain a height of 55 feet, slide within wide ones, and are balustraded at the sides for protection; whereas the present escapes necessitate the objectionable use of a single swivel ladder *without* protection, revolving at the top of the framework, where a height greater than 30 feet has to be reached. The motive power is by means of pulleys and ropes, the latter passing round a drum, worked by a windlass on the axle of the carriage-wheels, which therefore serves a double purpose. When desirable, a cradle of light iron, covered with *wire* netting, and scarcely 20 lbs. weight, is applied to the *uppermost* side of the ladders, and slides up and down on a rail having corresponding groove with marvellous rapidity. This escape can with ease be conveyed to its destination, and worked by *one* man—a fact which speaks volumes in its favour, independent of the other meritorious features above enumerated. None of the numerous descriptions of fire-escapes employed in London and elsewhere can at all compare with this in the various important regards already mentioned, and the brigade authorities are bound, in justice to the public, at least to test its merits by a trial.

THE DUBLIN QUEEN'S COLLEGE.

It is stated that the Museum of Irish Industry, Stephen's-green, has been fixed upon by Sir Robert Peel, Bart., for the location of the proposed Queen's College in this city. If the statement have any foundation, it would seem strange, first, that so excellent a national institution as the Museum should be disturbed, and secondly, that the metropolis should not be deemed as worthy by Government of an independent structure for a Queen's College, as was Belfast, Cork, and Galway, where buildings of importance were specially provided for the purpose.

MORE AMATEUR ECCLESIASTICAL ARCHITECTS.

We find the following significant paragraph—to which our previous strictures on a corresponding subject are applicable—in the *Limerick Reporter*:—

"The new church of the Convent of St. Ursula, at Thurles, was solemnly dedicated upon Monday by his Grace the Lord Archbishop (Roman Catholic) of Cashel, attended by a numerous body of clergy, in the presence of very many respectable Catholics invited by the community to witness the ceremonial. The first stone of this sacred edifice was laid on the 12th July, 1859, by the Most Rev. Dr. Leahy, *to whose taste religion owes so much, and this little church owes all—for he was the designer.*"

"*Dignissimus Leahy architectus erat,*" would be a suitable inscription on an outward tablet.

IMPROVEMENT OF SLIGO.

In the address presented by the Mayor of this town to Sir Robert Peel, Chief Secretary for Ireland, on the occasion of his recent visit, we find the following:—

"The trade of Sligo is daily increasing. There is full employment for all classes of our town population, at our own expense, without ever receiving one farthing of public money. We have made great improvement in our harbour, so that vessels drawing 15 feet of water can reach our quays, and ships of the largest tonnage, and greatest draught of water, can safely anchor at the entrance of our pier. The mercantile interest ask nothing but to be left alone. In 1847, while, no doubt, much relief was given, there were many great abuses in the expenditure of public money; the commissariat had refused to sell or part with any portion of its food stores, although called on by public bodies here, while provisions were scarce and prices high. When the famine had done its work and ample supplies had been imported, they entered into competition with the merchants, shut the markets, reduced prices of food to one-third of the cost, and ruined the enterprising importers. While we can most truly assure you that in this town and neighbourhood we do not apprehend any severe pressure of want, we know that in the backward parts of this county, and along the mountain ranges where the farms are small and the land poor, there must be great distress."

CROZIER TESTIMONIAL, BANBRIDGE.

INSTRUCTIONS TO COMPETITORS.

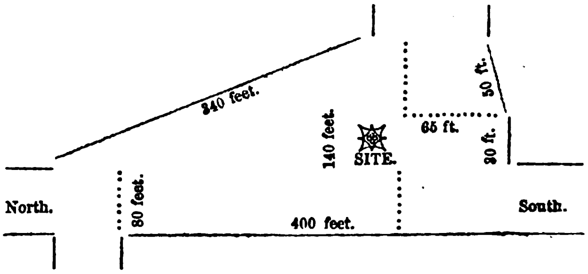
For the information of architects desirous of competing for the premium of £20, proposed to be given to the author of what may be deemed the most suitable design for a pedestal to the statue of Captain Crozier, R.N., we give the following particulars from the official circular:—

Extension of Time.—The time for sending in plans is extended to the 14th of December next.

Figure—Seven feet six inches high. Material, Portland stone.

Site.—The lamp (shown in the photographs which will be forwarded on application to the secretary) is the centre of the triangle, denotes the locality of the proposed statue. The space is 400 feet from north to south, and 140 from east to west at the widest. The ground is triangular—the street narrowing to 60 feet at the north extreme end. Dungannon freestone, at 12s. per ton, can be delivered on the ground.

The committee leave to the taste and discretion of the competitors whether they furnish a base and column of such height as they may deem expedient, or a base and pedestal of a height not to exceed 20 feet, exclusive of figure; as well as size of base, for which there is ample space. They decline also to say of what order of architecture it is to be, but without railing or steps. A bas-relief to be provided for on one side of the pedestal. The inscription will be pretty elaborate. The statue to be seen at Mr. Kirk's, sculptor, in Jervis-street.



PLAN OF SITE.

MORE COBBLING AT THE MANSION HOUSE.

On the 8th inst., at a special meeting of the Town Council, a report recommending certain repairs to be made in the Mansion House was brought up for confirmation.

Mr. French very properly remarked, that during the last ten or twelve years the Council had spent £13,000 in the repairs of the Mansion House, and that for that sum the old building could have been knocked down, and a new one, more spacious and comfortable, erected. The best thing that could be done would be to stop these perpetual repairs and build a new Mansion House.

Alderman Reynolds said it was quite true, though almost incredible, that £13,000 had been spent as Mr. French stated. He would move for the abolition of the present out-offices, &c., attached to the Mansion House.

Mr. Martin said that every facility would, of course, be given for the execution of the repairs and improvements suggested before the incoming Lord Mayor entered on his office. He was of opinion that the improvement suggested by Alderman Reynolds would be very beneficial, as well as the taking down of *the ugly garden wall fronting the street.*

Other members having expressed their opinion as to the necessity of having the proposed repairs immediately executed, the report was confirmed.

What the nature of these repairs may be we are unable to say at present, but of our own knowledge we can advise that the condition of the "Oak-room" needs looking after.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The opening meeting for the session—as announced to be in our last impression—took place on the 4th inst., Mr. Tite, president, occupied the chair, and his inaugural address will be read with much interest on another page. Various donations were announced, including the original painting, by Pannini, of "the Ruins of the Colosseum," the bequest of the late Mr. W. L. Donaldson, honorary solicitor. Professor Donaldson was as usual at his post, vigorous as ever, and reviewed comprehensively the presidential address, with the following remarks in addition:—

With respect to the improvements being carried out in France, he considered that the French Government was entitled to credit for them, because they were calculated to benefit not only the metropolis, but the cities of Lyons, Marseilles, Bordeaux, and, in fact, all the great centres of industry and population in the north, east, south, and west. To the sanitary part of the question he had devoted some attention. The subways in the boulevards were intended to convey the sewage and the gas-pipes in a manner described in a recent number of the *Builder*.* The energy of the French Government contrasted most favourably with the apathy and inertness of our own authorities. Look, for instance, at the block of houses standing in the narrowest part of Holborn, and the entrance to Chancery-lane, in the same neighbourhood. There was no thoroughfare from Holborn into Lincoln's-Inn Fields and the Strand, and in many other parts of the metropolis there was no adequate accommodation for the constantly increasing traffic of the metropolis. In fact, the population of London had outgrown its dimensions; and so blocked up were the streets, that every man of business knew that in making his way through the City he could do so quicker on foot than by cab or omnibus. He thought that it was their duty to urge improvements somewhat similar to those now being carried on in Paris on our own Government. Then, again, look at the chief seaports of the kingdom—Dover, Portsmouth, Plymouth, and others. Why, they were the dullest and least picturesque places that one could live in; without public monuments, fine highways, or any of the improvements which characterized continental cities. Antwerp, Havre, Marseilles, were all beautiful cities, embellished with fine architectural monuments; and although the latter was somewhat deficient in salubrity, the Emperor had lately given instructions for the construction of large works; for his imperial majesty could not allow local bodies to interfere in such a case. Bordeaux was a very fine city, perhaps as fine as either Edinburgh or Dublin. However, it could not be denied but that much had been done at home in the way of improvement within the last twenty or thirty years; and that a sounder public taste was growing up, not only in London, but in Manchester, Birmingham, Liverpool, and Glasgow; which latter city was emulating in its great squares the metropolis itself.

The President said that Mr. George Gilbert Scott was prevented from reading a promised paper "On Ancient Architectural Monuments and Remains," by reason of the illness of one of his children, and it was considered by the council that it should be postponed until a future evening.

Mr. P. Prud'homme then explained the nature of his system of electric bell telegraphs, as supplied to the Imperial Palace, and several public and private institutions in Paris, intended to take the place of ordinary bells. He stated that they could reach any distance, could be fixed without injury to walls or ornaments, and might be relied upon as to accuracy. They also had the advantage of being simple in their mode of working, and inexpensive in construction.

The President announced that the consideration of the subject of Architectural Examination would be resumed on Monday, and that on the succeeding Monday (the 18th inst.) Mr. James Fergusson would read a paper "On the Mode in which Light was introduced into Greek Temples."

ROYAL IRISH ACADEMY.

The first general meeting of the members for the session 1861–62 was held on the 11th instant, the Very Rev. Dean Graves, President, in the chair.

The Rev. Dr. Lloyd read a paper "On Earth Currents, and their connexion with the Phenomena of Terrestrial Magnetism."

Professor Sullivan read a paper "On the Hydro-carbonate of Zinc and Silicates of Zinc, of the province of Santander, Spain."

Professor Haughton, in moving that the paper be referred to Council for publication, paid a high compliment to the talent and accuracy of research of which it gave evidence.

Professor Haughton then read a paper "On a graphic method of computing the drift of a vessel in a tide way between two given hours, with its application to the Kingstown and Holyhead passage." He described an ingenious method given by Mr. Airey, the Astronomer Royal, for calculating the rise and fall of the tide in a harbour within any two given hours. A circle was painted upon the harbour wall, with diameter whose extreme points were the points of high and low water on the spring tide. Upon the circumference were painted the different hours, and when the rise and fall of the tide between any two hours was to be calculated, perpendiculars were let fall from those hours upon the diameter, and the intersept gave the true result. His method for computing drift was somewhat similar. He drew upon a sheet of paper a circle, whose radius was double the tidal rate; upon the circumference he printed the different hours, and when it was required to know the amount of drift between any two hours, he let fall upon the diameter two perpendiculars, and the intersept, as in Mr. Airey's method of computing the rise and fall of the tide, gave the true result. He believed it was most important for sea captains to be able to ascertain the amount of drift, particularly in foggy or stormy weather, for, by not knowing it, vessels from Liverpool had often gone far out of their course and been lost upon the Arklow Banks. The Holyhead steamers had on one or two occasions been found at Bray and Dalkey when it was thought that they were off Kingstown harbour. Mariners ought to be compelled to carry chronometers set to the tidal hours, and by the aid of these and the chart which he had constructed, he believed they would be able to compute accurately the amount of drift, and that many accidents might be averted.

ART UNION OF IRELAND.

The managing committee met on the 12th instant, in the offices, No. 118, Grafton-street, the Lord Chancellor, V.P., in the chair. After the minutes of the last meeting had been read and confirmed, the committee was engaged for some time in consultation as to whether any alteration should be made in the arrangements of the association for the current year. On the whole, it was determined that, having due regard to the original objects of the Art Union of Ireland, and the cultivation of a high order of taste, no change could with advantage be made. It was resolved, however, to draw up for extensive circulation a brief address embodying the actual facts of the society's operations since its formation, and calling upon its subscribers for renewed support. The meeting was then adjourned to Friday following.

GEOLOGICAL SOCIETY.

A general meeting of this society was held on the evening of the 13th inst., in the Museum Building, Trinity College, Rev. Professor Haughton, President of the society, in the chair.

Mr. R. H. Scott read a paper on the granite rocks of Donegal, and the minerals associated with them. Mr. Ethelstane H. Blake read a paper on the primary rocks of Donegal.

A discussion ensued on both papers, in which the president and Mr. Jukes took part, and the latter gentleman referred to the very great value and importance of Mr. Scott's paper.

A large number of gentlemen were admitted associate members, and the society adjourned to the second Wednesday in the ensuing year.

ROYAL DUBLIN SOCIETY.

The first evening scientific meeting for the session of 1861–62 will be held on Monday evening, 18th inst. The chair will be taken at 8 o'clock in Board-room. 1. Andrew Keith Adams, M.D.—Observations on the fossiliferous caves of Malta. 2. Rev. Samuel Haughton—To present, on the part of Lieutenant J. Haughton, R.A., specimens of rocks, shells, &c., from St. Helena. 3. William Barker, M.D.—To exhibit and explain a new fire-escape, invented by Mr. Clayton (elsewhere noticed).

REPORT OF THE IRISH LUNATIC ASYLUM COMMISSIONERS.

From this document recently issued we collect the following, viz:—

"The old buildings, erected thirty years ago, are gradually losing much of their original gloominess and prison-like appearance; while modern improvements, tending to the comfort, well-being, and efficient treatment of the patients in them, have been introduced, or are in process of being so.

"Orders in Council have been issued for the erection of an asylum in Wexford County, detached from the Carlow district; for the erection of an asylum in Clare, for that county alone, detached from Limerick; for the erection of an asylum in Mayo, separated from Galway and Roscommon; for the erection of an asylum at Letterkenny for the County of Donegal, separated from Londonderry; and for the erection of an asylum at Monaghan for that county, separated from the Armagh district. The Grand Jury of the adjoining County of Cavan, detached also from Armagh, wishes to unite with Monaghan and to build in common an institution of suitable dimensions.

"The asylum at Maryboro' for the King's and Queen's Counties is obviously too small; while that at Cork, built for 500 inmates, is now occupied by patients principally from the City and the East Riding, in which it is situated. Increased provision is required for these two districts; and we feel that at no distant period, fresh arrangements must be made in regard to the Mullingar district, the asylum belonging to which, erected for the three counties of Meath, Westmeath, and Longford, is all but fully occupied.

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* As also in a former number of the Dublin Builder—see page 81 *ante*.

"We may observe that in the beginning of the past year a Turkish bath was erected at the Cork asylum, by way of experiment, at the suggestion of the resident physician, and on our recommendation. The cost was about £180, including fitments, by which a portion of the heat generated in it, and which otherwise would be wasted, is rendered available for drying closets and other domestic purposes.

"As a general rule, the patients in district asylums are industriously employed both in and out of doors; and while their comforts and sanitary condition are carefully attended to, means of amusement are not neglected. At the Richmond, Sligo, Belfast, and some other institutions, there are regularly trained bands of music, with apartments specially allocated for the purposes of recreation; while in the first-named, or metropolitan, besides those females who are engaged in industrial pursuits, there is a class of from fifty to sixty who are instructed by competent teachers in reading, writing, figures, singing, &c.; and so satisfied are we from the result, that a continued system of tuition must prove beneficial to the insane, by giving a fixity to their thoughts, and diverting them from the subject of their delusions, and that in those institutions where the number of patients will justify the application we intend seeking assistance through a grant of books and other requsites from the Board of National Education.

"The most marked deficiency which we notice in poorhouses is the utter want of means of classification and facilities for out-door exercise and employment, or for suitable in-door occupation, the same crowded apartments being indiscriminately used for patients under every type of disease; and being occupied also both as day and sleeping rooms, are necessarily ill-ventilated. In fact we cannot imagine a more melancholy existence than a prolonged confinement within the dark and narrow precincts allotted in some unions to lunatics, who, under more favourable circumstances, might be restored to society.

"As yet we have endeavoured to make the Dundrum Asylum, built for 120 inmates, meet the wants of the country; the infirmary, a small detached building, owing to the absence up to the present of any epidemic disease, being converted to the purposes of general accommodation; thus, its twelve beds have been allocated to some of the quiet and more aged patients.

"Within the last twelve months, however, we thought it advisable to apply for the construction of some additional single rooms, to meet emergencies in regard to violent and refractory patients, as well as for a refectory and a reading or recreation hall for the quiet, better educated, and convalescent.

"The sanitary state of this institution within the past two years has been as usual remarkably good, the deaths being under three per cent., and no epidemic nor accident.

"We have, on several occasions, remarked upon the want of an asylum for a class of patients who, unable to pay the ordinary stipend in a private institution, and not being paupers, are ineligible for admission into public asylums, and cannot therefore but regard an establishment of an intermediate character most advisable in every point of view. The first private or mixed establishment—indeed the first asylum of any kind erected in Ireland—was in the year 1745, that by the celebrated Dean Swift. Though subject to our inspection it is not a regularly licensed asylum, being on a charitable foundation. We believe the sphere of its utility could be very extensively increased. It is unfortunately situated in a most inappropriate locality, and very deficient, from its original construction, in many necessaries. The hospital is under the control and management of a Board of Governors of the highest social position and most benevolently disposed, and at the same time, while having a resident medical superintendent, visited by two physicians of great eminence. We are satisfied that were the site changed to a more rural position, and a new and perfect edifice erected, replete with modern improvements, as recommended in a letter addressed to a Governor of the asylum by one of the inspectors, the change would prove a great boon to the public, while patients who are now detained in one or two private licensed houses, that could well be spared, might be transferred to it, even on the small terms they can afford to pay.

The guardians of the Skull and Skibbereen Unions have made an application to Government for a loan of £70,000 for the purpose of commencing the West Cork Railway, chiefly with a view of alleviating the impending distress amongst the local labouring classes, with whom it is thought "there is a good deal of misery pending."

Mr. William Dargan, D.L. (the eminent railway and other works contractor), has been selected to fill the office of high sheriff to the City of Dublin for the ensuing year.

SHAM ADVERTISEMENTS.

Having practically experienced, despite the utmost care, some "sells" in the matter of advertisement *favours*, we may contribute a little additional cautionary information to our readers and fellow-journalists. We have neither been duped ourselves—nor innocently contributed by our journal the medium for duping others—into the belief that "*a sure fortune could be commanded for a few postage stamps*," nor again, that for a similar douceur "*a truthful peep into futurity*" was obtainable; the very simple indeed could only be gulled thus—and after all a few postage stamps are not a very important consideration in purchasing experience of folly—but we have encountered a few instances where systematic scheming out-generalled our circumspection, and to these we refer. One party advertised in some of our back numbers that he would post from London, on the *days of publication* and *at half price*, numerous metropolitan political and professional journals, and as a case in point—out of too many similar we fear—one gentleman in this city came forward to say that having fulfilled the requirement of remittance in advance for a certain periodical, he received one number and *no more*, the trusty agent not even condescending an answer to applications on the subject. Our enquiry in "the little village" brought to light the fact, that "the house of correction" had but recently allowed at large one of its previous inmates—the individual alluded to—after sojourning a term, during which we sincerely hope that he resolved "to cease to do evil" and "learned to do well." In promised "*money to lend on personal security*"—mere matter of form of course—the readers of public journals should not always place reliance without previous enquiry as to the respectability and *bona fide* character of the source. Penniless adventurers (located in London chiefly) cause flourishing advertisements to this purport to be inserted, directing reference to ——, *Esquire*, —— Chambers, such and such address, with of course a high sounding title, the object being to induce needy parties into a correspondence—sure to be most courteously conducted at first—and after a couple of interchanges politely intimating, that "no further trouble can be taken without a remittance of an *enquiry fee*." This done (perhaps), the prospects of the loan get "small by degrees and beautifully less," and the cessation of the correspondence reveals the sad truth, in vain sought to be remedied by inquiry, as the ——, *Esquire*, is not to be found at his *Chambers*, which are *nowhere*. Profiting by the adage, "*Experientia docet*," we recently declined two such advertisements, worded as follows, which are forcible illustrations:—

[No. 1.]

"—— Chambers, London, W.C.

"Sir,—Give one insertion to my advertisement, and I will send *a sufficient number of stamps* to pay for the same.

"Yours obediently, —— "

[Advertisement.]

"Money, £150,000, at 3 and 5 per cent., according to the sum required. Apply to ——, Esq.

"N.B.—None but *principals* or their *solicitors* treated with."

Manuscript of the above in handwriting of which a schoolboy would be ashamed.

[No. 2.]

"The Agent to the —— Life Office would thank you to insert advertisement, and your account *will be discharged*."

[Advertisement.]

"*Money upon Personal Security only.*—Sums varying from £100 to £500 can be advanced, at 5 per cent. interest, in connection with Life Policies. Apply ——."

The name of *the* agent not attached to *either* document.

To the many deceptions practised respecting "situations" for considerations we need not allude, but that which indisputably attains the climax for effrontery is the profession of an imaginary London watchmaker to furnish a "*perfect silver watch for* 30s.," with various other articles of jewellery at proportionate prices. This party has become so notorious through the exposition of the press, that we need only remark, that the London detective system is still sadly at fault, in not bringing more of these offenders to justice; for it is evident that the letters containing remittances could be traced to *some* person by the district postman—if not himself an accomplice—and that the cash for orders is paid to *somebody*.

Dronet, the famous French sculptor, intends to hew the colossal bust of Victor Hugo out of one of the rocks which surround the Isle of Guernsey—Lorely fashion.

Mr. Cope's fresco painting representing "Charles the First erecting his Standard at Nottingham," has been placed in its proper situation in the Peers' corridor of the Houses of Parliament.

The death of Mr. John Hay, of the architectural firm of J. W. and J. Hay, of Liverpool, on the 3rd inst., was announced.

It appears from some recent statistical returns that the average of the duration of human life in France, which from 1825 to 1850 was 40 years, has gone on decreasing ever since, and is now scarcely more than 37.

COURT OF BANKRUPTCY AND INSOLVENCY.

In re M. Joyce.—The insolvent was a builder and contractor in Fermoy. The meeting was for choice of assignee, in the room of Mr. Thomas Mills, deceased. Mr. Michael Mills, of Fermoy, was appointed as trade assignee, and Mr. James as official assignee.

In re P. G. Dunne.—The bankrupt in this case was a glass, oil, and colour merchant in Abbey-street, in this city. The meeting was for proof of debts, choice of assignee, and surrender. The bankrupt surrendered; and on the motion of Mr. Neilson, Mr. Walter Bourke was appointed assignee. The Court postponed the consideration of an application for an allowance to the bankrupt until further inquiry should be made.

The recently erected church of St. Michael's, Tipperary, has been consecrated. The style of architecture is Gothic. Internally the building measures 140 feet by 65 feet, and has nave separated from aisles by seven lofty arches at either side; tower and steeple at western end reaching an elevation of 165 feet, sacristy, vestibules, &c. The high altar presents a fine piece of carved work in Caen stone, and with various sculptured representations thereon is (we believe) by Messrs. Hardman. The great eastern and western windows consists of five lights each, and are filled in with stained glass. Tiles are extensively employed throughout the building, encaustics being used for chancel and side chapels. The general fittings throughout are said to be of a superior character.

The first stone of a new church has been laid at Bessborough Demesne, Piltown.

The workmen in the employment of Mr. M. Meade, builder, Dublin, commenced pulling down the house at Castleview, Cahir, on the site of which, for the Countess of Glengall, a noble residence, from the plans and designs of Messrs. Lanyon, Lynn, and Lanyon, architects, Upper Sackville-street, is to be forthwith built.

Sundry works are to be executed at the church of Killoe (Templemichael), Co. Longford.

Two dwelling houses are to be erected at Rathgar, Mr. Joseph Maguire, architect.

It has been resolved to enlarge St. John's Church, Monkstown, by the addition of a large transept and gallery, for which provision was made in the plan on which the church was built. The estimated cost will not exceed £1,000. The Venerable Archdeacon Gregg has contributed £500 to this important work out of the funds at his disposal for church building purposes.

Additions and alterations are to be made to the Limerick District Model School, according to the plans furnished by the architect to Board of Public Works.

The monument to be erected on the East Pier, Kingstown, to the memory of Captain Boyd and his brave comrades is now being erected. The work has been entrusted to Mr. Patrick M'Donough.

A line of railway is proposed to be constructed between Carlow and Newtownbarry. Mr. Lewis, C.E., is the engineer, and reports that the works will be easy of construction, and is satisfied that the whole line can be executed, including land and stations, within £5,000 per mile, and at this sum contractors have offered him to execute the works. It is proposed to use the present Carlow station, at Carlow, and to erect a platform and shed at the Junction at Castlemore Cross-roads, and a station and goods store, with turn table, at Tullow, a station at Aghade-road, and one at either Kilcarrig-bridge or Kildarin-road, as may be decided on; and a station, goods store and carriage shed at Carrigduff.

The large viaduct over the Pultanto, on the Portpatrick line, is now fast approaching completion. The arches (thirteen in number) are all finished, and the spaces between them all but filled in.

A trial has been made on the Sligo Extension line as far as Boyle, and it is said the works were considered satisfactory. The through railway route from Dublin to Sligo will soon be complete.

It is proposed to construct a line of railway commencing at the termination of the authorised line of the Parsonstown and Portumna Bridge Railway, on the East Bank of the River Shannon, and terminating at Vinegar Hill, in the townland of Portumna.

Paternoster-row is about to possess its architectural feature, like some other of our streets. On the buildings lately occupied by Messrs. Longman & Co., and their neighbours, the Messrs. Blackwood, a new and spacious edifice is to be erected for the former firm, which will combine beauty with convenience. In the meantime, the Messrs. Longman occupy the building on Ludgate-hill, formerly known as the Milton Club.

The Taylor Scholarship of £20 or upwards, which may be held for a second and third year, provided the student shall produce in each year a work of sufficient merit, has just been awarded by the Royal Dublin Society, after competition, to Mr. Henry Crowley, nephew of the late N. J. Crowley, Esq., R.H.A. The scholarship is the chief of several prizes left by the late G. A. Taylor, Esq., of Dublin, for the encouragement of Art in Ireland; and, by the terms of the bequest, can only be awarded "when high artistic talent shall be manifested."

It is a long time ago since King Francis stood by the easel of Titian and picked up the painter's fallen pencil; and some years have elapsed since Northcote told his royal visitor, the Duke of Clarence, that if George the Fourth had said to the Duke that he, the King, knew Northcote, it was only His Majesty's "brag." On Monday last, however, we had another instance of prince and painter being together on equal terms. The Grand Duke Constantine, with his Grand Duchess and suite, crossed from Westminster Abbey to the Palace, and there inspected, among other worthy sights, the fresco by Mr. E. M. Ward, R.A., which was described in our last number. The Grand Duke conversed with the artist, examined the picture critically, and had much to say touching the history of the stirring times of which the fresco exhibits one of the most romantic incidents.

An interesting paper has recently been read by M. Dumas, before the Paris Academy of Sciences, "On the New Artesian Well at Passy." After a series of difficulties, unparalleled in the history of artesian wells, water was struck at the great depth of 577½ metres, but it did not rise to the surface. Further borings increased the flow, and eventually, on the 2nd of October last, the well discharged 20,000 cubic metres of water in twenty-four hours. The well has cost nearly 1,000.000 francs; and, it is calculated, will yield water for the use of 500,000 inhabitants.

A very ingenious process has recently been perfected by M. Faye, by which he is enabled to pierce thick pieces of glass by means of an electric spark. That glass can be perforated by an electric spark has long been known, but M. Faye has now succeeded in piercing extremely thick plates. The results were laid before the last meeting of the Paris Academy of Sciences. No traces of fusion were discernible.

The stoppage of Messrs. Kelly and Co., the well-known extensive printers and publishers, and proprietors of the *Building News*, Old Boswell-court, London, is announced, to the (we believe) great general surprise of the public, as the firm was believed to be one of uncommon stability. The amount of the liabilities has not transpired. We sincerely trust that the circumstance will not affect the excellent publication named.

The Waterford and Limerick Railway Company find that their present locomotives and waggons are insufficient to do the business which is offering on their line, and at the last meeting of the board the traffic superintendent was sent to England to order two new locomotives. The company have ordered a number of waggons and trucks in Dublin, and they also are endeavouring temporarily to hire two locomotives until their own are ready.

Miscellaneous.

A STAINED GLASS WINDOW FOR INDIA.—A magnificent oriel window, designed and manufactured by Mr. Blashfield, of the Terracotta Works, Stamford, for a new palace that is being built for his Highness the Nawab of Nazim of Bengal, has just been completed. The work is remarkably true in all its details. On reaching its destination the lights will be filled with stained glass now being manufactured by Messrs. Powell and Son, of the Whitefriars Glass Works, London; it will exhibit the arms and badges of the Nawab, surrounded by ornamental borders composed of Arabic inscriptions, consisting chiefly of passages from the Koran. The terra-cotta tiles for the new Westminster-bridge footways are being manufactured by Mr. Blashfield, who is also executing several other important works.—*Building News.*

IRISH TALENT ABROAD.—It is extremely gratifying to learn from the following paragraph, taken from the *Cork Constitution*, that in a work of art an Irishman has won distinguished honours in India, excelling the extraordinary number of 180 competitors:—"Designs having been called for in India for a monument to those who fell at the seige of Delhi during the late mutiny in India, 180 were sent in. The successful one was by E. G. Martin, Esq., Assistant Executive Engineer, Delhi. Mr. Martin is son to Mr. E. C. Martin, builder, of this city."

BOOK RECEIVED.—"Manual of Illumination," by J. W. Bradley, M.A., and T. G. Goodwin, B.A., revised and enlarged by J. J. Laing. London: Winsor and Newton. This work shall receive consideration in next No., having arrived too late for this.

THE BUYER'S DESIDERATUM.—"The buyer's *desideratum* is to find an establishment where will be presented to him ample choice of artistic designs, without having forced upon his attention a host of mere ingenious ones, and destitute of any other merit, with a tariff of prices adapted to the means of the economic or those to whom price is no object. Such an establishment is that of Mr. J. W. Benson, situate at 33 and 34, Ludgate-hill, and 46 and 47, Cornhill, whose recent enlargement of his premises has made his show-rooms more conspicuous than any other in the neighbourhood of St. Paul's. His four windows contain such a variety of gold and silver watches as to leave nothing to be desired but the money to buy them with. The high standing of Mr. Benson as a London manufacturer must secure him a large amount of public patronage."—*Standard.*

Benson's Illustrated Pamphlet, post free for two stamps, is descriptive of every construction of watch now made. Watches safe by post to all parts of the globe.

American Stoves.—In the matter of producing the greatest amount of heat with the most economical disposition of fuel, or in securing the most effectual cooking arrangements with a like concomitant, our inventive transatlantic friends are not behind in presenting "a means." A variety of stoves, ranges, boilers, &c., after American fashion, and manufactured by Messrs. Smith and Wellstood, of Glasgow, may be seen at the local depot of that firm, No. 7, Capel-street; and for those who require to invest in any of the articles above enumerated, the stock is worthy of an inspection.

"**In Garrick's Time.**—The highest weekly salary was then twelve pounds, which was the sum that Garrick received from the treasury. Actors and singers at that period, instead of riding in their own carriages, walked on foot, and many of them followed trades and professions. Packer was a saddler in Vigo-lane, near Burlington-gardens; Parsons and Burton, landscape painters; Aicken kept a hosier's shop in York-street, Covent-garden; Davis, a bookseller, in Great Russell-street, Bloomsbury; Bransley, a hatter, in Shire-lane; Mrs. Pritchard (the Mrs. Siddons of her day) kept a masquerade shop; John and Robert Palmer, in the early part of their lives, were printers, and went round the town to paste up the posting bills—the former was in the evening a favorite performer, and so general an actor that he is said to have studied more parts during his theatrical life than would have loaded a cart drawn by two horses. Dibdin was one of the carpenters of the house; and the laugh-provoking Tom Weston was, to the day of his death, one of the turnspits in the royal kitchen at St. James'. The theatre at the avowed period was so moderate in size that in every part the audience could hear and see. Mr. Garrick frequently asked his treasurer (Johnson) if the receipts of the house amounted to sure figures, meaning expenses. Yet with such moderate returns will the house flourish, and the proprietors realize their fortunes.

Safety Brake for Steering Gear.—A Mr. Meriton has taken out a patent for this purpose, and which consists in the application of a brake to the various description of steering apparatus, and in the construction of the brake itself, so as to admit of its being worked from both sides of the barrel or steering apparatus by means of levers, so that when a heavy sea strikes the rudder the helmsman can apply the brake—or if two be steering both can do so,—and thereby secure firm footing and perfect security from accident. The brake consists of a drum, round which passes a strap or band, having upon its under surface, where it comes into contact with the drum, stops of wood or other suitable substance, for the purpose of causing great friction, and thereby effect the braking of the barrel which contains the chain working the rudder.

Worthy of Example.—Some time since Mr. W. Bateman Byng, cashier of Messrs. Ransomes and Sims, of Ipswich, set a project on foot for raising funds in that town, to purchase a lifeboat, to be presented to the National Lifeboat Institution, and to be called *The Ipswich*. Simultaneous collections were made in the various churches and chapels of Ipswich, and a meeting was held in the town-hall on following day. The mayor presided, and the secretary attended as a deputation from the society, and addressed the meeting, pointing out the value of the lifeboats, the many lives which had been saved through their instrumentality, the necessity there was for the institution being supported and expressing the hope that the noble example set by Ipswich might be followed by other cities and towns of the country. The secretary of the institution showed that the cost of a lifeboat station was from £400 to £500, and that the expense of keeping it up in a state of efficiency averaged £40 a-year, independently of rewards to the crew of the lifeboat. The following resolution amongst others was passed:—"That the meeting recognising the philanthropic character of the operations of the Royal National Lifeboat Institution, whose lifeboats have within the last twenty-two months been the means of rescuing 457 of our fellow-creatures from a watery grave, resolves to purchase a lifeboat, and present the cost of the same to this benevolent institution, as a practical demonstration of the sincere and deep sympathy of the town of Ipswich and the county of Suffolk in its meritorious exertions." We trust that this very laudable example of the town of Ipswich, on behalf of so truly benevolent and national a cause as that of the lifeboat institution, will be followed by many other towns in the United Kingdom.

Collieries.—The total number of collieries in Great Britain at present is estimated at 2,654; of these 1,943 are in England, 235 in Wales, 405 in Scotland, and 71 in Ireland. In 1857 the coal produce of the United Kingdom exceeded 65,000,000 tons. The value at the pit's mouth of the quantity annually raised is estimated at £16,700,000, and its mean annual value when consumed, at about £20,000,000. Besides this sum, it is estimated that the iron extracted yearly from the coals is worth, at the mouth of the furnace, 14½ millions sterling The total capital invested in the trade is supposed to exceed 18½ millions sterling. In 1851 the number of persons employed in our coal mines was 219,000; at present there are at least a quarter of a million.—*Mechanics' Magazine.*

Iron Wire Partitions.—A patent has been completed for the substitution of iron wires—stretched and crossed—for the ordinary laths used in ceilings and partitions; the wires to be placed some four inches apart. The inventor maintains that the rust caused by the humidity of the fresh plaster on the surface of the wires, will furnish sufficient key.

Belfast Imports and Stocks of Timber, 1861.—There were landed at this port, from the 1st January to the 31st October of the present year, from Quebec, 5,461 pieces timber, being a decrease of 2,665 pieces as compared with the corresponding period of last year; and 38,366 deals, &c.—a decrease of 23,131. From St. John's and other British colonial ports, 567 pieces of timber—a decrease of 1,280; 469,416 deals, &c.—an increase of 73,090. From the Baltic, 7,931 pieces timber—an increase of 1,617; 1,685 deals—a decrease of 696. The stocks of timber, deals, &c., on the 31st October were as follows:—Quebec timber, 2,328 pieces—a decrease of 173 as compared with last year; deals, 4.825—a decrease of 714; St. John's and other colonial timber, 110 pieces—a decrease of 205; deals, &c., 204,841—an increase of 108.230; Baltic timber, 1,356 pieces—an increase of 1,189; deals, &c., 6,670—an increase of 2,439. Total increase in stocks this year, up to specified date—timber, 811 pieces; deals, &c., 109,895. (A considerable addition was made during the past month, but the returns are not yet available.) Total decrease in imports of timber up to 31st October, 3,328 pieces; total increase of imports of deals, &c., 49,363.—*Northern Whig.*

New Burning-Glass.—An ingenious artizan, residing in Islington, has fabricated a burning-glass of most extraordinary powers. Its diameter is three feet; its powers are astonishing; the most hard and solid substances of the mineral world, such as platina, iron, steel, flint, &c., are melted in a few seconds on being exposed to its intense focus. A diamond, weighing ten grains, exposed to this extraordinary lens for half an hour, was reduced to six grains, during which operation it opened and foliated like the leaves of a flower, and emitted whitish fumes, and when closed again, it bore a polish and retained its form.

Opening of the National Gallery.—The National Gallery, Trafalgar-square, which has been closed some time for alterations, has been re-opened to the public. During the recess the collection of paintings bequeathed to the nation by the late W. Turner (125 in number) have been removed from the South Kensington Museum to the National Gallery, and are arranged in the great Western room, which is now named the Turner Gallery. The National Gallery will now be opened to the public four days in the week, viz., Mondays, Tuesdays, Wednesdays and Saturdays, Thursdays and Fridays being set apart for students.

Farm Buildings and Labourers' Cottages.—The following have applied for loans to erect buildings under the Landed Property Improvement Act:—Mr. Thos. S. Irwin, Dungannon, Tyrone, for £200; the Earl of Howth, Howth, Co. Dublin, for £1,000; and Sir George C. Colthurst, Duhallow, Cork, for £400.

Catalogues of the Library of the British Museum.—An important improvement, which has been long under consideration, consisting of a re-arrangement and transcription of the catalogues of the library of the British Museum, is, it is said, to be commenced forthwith. The catalogues now comprise—1. The King's Catalogue, in five volumes. 2. The Grenville Catalogue, in seven volumes. 3. The old interleaved catalogue, in 82 volumes, partly printed and partly in manuscript. 4. Mr. Panizzi's Catalogue, in 300 volumes. A staff of clerks has been appointed to transcribe the contents of the four catalogues into one general catalogue, alphabetically arranged. The transcript to be made at once in triplicate, and be placed in the library from time to time as completed.

Encouragement of Irish Art.—Mr. J. Richard Marquis, R.H.A., the recently elected member of the Royal Hibernian Academy, under its new constitution, whose varied sketches by sea and land, in Norway, have elicited such general admiration, has been honoured with a commission to paint for her Majesty Queen Victoria, the "Hut," and adjacent picturesque scenery, lately occupied by the Prince of Wales, on the Curragh Camp, for presentation to his Royal Highness.

NOTICE.

Post-office Orders and Remittances should be made payable to Mr. Peter Roe, *Printer and Publisher*, 42, Mabbot-street, Dublin.

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The Dublin Builder.

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REFLECTIONS ON THE LATE TRIAL.

"BEARING a character such as any one in Court might be proud of"—to quote the words of the learned Judge who presided—John M'Ilwaine of Naas, War Department Contractor, has, in conjunction with Hamilton Connolly, Chief Clerk in the office of the District Commanding Royal Engineer, been criminally arraigned in the Court of Queen's Bench, for conspiracy to defraud the Government, and for forgery committed to attain that end. A host of legal talent on both sides was employed, and an intelligent and impartial jury, during several days, carefully weighed the case in all its bearings, and after a comprehensive charge from Mr. Justice Hayes, found M'Ilwaine guilty of conspiracy—which but amounts to *misdemeanour*; and Connolly of conspiracy and forgery—the latter a capital offence—adding a recommendation to mercy for M'Ilwaine, "*as they believed he was led into the business by the other prisoner.*" "From him to whom much has been given, much will be expected," and the jury, by their verdict, would seem to be fully sensible of the immensely increased culpability of Connolly's acts, as a man of education, of independence, and of "gentle blood," beyond those of M'Ilwaine, who is conceded by all to have originally risen from the ranks by honest industry, and to have been so ignorant, even of the rudimentary branches of education, as to be obliged to confide the greater part of his business to others more favourably circumstanced. Now, a great deal did come out on this trial of the way matters are managed, or rather *mis*managed, in public departments; and one fact was glaringly proved, that had there been less circumlocution and red-tapism, this conspiracy or forgery could never have been committed; but a great deal also lay unrevealed, which, if brought to light, would, at least, have increased the public and private sympathy so universally felt for M'Ilwaine. We can perfectly understand how this unfortunate, ignorant, but good-natured and well-meaning man was "led into the business by the other prisoner." From his earliest career, he was associated in daily intercourse with Connolly, who, no doubt—as public officials *can* or *cannot* do as they please—occasionally placed M'Ilwaine under compliment to him for facilitating the passing of his accounts, and whether, for such services, any "considerations" were or were *not* given by M'Ilwaine to Connolly, does not appear. That it was so, however, is a reasonable assumption; and that the compliments and understandings in connection therewith, became so frequent and of such magnitude, that the terms of familiarity so engendered, encouraged Connolly even in going farther, and suggesting "an easier method" of mutually arranging matters. Once the *ignis fatuus* was presented to the weak-minded M'Ilwaine, he, unfortunately, succumbed to the fatal temptations of its influences, until retreat became impossible, though it is evident he remonstrated with Connolly on the impropriety of the pursuit, as the latter, in a letter dated 18th July last, says—"*I promise you there will be no more transactions of this nature*," and about this time, too late to mend, the fraud was discovered. With what systematic and accomplished villainy the *confidential* clerk managed, for a period, to cause M'Ilwaine's accounts to be duly *audited*, *certified*, *passed*, and exaggerated amounts *paid* thereon, is fully explained in the statement of the prosecuting counsel. He had succeeded in making "a tool," a "cat's-paw,"—or whatever other vulgar but truthful appellation one pleases—of the unfortunate M'Ilwaine, and for what? was it to minister to his (Connolly's) necessities? or, like a drowning man "catching at a straw," was it as a last alternative to save him and his family from ruin, which, from circumstances over which he had no control, was approaching? Not a bit of it. Connolly's appointment produced him an income of some £500 per annum, which all must admit was amply sufficient to maintain both him and his family in a highly respectable position—an income, moreover, not dependent on commercial fluctuations, on any uncertain source whatever, but definitely secured to him in sickness or in health by the best of all securities, the government of the kingdom. But, not appreciating the true happiness of a position—for which many an honester and better soul vainly sighs—nor observing the frugal principle "of living within his means," he pursued a career of extravagance, and to maintain same, funds should be forthcoming *somewhere*. On a certain day, he had a payment of £300 to provide for, but the means derivable from his salary were quite inadequate to meet this and numerous other demands; therefore, M'Ilwaine was the only resource in this difficulty, as it his believed he had also been in many others previously. We have often heard a popular insinuation, when self-interest would seem to creep unduly into friendly transactions—viz., "one for you and two for myself"—and how cleverly Connolly had illustrated that principle, may be seen by reference to the proportions of "the spoils" to be divided between himself and M'Ilwaine. He dragged the latter into complicity in his guilt and frauds, and made the most use of him possible for that purpose; and knowingly, at the smallest possible cost to himself.

Altogether there could hardly be a more palpable case presented of a polished rogue, by cunning device, winning over an honest, plain, but respectable member of society, from the path of honour to that of crime, than is this of the Government official—Connolly—inducing the unfortunate building contractor, M'Ilwaine, to implicate himself in his malpractices; and we sincerely trust that the fullest consideration and clemency of the Queen's Bench will be given to the recommendation of the jury. We should not justify fraud, nevertheless, the offence varies many degrees in magnitude, and when only in the positive, may nearly amount to a palliation; but, when in the superlative, as it unquestionably is with Connolly, who, to aggravate its diabolical character, brought ruin on an ignorant accomplice, it ought to be as severely dealt with as it should be leniently in the former regard.

ROAD COVERINGS.

Treating this subject with especial reference to the system most suitable for the traffic of London thoroughfares, and equally applicable to that of other cities and towns, the London *Review* says:—

"Undoubtedly, Macadam went nearest to a right principle of any man in road making, but it may be questioned if Macadam reached the summit of his art, and London has set Macadam at nought; for the wear and tear of his roads is considered too great for their general adoption in this enormous city, where the traffic is incessant and immense. Besides, there is an annoyance in hot weather from dust, and in wet weather from mud.

"The macadamized roadways, too, when under repair, which is very frequent, are so rough and intractable for the passage of carriages while the newly-spread layer of broken stones remains unground together, that pavement has generally been selected for at least the chief arteries of horse and carriage traffic, to the almost entire exclusion of wood and every other material, which have at various times been tried with a view to diminish the noise and clatter that in those districts are so deafening and presistent. But not content with paving our level ways with the hardest stone, and shoeing our horses with the hardest metal, we construct inclined planes in our side streets, or for the discharging roadway of our railways, at gradients which not only raise to its highest pitch the difficulties of the poor horse's maintenance of its equilibrium, but which, in the event of an accident, imparts such an impetus to the vehicle as to cause serious danger to those passing by in the direction of its course. The poor horses do our work, drag our burthens, go our journeys; surely we should use them kindly in return, and not unnessarily subject them to miseries which practically diminish their powers to serve us.

"The highways are common to us all; we pay rates for their maintenance, surveyors for keeping them in good order, and inspectors to see them kept free from nuisances. They ought to be safe. If a door step projects beyond the house or the owner's land, if a cellar trap be loose, or a coal-hole grating unfastened, the negligent offender may be summoned before a magistrate and fined; but a railway company may discharge its torrent of traffic many times a day, with a dangerous momentum, across a foot-path used by thousands in their daily walks with impunity. The incline of the South-Western road at the Waterloo station is not less than one in fourteen, and for the danger they thus launch several times an hour at the passers by, the directors have, at best, no other excuse than economy. It is no uncommon thing to see omnibus and cab horses down on the ground at the station gates, and their vehicles broken and injured—the more surprising thing is that the horses slide down so commonly in erect attitudes, seeing that the poor animals have the worst possible chance of doing so with their iron shoes over a *smooth* granite incline, so steep as to place their hind feet pretty nearly level with the knees of their fore legs.

"What is wanted for the London streets is a firm hard road, with a *rough surface*, which would always afford a good foothold for horses, and for passengers crossing over. The question practically is whether this can be got? Persons holding parish offices have generally very little practical perception, and what they have is very often obscured by individual interests. People, therefore, not parish officers, nor road surveyors, nor contractors, but who form their daily habits are nevertheless much interested in the safety and proper condition of the streets, will see the defects, will think about them, and, thinking about them, are very likely to suggest a remedy. To the naturalist the structure of the molar teeth of any herb-eating animal naturally suggests the way to make a good pavement.

"The elephant's tooth, for example, is constantly used in grinding coarse food. It has always a flat, *rough*, grinding surface, more powerful than a mill-stone, and how is this obtained? The tooth has always a fresh and proper face, and yet nothing is ever done to its surface in the way of manipulation or repair; the very action to which it is constantly subjected keeps it in perfect order. And thus: the elephant's tooth consists of layers or plates of three different substances,—enamel, as hard as flint, surrounded on either side by bony matter, comparatively soft, and dentine, comparatively hard, but not nearly so much so as the enamel. In grinding the food these substances all wear away equally, the bony matter more readily than the dentine; the dentine than the enamel, which latter, therefore, stands out as ridges between shallow cavities which, protected by the adamantine enamel, never get deep. So by this uneven wearing, a rough, effective grinding surface, fit for its work, is constantly maintained.

"Could not this principle be applied to our London streets? Could we not use thin slabs of granite or other very hard rock upended between other thin slabs of sandstone, wood, or limestone, ragstone, brick, or any other material that in practice might prove best? Upon the ridges of the harder stones the carriage-wheels would rest and run smoothly along, for the easy roll of the wheel would depend on the bearing surface of its circumference, and not be affected by the small hollow spaces of the roadway, while the ridges and rough sandstone surface between them would afford as firm points of leverage for the horses' feet, both in running and pulling. We cannot lay down as a rule what should be the proportions of the materials employed, nor what materials would be best. Actual experiment in some well-trodden roadway alone could give those data. But alike for the safety of passengers, economy of expense, efficiency of roadway, and humanity for horses, we think the experiment might be tried—the expense of the trial would be very little, the benefits of success immense.

DISCOVERY OF A CINERARY URN.

On Tuesday, 19th ult. (says the *Carlow Sentinel*), while Thomas Eddy, known in this country as "the Cornish Miner," was engaged by Mr. Joseph F. Lynch, builder, cleaving stones at Ballybit, on the estate of Colonel Bunbury, he discovered, under a granite boulder, weighing nearly two tons, a Cinerary Urn, in a state of perfect preservation, about four feet from the surface. It resembles in shape the frustrum of a cone; accurate in its proportion. It stands on a flat stern, or base, two inches in width, presenting the appearance of an elegantly-formed bowl, with three projecting ribs upon the extreme surface. It is covered with curvineal and vertical scorings, displaying as a whole, a curious and elaborate specimen of ancient Celtic pottery —older, if not cotemporaneous with the earliest discovered remains of Etruscan Art. It has no flange, like those discovered in 1853 at Ballon Hill,—engravings of which may be seen on reference to the Kilkenny Archæological Society. It stands six inches in height; its circumference at the top is 15 inches, but we have no evidence to show, when discovered, that its contents indicated the result of a process of cremation, although when the interior was examined with a microscope, it appears that some fine ashes were encrusted on the bottom of the Urn. It was formed of the best brick clay, moulded by the hand, and then properly baked; and it is now as sound and fresh in its appearance (without a flaw) as it was when it left the hands of the ancient Celtic potter—possibly two thousand years ago. It is intended by Mr. Lynch to present it to the landlord, Cononel Bunbury. In the neighbourhood of Ballybit—and on the same estate—may be seen a Cromlech, of hexagonal form, rudely carved at the top. It was noticed, together with the Cromlech at Browne's Hill, some sixty years since, by the celebrated Captain Grose, in the Antiquities, and is worthy of a visit. We cannot avoid stating that the students of primæval antiquity should be thankful to such men as Eddy, for the careful preservation of such ancient remains of Celtic Art, as they tend to throw a light on the domestic history of the ancient inhabitants of Ireland.

THE NEW KILDARE-STREET CLUB-HOUSE.

On the 25th ult. the members of the Kildare-street Club were installed into their new abode, which as our readers have been already apprised, was for the last eighteen months or so in course of erection at the corner of Kildare-street, at Nassau-street end. Although we have given frequent detailed notices of the progress and features of this building, accompanied by an illustration of its internal arrangements,* we may not inaptly refer to it in its completed state, and add, that for architectural excellence, it must command a certain degree of admiration both from Classicists and Ruskinites, though of course the latter are loudest in their laudations of its merits, *their* sympathies being more in unison with the style adopted by the architects than the former. In point of situation, the new Club-house is somewhat happily circumstanced, its flank abutting on a leading and fashionable thoroughfare, with the magnificent area of the College Park behind, and its principal front returning at right angles down another street, more private no doubt, but affording an admirable point of sight from which the general contour of the building may be advantageously judged. Excepting the entrance porch in Kildare-steet, and the oriel window carried up three storeys high in Nassau-street, there is no break in either façade, but those projections serve materially to relieve the flatness which would otherwise be apparent. Indeed the design of the features in question, even judged apart from the rest of the building, is in itself a study, and although the oriel does interfere with the general street ontline, and at first presented some cause for objection by the city officials, nevertheless, we are pleased in viewing it in connection with the whole. The elaborately ornamented main stone cornice, whence springs a medium pitched cantilever roof, the polished string-courses, the columnared window opens with polished marble shafts and carved caps and bases, and the perforated area balustrade, presents an effective contrast to the red brick facing of the general exterior. We are not quite sure, however, that the introduction of tall chimney shafts at the eaves—an undoubted hobby of the firm—is judicious. The internal ornamentations and fittings in the principal apartments, are of the most *recherché* character, and the arrangements of the *cuisine*, perhaps the most perfect of any establishment of the kind in or out of London. This latter department was entrusted to the eminent firm of Hodges and Sons of Westmoreland-street, who have supplied and fixed all necessary ranges—boilers, hot metal chambers, &c.—of the most approved patent principles. To Messrs. Sibthorpe and Son is due the merit for most of the decorative works—excepting the external and internal stone carvings which were executed by Mr. Purdy, sculptor, with Irish workmen chiefly; a branch of art we should desire to see more general here. Messrs. Kerr of Stafford-street supplied the furniture, Millar and Beattie the carpets, and Fry and Co. the draperies, all of which are in strict keeping with the character of the building, and subject to the architects' selection.

The original contract for this building was about £23,000, but as it now stands, irrespective of fittings, it represents more than treble that amount, and as a total some *hundred thousand* pounds. We should be gratified to see many clubs equally independent and equally willing to spend such an important sum amongst our local tradesmen, and trust that the example of "the Kildare" may induce others to outvie them. For aught we know, Nassau-street may yet become a Pall Mall, and the building under notice prove insignificant compared with subsequent erections. There is certainly no position in Dublin better suited for club structures. The names of Sir T. Deane, Son, and Woodward, as architects, and Messrs. Cockburn and Son as builders, are most honourably associated with our first palatial club-house.

Tipbradden House, Whitechurch, Co. Dublin, is being rebuilt for Thomas H. Guinness, Esq, at a cost of £1,400, and will contain drawing and dining-rooms, study, five bed-rooms, and extensive basement stores, with all modern improvements. Mr. Joseph Maguire, architect; Mr. Gahan, contractor.

The foundation stone of the St. Johnston Church, Derry, was laid on April 4th, 1857, and was dedicated December 9, 1860. It is built in the mediæval style of architecture, and comprises nave, transepts, chancel, porch, and bell tower. It stands on a fine commanding site, on an acre of ground, west of the town of St. Johnston. The high altar and reredos is of Caen stone, enriched with Mosaic and enamel decorations. The chancel floor is laid with Minton's best encaustic tiles; the passages in the nave and transepts with red and blue quarries from his works in Stoke-upon-Trent, Staffordshire. The windows are all filled in with tinted cathedral and stained glass, containing beautiful symbolic and Scriptural illustrations. The benches are open, stained and varnished, and free to the congregation.

The Boyd Testimonial, on the east pier at Kingstown, is in process of completion.

T. N. Deane, Esq., son of Sir T. Deane, has been appointed architect by the Dean and Chapter of Christ Church, Oxford, to carry out extensive additions and alterations in that college.

STREET ARCHITECTURE AND ITS PROPER TREATMENT.*

(Continued from page 680.)

Uniformity.—In the old parts of our towns each house which is rebuilt requires individual treatment by the architect, and some variation, even where a long row of new houses is erected at once, has the advantage of preserving that individuality in his abode, which is precious in the eyes of an Englishman, and gives a more poetic way of distinguishing one's house than the essentially practical number on the door. Nor have the spasmodic efforts, which from time to time have been made, by grouping houses into blocks as though they were but one building, with centre and wings complete, led to such successes, or met with such general approbation as would encourage us to pursue the same path; so that we may safely conclude, that it is at least unnecessary to strive in any way after uniformity.

Attention not to be confined to the Fronts.—While undoubtedly the front forms the important part, which we have to deal with in streets, we must consider that most houses display in the upper portions more or less of the construction of the sides, which are deserving of more attention than is now paid to them—in fact, so far has the elevational principle of designing prevailed, that when called upon to build at the corner of two streets, we usually do nothing more inventive than return the features of the front at the side, only substituting blanks for windows, thus making a frightful deformity, and sacrificing that which by nature is a strong position for obtaining architectural results.

Materials.—The choice of the materials to be used in our buildings is of the utmost importance; natural limits and economical considerations, however, too frequently bind our free-will, and it then behoves us to use to the best advantage any material necessity presses upon us. In London and a very large proportion of other places, brick is principally employed in structures of an ordinary kind, and its cheapness, and even its durability, compared with stone, will probably cause this state of things to continue; consequently our treatment of this material must affect more largely than anything else the appearance of these towns. The treatment of brickwork has been so long neglected, that bricks and mortar have come to represent all that is unartistic, dull, and unpleasant; and no wonder, when we look at the black rows of gloomy brick-houses which are so numerous in London. We may however rejoice that much alteration has taken place in this respect. Feeling the necessity of using brick, architects have been striving to ennoble it as a building material, and the introduction of different species of ornamental brickwork bids fair to be one of the principal architectural characteristics of the present age. Bricks of a light colour are particularly valuable for imparting a more cheerful aspect to our streets, and the divers colors in which this and its relative manufacture, tiles, are capable of being produced, give peculiar advantages for the introduction of polychromy, structurally in the building; thus encouraging that love of color, which, after so long and so sound a slumber, is reviving among us. The great difficulty with external colored decoration, is the evil effect of a smoky atmosphere, whereby colors are often soon dimmed or altered, and occasionally hid altogether beneath a coat of brown dirt; this has led to an almost universal feeling, that our efforts should be limited to constructive polychromy, in which the effect shall be produced by the native colours of the materials employed, and it would indeed be incautious to expose unprotected to the influence of our climate the work of the painter.

Modern instances are not wanting, in which the contrasts of colors are most unpleasantly strong and ill-chosen—in fact, it requires some care so to adjust the colors that they shall be neither painfully exaggerated at first, nor lost altogether after a year or two of exposure. As we can hardly, with our present means for coloring, calculate on the appearance which time will produce, we must beware that it do not in any way divert our attention from the more essential and lasting features of form, outline, and symmetry. Color is far from being the only way in which brickwork is capable of being made ornamental; the attentive arrangement of those bricks, which can now be obtained, moulded in the forms which most frequently occur, may, with but little cutting, be made to produce very good results.

If the manufacture of some slightly glazed facing brick (for which architects have for some time been seeking) could be accomplished, without a disproportionate increase in the cost, such that the rain would remove the deposits from the smoke, which attach themselves to our buildings, we should have a material, which, for variety of effect, cheapness, and durability, both as to substance and appearance, might be fairly esteemed very nearly perfection for all general purposes.

Tiles.—Encaustic tiles are useful for producing brighter effects of color, as well as more varied shapes, than we can easily obtain from brick alone; the quantity of them, however, which we introduce should be limited, owing to their being merely a facing, and adding nothing to the stability of the building.

Stone.—When we have stone at our disposal, it scarcely seems to be used to the best advantage, unless it be made expressive in a way which brick cannot be, by sculpture or carving, that it may appeal directly to our intellect, or our sense of the beautiful.

The facing walls with hewn stone, however desirable in buildings of a high class, should certainly not take precedence of these methods of expending the means at our disposal.

Style.—This is not the opportunity, nor would it be in any way desirable, to reiterate the arguments on the subject of the architectural style, which is best suited for our street architecture, though it is of that importance that it cannot be altogether omitted, and a few considerations press themselves forward. Firstly, gratitude would almost constrain us to the use of the Gothic, for the present interest which is felt for our art can hardly be disconnected from the study of our national Mediæval monuments, and buildings in other styles do not excite much general interest or pleasure.

Again, we often hear it claimed as an acknowledged fact that Classic architecture, as now practised, adapts itself to our modern requirements. Now, as to stone buildings of some pretension, I am not here prepared to deny the truth of this proposition; but with respect to the common-place brick houses which form the mass of our towns, we shall find that this art either enters not, or is represented by certain compo imitations, which, while they pretend to cover openings by pieces of stone, really disguise flat arches, often of the very worst workmanship, and as this can hardly be accounted art, I certainly consider we have no proof of the power of this style to bend itself to the wants of these buildings, which must ever occupy the largest proportion of our towns; and as bricks can only cover openings by means of arches, that style, which so largely includes arches of all kinds, seems, at least, in this particular, to deserve the preference. It is true the adaptation of Gothic windows to modern ideas requires some little contrivance, but this will more properly be considered hereafter, when we are speaking of windows; the difficulties which this presents, however, must be much less than was experienced in making Classic suitable, which naturally shunned the window, whereas Gothic glories in it; and it is not servile copies of the old buildings which it is desirable we should produce, but free renderings of it, fitted for our own times, that our very stones may proclaim that we have no wish to reproduce an old style, the laws of which we intend should be observed unaltered by ourselves and our successors, for then we could expect for the next three centuries no art more original or more noble than that which, with the exception of a few brighter periods, has characterised the three last; and we should, moreover, have neglected to learn the greatest lesson which this period is calculated to teach us.

We cannot overvalue the position in which domestic architecture stands with respect to the revival of the present day. While there remain so many old churches absolutely in use and suitable to a very high degree for our mode of worship, it is not surprising that study should have enabled us to reproduce good samples, correct in every detail, of the old styles, and thus but slight encouragement is given to impart to churches characteristics of our own. On the other hand, the Domestic Mediæval buildings which remain to us are so few, and our manner of life is so changed, that the adaptation of Gothic to modern wants opens out quite a new field for ingenuity, and here we may expect to invent new features which may be engrafted into our art and distinguish the architecture of our day. Again, while we hesitate to try experiments with modern materials within the sacred walls of our churches, which we build as it were for all time, we have in domestic work the means of gaining experience in their use, and afterwards we may adopt them in religious structures. Thus we are but now beginning to build churches of brick, not as a disagreeable thing which we would avoid if pecuniary considerations restrained us not, but as a material from which we mean to obtain an effect peculiar to and suitable for itself.

Whatever different opinions the subject of style has engendered, it need by no means hinder all those who wish to see our streets adorned with more noble structures than they now display, and who acknowledge those principles which govern all good art, from energetically working together; and we may trust ere long that our efforts will be united into a style which shall be more thoroughly and truly our own than anything likely to be hatched by the professed striving after novelty; and we may also well leave the question as to whether it is likely most to resemble Gothic and Classic to the individual opinion of each.

It may now be well, in acknowledgment of the principle, that our ornament is to be deduced out of the various external features of our buildings, in contradistinction from being superadded afterwards, to review the most prominent of these in order, and then to further examine the details of our subject by glancing at the treatment required by the different species of buildings, which are included under the term of "Street Architecture."

Chimneys.—Chimneys will, in most cases, form prominent objects in the external appearance of our buildings, whether we like it or no, which renders it extremely difficult to carry out the ideas of those who try to conceal them, under the impression that the office they perform is of that nature that they ought to be kept out of sight; but though the carrying of smoke may not in itself be a dignified duty, yet chimneys are the external signs of so much which we associate with the comfort and pleasure of home, and the effects they are capable of producing by giving variety to the skyline are so great, that they amply deserve to be boldly shown, and to be the objects of our care. It is necessary for our own peace of mind, that we should carefully provide for our flues properly performing their functions, that our eyes may not afterwards be shocked by all kinds of execrescences added to their tops to aid them in doing so.

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* Prize Essay, by Mr. Lacy W. Ridge. Read before the Architectural Association, London.

Roofs.—Roofs are to be found either concealed behind a parapet or boldly shown and made to have a pleasing appearance, which may be enhanced by ornamental ridges and metal-work, as well as by distributing our slates or tiles in ornamental patterns and colors, a practice often very useful for relieving what might otherwise be an over large expanse of roof. It is quite remarkable to observe the trouble which has been taken, first to hide roofs, and then to supply the want of proper finish, which the eye at once detects, by placing rows of vases or other meaningless ornaments along the top of the parapets; whereas visible roofs give at once the natural termination to a design, and their picturesque shapes would yield far better skylines to the tops of our streets than the series of horizontal lines, jumping up and down, which they now present.

The view of any of our towns, as seen from an adjoining eminence, is rendered quite frightful by the neglect with which our roofs are treated.

Cornices.—Cornices of some kind appear by the concurrent testimony of all styles, to be necessary for the expression of dignity, and they well repay the care bestowed upon them, both by the influence they exercise over the entire design, and by the opportunities they offer in themselves for the display of invention. Even simple arrangements of bricks are so often satisfactory, that we need never be deprived of a cornice when we desire to introduce it.

Openings.—The openings in our buildings are of great importance, from their usual number, from the conspicuous effect they produce, from the proximity to the spectator in which many of them are placed, and probably still more from their being the connecting link between the interior and exterior, as they thus become the readiest means of expressing the uses to which the building is dedicated, and impart any information we wish to give as to the internal arrangement.

Windows.—Windows in those rooms which are occupied by day, are not only required to admit light, but also to give a good view from the interior; for this larger windows are required than in other rooms, and, where possible, projecting and bay windows are very advantageous. We certainly lose a means of expression by making all windows so similar, although the rooms they light are used for such widely different purposes; they might well vary in character as well as size. The glazing may be arranged in a variety of ways, each suitable for particular positions, but the majority of our domestic windows are provided with double hung sashes, which are so much associated with our notions of convenience, as not to be likely to be superseded. Now the readiest form of making these sashes is with a flat head, and when we desire to use them, and can have a block of stone to cover the opening, no difficulty occurs; for even in Gothic, the use of a stone lintel is inconsistent neither with the principles nor practice (in domestic work) of mediæval builders; but when brick only is used, the only straight covering is a flat arch, the constructional badness of which must be apparent to any perambulator of our streets; where the number of such arches that have failed ought to be enough to banish them, except on a very small scale, from any improved form of street architecture. We may combine the square sashes with those arches of slight rise which we now find in back positions (where it has not been considered necessary to give the appearance of trabeation to an arched construction), increasing, if we wish it, the rise of the arch for greater security to any height, and making the tympanum a vehicle for ornament, or even piercing it, where we have a high arch. Certainly the defects of flat arches justify us in exerting our ingenuity to dispense with their use, and they have further no beauty to recommend them.

The breadth of our modern windows is often said to be inconsistent with the forms of Gothic; but why may not any form of opening of a shape not in itself ugly be made to accord with the spirit of that style, although architects may surely reserve the right of putting two narrower lights instead of one very broad one, the single sash of which is almost invariably difficult to manage?

It may fairly be doubted whether we are right in desiring to have very narrow lights for domestic purposes. They often give an effect of meaness and discomfort, whereas broad ones may, by proper treatment, be made thoroughly Gothic.

Where any species of balcony or verandah is used, we must remember that they very prominently display themselves, and consequently claim to be designed with the same care as other features. We must not trust to buying them ready cast at a foundry.

The interior of our windows, and, indeed of the whole house, must be cared for, for it is within the house that we can most easily appeal to the affections of our clients on behalf of our art.

It behoves us to examine into the traditional treatment of every part of our present manner of building, to see whether it is reasonable and, so far as may be, artistic. Even in the matter of expense, which builders have so thoroughly studied, though it is hardly possible to reduce the outlay, we may make a more judicious distribution of it.

Doors.—Doorways admit of great variety in their treatment, nor do they present any particular difficulties. From the nearness with which they are approached, and the consequent criticism they attract, they impart much character to the building, and are worthy vehicles of decoration; in fact, when there is but a small quantity of decoration to be disposed of, this, perhaps, is the most advantageous position for it. A generous breadth and size give an hospitable appearance to an entrance, which we do unwisely to counteract by hideous grotesques, such as we sometimes meet with in such positions. It seems preferable to give an inviting aspect to any heads or figures we may introduce, although we may fairly retain the watch-dog as the guardian of our safety.

The convenience of some species of porch is great, and their deep shadows, and the pleasant effects they may produce, render them features of much value.

The apertures are so numerous and important in almost all kinds of street architecture that our wall decoration will generally be governed by them, both in character and position. Horizontal string-courses are very useful for marking the storeys of our buildings.

Rain-water pipes are necessaries, to which we need not be ashamed to give honest treatment, though I hardly like making them prominent by decoration; it is but a sorry boast that we have made our buildings water-tight.

As our domestic comforts advance, the offices required increase both in number and completeness, and, where ground is valuable, the basements furnish the convenient situation for them, so that it is now desirable that they should rise some feet out of the ground for the sake of light and air, and their treatment must preserve that idea, combined with an expression of strength sufficient for supporting the superstructure.

Iron railings are certainly not pleasing as now usually arranged; they have the appearance of selfish exclusion, without really affording more protection than a much lighter railing might do, and we are now more than satiated by the recurrence of the same types. The daily development of the uses of metal in building makes this, and all other positions where it is introduced, of great importance; so that we must give the requisite study to this branch of manufacture, that our designs may be truly fitted for the material in which they are to be executed.

We have thus reviewed those elements which, in conjunction with the mass of the wall, we have to combine into beautifully-shaped, well-proportioned and expressive architecture, over which we have to distribute our ornament, and by which we must render our streets more noble and interesting, and more worthy of that greatness to which our nation has arrived.

We will next imagine ourselves penetrating into the heart of London or any other large city from the fields beyond its suburbs, that we may gather some ideas as to the treatment appropriate to each of the principal classes of buildings that we meet with. Would that it were not at each stage, as now it but too frequently is, an advance from bad to worse; the beauties of nature vanish only too quickly, and we far too seldom find those counteracting beauties, which man has been empowered to make; so that, we not only wish to breathe the purer air and hear the warbling of the birds, but we also long to return to the varied scenes, the pleasant forms, the romantic outlines and the harmonious colors of the country.

In the border habitations, which foreshadow the commencement of a town, the work of the architect is comparatively easy; he has nature to help him, and it is strange if some pleasantness cannot be instilled into them. Leaving these, therefore, to the general principles of architectural treatment, we may pass to Building Estates.

(To be continued.)

THE ORIGIN, RELATIONS, AND CHARACTERISTICS OF THE VARIOUS STYLES OF ARCHITECTURE, AND THEIR CONNECTION WITH HISTORY, RACE, AND RELIGION.

On this subject, Mr. Huggins, architect, recently delivered a lecture before the Chester Architectural and Archæological Society, and had arranged round the room a great number of illustrations, examples of the various styles of architecture referred to in his lecture, and these he first of all proceeded to explain in their chronological order, assisted by a most curious chart prepared by himself, and which we believe he is about shortly to publish.

According to the *Chester Courant*, the lecturer, in commencing, asserted the unity of art, and maintained that though the several arts differed from each other in their language and mode of use, yet the soul of those arts was the same in all; each was but a different incarnation of the same vital spirit. Poetry was the first and chief of the arts, because its language was the natural language—the mother tongue of the arts. The architect and the painter appealed first to the eye, then to the mind; the poet, first to the mind, then to the soul. The ultimate of the two former was the proximate of the latter. Architecture was pervaded by a similar law of unity; it was not a multitude of dissimilar arts, but one connected and comprehensive whole. It was one spirit working in different ways, and showing itself under various similitudes. The styles of architecture were but different external phases of one soul. And this view was borne out by their history; they were all historically related, and there was reason to believe they all derived their origin from one fountain head in antiquity. Here he entered into an explanation of his "Chart of the History of Architecture" which represented, under the similitude of streams, the rise, chronological sequence, relations, &c., of the various styles which have been practised in the world. The most prominent distinction between styles of architecture was into beamed and arched. All ancient styles—all before the Christian era—were beamed or trabeated; that is, their columns or pillars supported an horizontal lintel, or architrave. All modern ones, on the contrary—all subsequent to the Christian epoch—were arcuated, the columns immediately supported arches springing from column to column. The Egyptian, the Assyrian, the Pelasgic, the Etruscan, and Greek, were all trabeated styles. The Roman architecture, in the time of Augustus, was pure trabeation; but it gradually gave way, during the period of the empire, to the inroads of the arch. The Pagan Romanesque, which immediately preceded the Christian Romanesque, was the first arcuated style, and all its numerous descendants, down to the present day, were on the same principle. Of the arcuated style, two were pointed arched, namely, pointed Gothic and Saracenic. The rest were *round* arched. This division into beamed and arched styles applied to all of the great connected classic family of Europe and Western Asia; but all the systems detached from these, all the outlying styles—the Buddist, the Hindu, the Chinese, the Peruvian, and Mexican—were all beamed, whether ancient or modern. There were what are called Astylar styles, in which columns do not enter into the artistic designs Such was that known as the Sassanian, being that of the Middle Persian Empire; and the Modern Florentine, which had been called a Fenestral style, from the decorative elements being chiefly employed in the adornment of the windows. The Travellers' Club House, Pall Mall, based on the Pandolphini Palace at Rome, by the celebrated Raphael, is a noted example. Two of the arcuated styles—the Byzantine and the Saracenic—were remarkable for the use they made of the dome, which in these styles was the chief constructive feature. Others occasionally employed the dome, but in these two it was an essential feature. There was another great formative principle which Mr. Huggins pointed out. He remarked that two of the arched styles were pointed, viz., the Gothic and the Saracenic. The Gothicists, however, made a very different use of the pointed arch to that made by the Saracens. While in the Saracenic, the pointed arch was barren of effect beyond that communicated directly by its own form, its tendency in the Gothic was to increase the new-born principle of verticality, already shown in the Round Gothic to a most wonderful pitch. Spires and pinnacles seemed literally to emulate the aspiring tendency and principles of nature's vertical structures. They were nature's organic productions geometrized, as it were—modified by ideas of utility, and the precision and symmetry of human design. It was the possession and command of this aspiring principle—this faculty of looking heavenward, so appropriate to a religious edifice —which was the true glory of the Gothic—which distinguished it from all the styles of the world, and rendered it by far the most important issue of the great architectural fountains of antiquity. The lecturer went on to trace the various births, changes, and ramifications of architecture, from the Egyptian and Greek, through the Roman Byzantine, Gothic, and Saracenic, to the present time. The history of architecture showed that the most potent influences that had been brought to bear upon its career, were those of religion and race. The distinctions of religion distributed the styles of the world, as they existed in the middle ages, into four groups or species, viz., the Gothics and Romanesques; the systems of the western or Latin Church; the Byzantines, the Eastern or Greek Church; the Saracenics, the styles of Mahommedanism; the Indian and Chinese, the Pagan. Difference of race had also divided the styles of the world into groups, and given them a general ethnographic arrangement, as well as a theological, which might be expressed thus—from West to East—Teutonic, Celtic, Sclavonic, Arabian, Tartar. If either the fate of religions, or the migration of races and tribes had been different, it was plain that the career of architecture had been different also. We were indebted to an outburst of barbarism in the fifth century, which destroyed the civilization of the ancient world for the greatest system of architecture that had arisen since the Greek, and to the rise of an illiterate Arab in the seventh, calling himself a prophet, for another, which beautified and gave additional charms to the fairest countries of the globe. He pointed to several of the styles individually in illustration of what he had advanced with respect to the influence of religion and race upon architecture. The religion of the Pelasgi was hero, or ancestral worship; and we found their architecture developing itself chiefly in tombs. The religion of the Persians was the Magian, or fire-worship, which required no temples, its rites being chiefly exercised in the open air. Accordingly, no temples were built by them; and we found this style chiefly developing itself in palaces. Mr. Huggins entered at length into the characteristics of the ancient styles, through which it would be impossible for us to follow him in the space at our command.

The Rev. Canon Hillyard moved a vote of thanks to the lecturer for the ability and zeal he had displayed in the preparation of his subject, and for the novel and interesting chart which accompanied it.

ONE OF THE LIONS OF CHESTER DOOMED.

MR. T. HUGHES at same meeting took occasion to elicit the sincere regrets of the society, that the city was about to lose one of its most interesting antiquarian remains, and one which had long been looked upon by the intelligent stranger as one of the "lions of Chester." He alluded to the house known as "God's Providence," from its bearing on one of its beams the inscription in curious old letters, "God's Providence is mine inheritance." The ancient timber houses of Chester were now few and far between; and it was a melancholy reflection to feel, that one of the most characteristic yet remaining, was about, within, perhaps, a few weeks, to vanish from the scene, in order to satisfy the necessitous demands for commerce. Mr. Gregg, the present owner, he knew to be a man of considerable public spirit; and, unfortunately, it could not be expected that he would altogether sacrifice his business views to either the views of the general public, or the gratification of the antiquary—still it was much to be hoped that at least the carved timbers of the old house, and as far as possible, its external character also should be in some measure preserved in the new erection. This course would certainly serve to identify the spot, about which clung, like ivy, many an old and loved tradition, sacred alike to both citizen and stranger.

THE SHANNON.

THE recent and previously frequent inundations of this noble artery and its tributaries, have caused considerable damage to the adjacent districts, and consequent alarm to the numerous inhabitants along its banks, who in considerable force mustered at a public meeting in Athlone, on the 27th ult., to consider the best means to be adopted to remedy in future, and also to effect improvements in the navigable capacity of the river. The chairman (Lord Clanricarde,) amongst other remarks, observed, that "no landlord or proprietor in person can abstract from this great stream as much as one cup of water without leave of Government;" also that it depended on his hearers "to obtain justice for themselves and improve the country to which they belonged." Various resolutions were proposed and adopted, and some practical steps are likely to follow.

Touching same subject, an important meeting was held in Banagher, and in the course of the proceedings Mr. Lynan, C.E., entered into a lengthened statement respecting the works on the Shannon. He attributed the losses sustained to the inefficient works constructed at Meelick and elsewhere, and these obstructions could be removed or modified. The dams erected impeded the flow of the water and caused the floods; but if the dams were removed the navigation would be destroyed. The Commissioners were losing by the navigation. According to the printed returns, the expenditure of the board, for the last eleven years, amounted to £31,485; receipts from rents, tolls, &c., £20,186, leaving a loss of £11,292. To remedy the defects, he would suggest the erection of a number of self-acting sluices to let off the water. He then explained the principle of these sluices, and stated where he would have them erected. He contended that the dams erected by the Commissioners were not of the slightest utility to the navigation. He stated, in conclusion, that nearly all the entire flooding could be obviated by less interruption to the stream at all times and by a deeper outlet, since the overflow in nearly all the districts did not exceed a depth of much more than eighteen inches. All the facilities for the discharge of the Shannon waters must be commenced near Limerick, and thence continued up the river to Athlone; and he stated several facts confirmatory of these opinions.

A MORE EFFICIENT FIRE BRIGADE.—Our municipal body are about applying, next session, to Parliament for more definite power to maintain an efficient fire-brigade and fire escapes, in connection with "the Dublin Corporation Water Works Act, 1861." The defective construction of the present fire-escapes, as already largely treated of in this journal, should receive immediate attention.

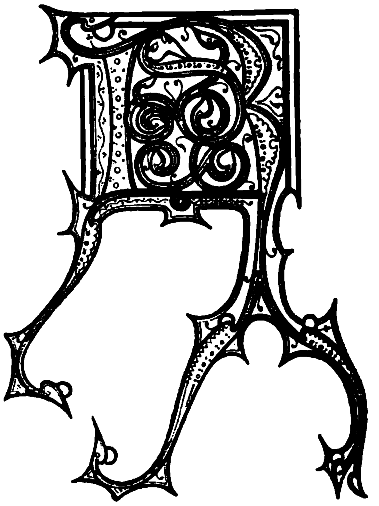
ILLUMINATED ART.

LETTER I FROM MS. GOSPELS, XII. CENTURY, BRITISH MUSEUM.

ILLUMINATION has of late become a revived and pleasing study for artist and amateur, and is justly regarded as a branch of polite education. Several works bearing thereon—some of uncommon excellence, others less pretentious—have recently issued from the press, and our readers will remember our notices thereof, as they reached us from the publisher's hands. We have now before us one* which, if in part not the *most* recent, combining as it does a previously published "manual," and a subsequently added "companion," is at least so in the revised and improved form now presented, and must be judged in that light in its integrity. The purpose of the book in question is essentially practical, but, like most others of kindred character, it opens with an instructive historical sketch of the art in bygone ages, in which is introduced a glance at the characteristics of the various styles of illumination. Amongst these notices the handiwork of our Celtic ancestors has not escaped mention, and the following paragraphs may be appropriately quoted in illustration:—"In very ancient times the Greeks are said to have learned many things of the Celts who possessed curious arts, together with the most extensive knowledge of natural science. Those very remarkable knotted and intricate traceries of twigs and stems, met with so often on Celtic monuments and in old MSS., are of their invention and among their significant secrets. The Celtic style, distinguished by its interlacing bands and inextricable coils of lizards, birds, and twigs, was carried from Ireland by St. Columba to Iona, and thence to Lindisfarne by Ædan, when made bishop of that see in 735. From this time it is called Hiberno-Saxon, or Anglo-Saxon." One noted example of Celtic work exists in the great "Book of Kells" at Dublin, in which the peculiar niceties of the art are so elaborate as to make them the *wonder* and *despair* of copyists. "Of this book," says Mr. Wyatt, in his recent valuable essay, "Mr. Westwood examined the pages, as I did, for hours together, without ever detecting a false line or an irregular interlacement." Adding, in a note, that "it would scarcely be possible or advisable for the most skilled draughtsman in *modern* days to copy some parts of such a book. The manner of life in the middle ages (ignored as *dark* ages), mainly contributed to the production of such *unrivalled*, *marvellous* works of art. Many people very ignorantly condemn the revival of illumination as needless, now that printing exists; but they may rest assured, that its practice is—especially for young people—most disciplinary and delightful, and tends, even as an accomplishment, to strengthen those qualities of *patience*, *thoughtfulness*, *and delicacy*, which shed so salutary an influence upon our daily life. The schoolboy or girl might very profitably and pleasantly acquire their first knowledge in free-hand drawing and colouring, by heading their copy-book pages with an occasional simple capital at first, to relieve the tedium of the repeated text or small-hand."

With part ii. commences the practical department of this excellent *multum in parvo* work, and it is so comprehensively rendered that we have no doubt but that the most uninitiated would attain, after careful study and without the aid of an instructor, a perfect knowledge of "the mysteries of illumination;" though a regret and surprise are suggested, that like some other works with similar purpose, the treatise on colouring is unaccompanied by illustration of the effects produced, though in this portion, as throughout, numerous beautifully-executed outline woodcuts of initials pervade the letterpress. Some of these we are enabled to reproduce from "the Companion," and though not the most important of the selections, they will serve to convey more forcibly the character of the work under notice. The border and figure drawings collected from MSS. in the British Museum, are especially remarkable for excellence, as also are some borderings and letters from MS. Bible, Advocates' Library, Edinburgh.

The *Manual* and the *Companion* must both be appreciated as forming a most instructive and entertaining book, and an authoritative guide to those pursuing the study of illumination, either as a pleasure or an occupation. The publishing department is likewise entitled to commendation, for the very presentable form and style of the exterior.



LETTER R AFTER MS. BIBLE, ADVOCATES' LIBRARY, EDINBURGH.

LETTER O, FROM MS. BIBLE, ADVOCATES' LIBRARY, EDINBURGH.

DROGHEDA.

The *statu quo* condition of this town is a matter of great surprise, considering the facilities afforded for interchange of communication by rail with the metropolis on the one side, and with the commercial capital of the north and adjacent towns at the other; besides its proximity to Liverpool, with which it holds daily passenger and goods intercourse by a fleet of swift and powerful steamers. During the last ten years any improvement that has taken place in the general aspect of the streets, has been comparatively unimportant; most of the business houses presenting a very antiquated character, and in the principal street—West-street—there being but two, viz., Davis, Son and Latimers, and Parsons and Co.'s, of any architectural pretensions. Publicans and pawnbrokers are in the ascendant, and in more than one respect, too, as being among the fortunates in acquiring worldly stores; the streets are filthy to a vengeance, a fact perhaps chiefly attributable to the nature of the local paving and flagging stones employed, but which consequently would demand more looking after; in sanitary regards, the back streets, where the labouring and manufacturing classes inhabit, are palpably defective, indeed as much so as those of any town in the West of Ireland, and especially for a town so disadvantageously placed as Drogheda notoriously is in this regard, their condition is a gross stigma on the authorities. At last, steps are being taken to substitute a suitable structure over the Boyne for that which was condemned fifty years ago, but still spans it and serves as the chief thoroughfare; and we hear that it will be a spacious structure, with double foot-paths. This will, admittedly, be a desideratum, and we hope that other contemplated improvements will soon follow. The railway viaduct over the Boyne has been strengthened in accordance with the recommendations of Mr. Hawkshaw, C.E., and apprehensions as to its security are thereby reasonably set at rest.

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* Manual of Illumination on Paper and Vellum. By J. W. Bradley, B.A., and T. G. Goodwin, B.A. With practical notes and new illustrations on wood, by J. J. Laing; together with "A Companion," by same artist. *Ninth Edition.* London: Winsor and Newton, Artists' Colormen, &c.

CENTRAL RAILWAY STATION.

It is proposed to form a Company with capital sufficient to unite, by branches, the several railways, having termini in this city, viz., the Great Southern and Western, the Midland Great Western, the Dublin and Drogheda, the Dublin and Wicklow (Kingstown branch), and to form a central station at the western side of Carlisle bridge, and 150 yards west of the Metal bridge, also lines of tramways along the quays, and to widen and improve Carlisle bridge. The mode of connection proposed is briefly,—to construct a line commencing 150 yards distant from Great Southern and Western Railway bridge at Long lane, passing thence through the parishes of Sts. James, Paul, Audoen, Michael, Michan, Mary, John, Werburgh, Andrew, Thomas, and Mark, and terminating by a junction with the Dublin and Wicklow Railway, at western extremity of Westland Row station; a junction with the latter at a point near centre of river Liffey, and 66 yards west of Carlisle bridge, thence to Amiens-street station of Dublin and Drogheda Railway, 56 yards from lower Sheriff street bridge; also by a Junction with latter, 240 yards north east of Lattice Canal bridge, and uniting 220 yards from said bridge with Liffey branch line.

The scheme, however desirable, would seem to be far too comprehensive to justify a hope of speedy accomplishment.

METROPOLITAN CATTLE MARKET.

We perceive that it has been re-notified that application will be made to Parliament in the ensuing session, for leave to bring in a bill "To incorporate a company for the purpose of establishing, erecting, and maintaining a new Market, to be called the Metropolitan Cattle Market, for the sale of cattle, horses, sheep, pigs, hides, skins, and other marketable commodities; such proposed market being situate in the North Lotts, immediately adjoining the Liffey branch of the Midland Great Western Railway, and extending from the Dublin and Drogheda Railway to East-road and Sheriff-street, all in the townland of North Lotts, in the parish of Saint Thomas, and county of the city of Dublin. And power will be taken to erect suitable offices, counting-houses, sheds, stores for the sale of provender, dwelling-houses, shops, weighing machines, water tanks, stalls, pens, slaughter-houses, with all other necessary buildings suitable for the purposes of such proposed Market, &c., &c." The desirability of improved market accommodation has been frequently urged in these pages, and some portions of Mr. Hemans' (C.E.) report, with accompanying maps on the project in question, appeared in previous numbers.

A NEW ARCHITECTURAL PHOTOGRAPHIC ASSOCIATION.

With experience based on the misfortunes or the mismanagement, or whatever it may be, of a former project which has become "a thing of the past," a few gentlemen have united to mature and maintain *an* association for the advancement of Photography as applying to the art of Architecture, and amongst such we notice the names of Messrs. Tite, M.P., Beresford Hope, Sidney Smirke, Cockrell, Digby Wyatt, &c.

A professional contemporary says the modus operandi of the new association will be to procure negatives of fine architectural works, both abroad and in this country, not otherwise obtainable, and to issue proofs to annual guinea subscribers. The exhibition will be abandoned, and subscribers are invited to propose subjects. If "caution marks the guarded way," we see no reason why the new association should despair of success.

AN ARCHITECT MAYOR OF BELFAST.

It seldom happens that an architect succeds to the dignity of "Mayor," the character of his occupation naturally precluding him from the probability of selection for an office admittedly more suitable for a commercial, than a professional, man; nevertheless, precedents for such an event in England are not wanting, though, as *yet* Ireland cannot furnish any. The first exception, therefore as regards the latter, will be the Mayoralty of Belfast for 1862—which in more regards than one, promises to be an eventful year—the result of the nomination being in favour of Mr. Charles Lanyon, an eminent architect and C.E., with whose name much of the modern improvements of the important town of Belfast, especially, are associated.

It is somewhat of a coincidence, too, that an Englishman should be the *first* exception; however, we have no sympathy with those who would suggest that fact as an obstacle to the occupancy of the office, where both merit and position entitle to the distinction, as in this instance, undoubtedly they do. The following brief sketch of Mr. Lanyon's career may prove interesting.—After concluding his articles with the then architect of the Board of Public Works, Mr. Jacob Owen, Mr. Lanyon was appointed to the county surveyorship of Antrim, an office which he still holds, and established himself as a practising architect in Belfast, where his business increased in proportion to the growing prosperity of the town, which everybody knows has been in a ratio considerably beyond that of any other in Ireland. Most of the public buildings in Belfast and neighbourhood, and very many of the private and commercial likewise, have been designed by and completed under Mr. Lanyon's directions, amongst which we may enumerate the combined Custom House, Law Courts and Post Office, the Queen's and Presbyterian Colleges, various ecclesiastical edifices, Banks, and the Sailors' home, &c., &c. In the engineering branch, Mr. Lanyon also enjoys the patronage of several Railway Companies, and had important lines completed under his supervision. Recently, in conjunction with his partners, Mr. Lanyon, jun., and Mr. Lynn, Mr. Lanyon opened a branch office in Dublin, and additional evidences of the ability of the firm have been presented in their designs for the new St. Andrew's* and Unitarian Churches in this city, the latter about to be commenced. With such extensive practice it may not be unreasonable to assume, that a fair acquisition to the worldly store has resulted, and we believe we are correct in stating that Mr. Lanyon possesses *considerable* property in the town of Belfast, a fact which at once establishes a just claim to the civic honour about to be conferred. But we may go farther and say, that in all the relations of life, by his courtesy, amiable disposition, and demeanour, which is that of a polished gentleman, Mr. Lanyon has won the highest and unanimous esteem not only of his (adopted) fellow-citizens, but of all members of society with whom he has at any time come in contact. Joining in the general surmise—whether it may prove only an idle one or not we cannot say—that on the attainment of majority next year by the heir to the British throne, the Mayors of the principal towns in the kingdom will be dubbed "Knights" in honour of the event, we hope we may be enabled to present our congratulations thereon to the *third* "Knight Architect" in Ireland, as we now do for his attainment of the worthily earned distinction, "Mayor of Belfast."

PROPOSED CATHEDRAL FOR BELFAST.

For some time past a project has been on foot for the establishment of a Cathedral in Belfast, for the see of Down and Connor; and we learn, from recent accounts, that the preliminary arrangements of the committee appointed to secure that object, are progressing successfully. Amongst the donors are the Lord Lieutenant, the Lord Bishop of the diocese, Mr. Guinness, and numerous others of the nobility and gentry.

As regards the intended building, we have no doubt that the proverbial enterprise and good taste of the Belfast people in matters architectural, assisted by eminent local professional talent, will secure a suitable and handsome work of ecclesiastical art.

WINTER SHOW, ROYAL DUBLIN SOCIETY.

Scarcely were the doors of the Agricultural hall finally barred to admission of the public to the "Art Treasures" collection deposited therein, than a legion of hands, under direction of the Society's energetic officials, might be seen undoing that which cost them so much previous labour to arrange and classify, paving the way for some *new* event. The Winter Show of Cattle, farm and dairy produce, implements, &c., is announced to take place on the 17th inst., and following day; and, though it is by no means so important an exhibition as the corresponding one in Spring, it nevertheless, by those whose pursuits are allied to agriculture, is looked forward to with some interest. We presume that no substantial cause at present exists to justify an assumption of its being this year, either of more or less than average excellence.

THE FALL OF HOUSES IN EDINBURGH.

A warning to the corporate officials in cities and towns, where ancient and insecure structures exist, has been issued from "the modern Athens," and we hope that the proverb, "out of evil cometh good," may be speedily illustrated, both as regards our *own* city and others, before a similar calamity takes place. A house, six stories high in front, seven at rere, and 300 years old, suddenly fell last week in the High street of Edinburgh, burying under tons of debris, some eighty or ninety inmates, the majority of whom were enjoying rest—that image of death, soon to become a reality.

The descriptive particulars are most harrowing, and we will not relate them; the extrication of lifeless, semi-lifeless, maimed, and mutilated bodies respectively, was vigorously proceeded with after the crash, and miraculous to relate, some escaped comparatively uninjured, while those in juxta-position were instantaneously hurried into eternity.

The number of deaths announced as having taken place, is twenty-eight. The cause assigned is the rottenness of the timber supports, a cause which, under proper inspection of dilapidated structures, ought not to have been developed at a cost of human life, and the existence of which it was not unreasonable to assume, after a lapse of three centuries. The blame for this sad occurrence can and ought to be brought home to *somebody*.

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* Illustrated in the Dublin Builder for September 1860.

ARTIFICIAL FLOWERS' MANUFACTURE.

We have recently heard and read very much of the fatal results arising from the employment of arsenic in the manufacture of green paper hangings, but this deleterious ingredient is not confined to this branch of trade, being extensively employed in various others, of which perhaps the manufacture of "artificial flowers" is the most important. Parties, generally youths of the fair sex, so engaged, adopt some precautions against the inhalation of the pigments—such as wearing masks, or pieces of muslin across their mouths—sometimes with partial success, but sometimes not so. This week we read in the columns of our London contemporaries of the death of an artificial florist, a young girl, nineteen years of age, owing to the effects of poison imbibed into the system during the pursuits of her occupation. The premonitory symptoms consisted of pain in the side and intense thirst, accompanied by retching—it being the fourth attack from same cause—and the existence of the sufferer was speedily terminated in great agony. It seems that the leaves were made of wax, and while wet, emerald green powder was sprinkled over them; and in the post-mortem examination, the lungs were found to give presence of arsenite of copper, and the bronchial tubes to be affected.

The surgeon who had been called in to attend the deceased, demonstrated to the coroner's jury, by means of a glass tube in which some grains of the powder had been placed, that one end contained a deposit of metallic arsenic, and the other arsenious acid, an incontestible evidence of the presence of poison—and recommended in future cases as an antidote the administration of the hydrate peroxide of iron. *We* would, however, urge in this as in numerous other occupations wherein human life is made subservient to the wants, the luxuries, or the vanities respectively of man, that *prevention* is better than *cure*, and that those invested with authority should prohibit, under severe penalties, the employment of such elementary materials in manufactures as are detrimental to health and longevity.

HIGH ALTAR AND REREDOS, ST. MICHAEL'S, TIPPERARY.

Passing notices of this important—perhaps indeed the *most* so of any of similar character in the kingdom—work of ecclesiastical art have appeared in this journal, but we should involuntary and tacitly perpetrate an act of injustice towards the artists engaged thereon, were we not to award space for more *special* description of its features and composition.

The general dimensions of the altar, which stands on a richly moulded plinth, are 11 feet 6 inches in length, and 3 feet 4 inches in height, to a massive table, ornamented with ball flowers and pateræ formed on hollow mouldings, and supported by four marble columns with carved caps and moulded bases.

On the front in three quatrefoil medallions are beautifully sculptured subjects illustrating, respectively, "The Paschal Supper, and the sprinkling of the door-jambs with the blood of the Paschal lamb; the gathering of the manna in the desert; and the spies bringing branches of grapes from Hebron."

The tabernacle is of the finest alabaster, and elaborately carved, having on each side in an angle niche, a solid gilt figure of an adoring angel; and central, a large wrought safe lined with richest materials, the door being of massive gilt plate beaten, engraved and picked in with richest colours.

The reredos is 27 feet 6 inches wide, and covers the entire end of the chancel from floor to sill of east window—a height of 17 feet 6 inches—flanked by gorgeous niches and a canopy 2½ feet high. The canopy is supported by four marble columns resting upon a base exquisitely wrought. In one niche is a statue of the Blessed Virgin, 5 feet 6 inches in height, and over her head rises a groined ceiling and four richly carved and pierced gablets, from the centre of which rises a handsome crocketed pinnacle, with finial termination; and in the other a figure of St. Michael the Archangel, patron of the Church.

The basement rises seven feet from floor, and is rich in diaper, terminating with a carved string course, and surmounted by six elaborate canopies sustained by marble columns with richly carved crocketed gablet over each, the spaces between gablets being filled in with angels bearing musical instruments.

Immediately under the canopies above named are sculptured, three fourths life size, the following subjects, viz., "the sacrifice of *Abel*—representing, respectively, the offering of the lamb, and the acceptance thereof of our Blessed Lord; the sacrifice of *Noah*, wherein the prophet, surrounded by his sons and daughters, is seen in the act of offering; the sacrifice of *Melchisidech*, King of Salem, bringing forth bread and wine; the sacrifice of *Abraham*, who, with uplifted hands, immolates to the Most High his son Isaac, bound upon the altar; the sacrifice of King *Solomon*, in presence of the people of Israel, on the completion and dedication of the temple; the sacrifice of *Elias*, who prayed, and fire descended from Heaven and consumed the sacrifice." (The composition of this group is very effective, and tells its story.) Central in the reredos rises a richly wrought canopy 26 feet high, surmounted with a figure of a pelican feeding her young, and supported by four marble columns. Underneath the canopy is a colossal figure of our Blessed Lord, as King of Heaven and Earth, holding the globe in the left hand, the right being raised to bless the people.

The Artists of the above named work, as also of the side altars in same structure, are the eminent firm of Hardman and Co., Birmingham and Dublin, to whom much of the revival, in Ireland, of mediæval art is mainly attributable.*

THE ORDNANCE FRAUDS.

COURT OF QUEEN'S BENCH.

The trial of Hamilton Connolly, clerk in the Ordnance Office, and John M'Ilwaine, builder and contractor, for frauds jointly committed by conspiracy and forgery on the Ordnance Department, amounting, it is said, to several thousand pounds, was commenced on the 28th ult.

The prisoners had pleaded not guilty.

The Attorney-General then stated the case. The offences charged were conspiracy and forgery. The prisoners were persons of consideration in the city and its neighbourhood; both held respectable positions. Hamilton Connolly for many years was chief clerk in the office of the District Commanding Engineer in Dublin. John M'Ilwaine was for a great number of years a contractor. He did an extensive business. He had triennial contract for certain barracks in Ireland, amongst them Island-bridge and Richmond-barracks. During periods of three years he had to execute necessary works in the barracks, according to certain schedule prices which he had contracted for. The amount of work which the contractor executed at any barrack during a period of three months, was examined by the local clerk of works, then certified by the district commanding engineer, and the claim of the contractor for the work done being checked off by the schedule prices; it was then returned to the office in which Hamilton Connolly was chief clerk, to be transmitted by him to the accountant-general's office, in London, who thereupon sent back an authority to Connolly to draw bills for the payment of the amount. A duplicate of the contractor's claim, and of the certificates of the proper officers was presented. It was impossible to imagine any machinery more perfect than this to prevent fraud upon the part of the contractor, When he furnished his claim for work done, he should have that claim examined by the local clerk, again by the district commanding engineer, then by the persons in London—all this was done before the order for payment was made. Only in one way was it possible to defeat that machinery—by complicity between some trusted servants of the crown and the contractor. Up to the time the district commanding engineer signed the certificate, it was impossible to attempt a fraud. But when the certificate was sent back to the office, the opportunity for fraud was given. Before it went into the office, the claim was perfectly true and good—it represented work actually done, and bore the genuine signatures of the officials certifying it. In Mr. Connolly's office, however, the claim of the contractor was altered—the columns were altered—in some instances by interpolating items that were never there before; in others, by changing the figures that were in the columns to represent larger amounts. In this way extensive frauds were carried on by the prisoners, the changing of the claims being done in every case by the prisoner Connolly. The Accountant-General in London, when he received the fraudulent claim which never had been certified, although it purported to be, sent a letter of advice of M'Ilwaine, who resided in Naas, telling him to draw a bill for the amount. It appeared that M'Ilwaine communicated with Connolly in Dublin, that the latter drew the bills for the fraudulent amounts, which being accepted by the paymaster-general, were paid in due time, and the fruits of the frauds were thus realised by the parties. The first fraud, which would be brought under the notice of the jury, was in reference to the claim of M'Ilwaine for the quarter, ending 31st December, 1860, for work done at Richmond Barracks. The amount certified for the Local Clerk of Works and the District Commanding Engineer, was £323 17s. 2¾d.; that claim was fraudulently altered by Connolly to £628 7s. 2¾d.—the difference was made up by inserting an item in the claim for "Bangor slates with nails dipped in boiled oil, £406," instead of a small amount under that head. It would be found that those slates were never furnished to the barrack—that the whole thing was a deliberate fraud. The second fraud was in the claim of M'Ilwain, for Island-Bridge Barrack, for the same quarter, ending 31st December, 1860. The true claim was £277 11s. 5¾d., it was fraudulently altered to a claim for £576 1s. 5¾d. by erasing the true figures and substituting the false ones. The third fraud was carried out on a claim of M'Ilwaine for Richmond Barracks, for the quarter ending 31st March, 1861, the true amount was £361 14s. 7d., it was fraudulently altered to £706 17s. 0¾d.; by inserting, instead of a small amount for slates, an item of £460 3s. 4d., for 251 squares of Bangor slates with nails dipped in boiled oil—those slates, it was unnecessary to say, had never been supplied. The fourth fraud was on the claim of M'Ilwaine for Island-Bridge Barracks, for the quarter ending the 30th June, 1861. The genuine claim was for £221 10s. 2¾d., it was fraudulently changed into a claim for £445 18s. 5d. The fifth fraud was on a claim of M'Ilwaine for the same period, for work done at the Richmond Barracks. The true sum was £269 9s. 3d., it was fraudulently altered to £501 6s. 9d. These were the cases that would be proved to the jury. During six months M'Ilwaine's true claim for work done at the barracks was £1,447. That was the amount of the claim examined and certified by the clerk of works and the district commanding engineer. The sum fraudulently claimed and received was £2,858, leaving a profit to those concerned in the frauds, of £1,411 during the six months. Evidence of the most conclusive character, under the hands of the parties themselves, would be given to prove that Connolly altered the claims, and that M'Ilwaine conspired with him in the frauds. When Connolly was arrested in his office, the police took possession of his papers before he had any opportunity of meddling with them. Documents were found having entries on them which were, in fact, a history of the frauds already disclosed, with a division of the spoil, all in the handwriting of Connolly himself. He (the Attorney-General) would read from a book of Connolly's, the following entries:—Under the head "Rich," were, in one column, the figures "311260;" in another, "323172;" in another, "628172." "Rich" meant "Richmond Barracks;" "311260" stood for the 31st December, 1860; "323172" represented the first genuine claim of £323 17s. 2d., and "628172" meant the sum it was fraudulently altered to, £628 17s. 2d. The other claims, their dates, original genuine sums, and what they were fraudulently altered to, were represented in the book in the same way by columns of figures. Under the figures which represented the history of one claim, upon which there was a gain of £304 10s, there was a balance struck in this way—Under 304, which represented the sum, was put 200, and the balance was brought out 1041, or £104 10s. That was the division of the profits on that transaction. Upon another of the transactions, which gave a profit of £224 16s. 2d., the balance was struck by the figures 224162, under which were put 150, the balance then brought 74162, or £74 16s. 2d. There, again, was the division of the spoil in Connolly's handwriting. The claim of £271 11s. 5¾d. was altered, as and been stated, to £576 1s. 5¾d., by erasing the true figures, and substituting false figures. The true figures, £271 11s. 5¾d., were signed "Edw. William Dunford," the name of the district commanding engineer. The substituted figures, £576 1s. 5¾d., bore the initials, "E. W. D.," and, of course, being thus apparently certified by the officer whose genuinely written name appeared where the other figures were, passed at the office in London as all right. The letters, "E. W. D.," were forgeries, as the crown alleged, by Connolly. Amongst other matters belonging to that prisoner, which were found by the police, was a scrap of paper on which the letters "E. W. D." were several times written. The jury would, perhaps, conclude that the writer was practising the writing of the initials "E. W. D," for the purpose of forging them. They were forged to the claim above mentioned. Amongst the papers of M'Ilwaine were found some bearing calculations of the kind found in Connolly's book, and this was evidence of the conspiracy between the prisoners. Three documents found in M'Ilwaine's desk should be read. Two were letters from Connolly. The first, dated from the War Office, Dublin, Thursday, 18th July, 1861, was in these terms: "My dear Sir, the bills for the undermentioned places were forwarded for payment yesterday, for the June quarter, 1861—Island Bridge, £221 16s. 2d.; Richmond Barrack, £268 9s. 3d. Your's truly, Hamilton Connolly. P. S.—You ought to see Scott about the contract for the drainage and water supply of the Island Bridge Barrack." That was a real, true, and proper letter, stating that bills had been sent for sums honestly due and properly certified. But there was another document—a private letter from Connolly to M'Ilwaine, of the same date, the 18th July, 1861, in these words—"My dear M., I have to pay £300 in three weeks from this date; there is no escape from it. As you cannot help me without I assist you to do so, I have arranged matters according to the enclosed dockets. When you get the amout of those bills you can pay me £300. You also owe me a balance of £277, which I hope you will soon be able to clear off, and then I promise you there will be no more transactions of this nature." Inclosed in that letter was a slip of paper having, in Connolly's handwriting, the following calculations:—"I. B., £221 16s. 2d., £445 16s. 8d., £224 0s. 6." "I. B." stood for Island Bridge, and the figures represented the true claim, the fraudulent claim, and the profit realised. Then under £224 0s. 6d. was put £150, with the words "for me," and the balance was brought out £74 6s., with the words "for you." A second calculation was this—"Rich," £268 9s. 3d., £501 6s. 9d., £232 17s. 6d. "Rich," meant Richmond Barracks, and the figures, the true, the false claims, and the gain. Those under the £232 17s. 6d. were put "£150," with the words "for me," and the balance was brought out £82 13s. 6d., with the words "for you." There was the division of the spoil under the hand of Connolly himself, who realised on the two transactions the £300 which, in his letter, he said he required. It would be proved, too, that on the 30th July, M'Ilwaine drew a cheque for £150 in favour of Connolly. This was the outline of the case of the prosecution. It would be sustained in every part by documentary evidence, about which there could be no mistake. If there was any doubt on the minds of the jury as to the conclusive nature of evidence adduced to bring home guilt to the prisoners, of course, they would return a verdict of acquittal. But if, on the other hand, the jury were satisfied that the evidence did sustain the indictment, however painful it might be to them, seeing the respectability of the prisoners, it was, nevertheless, their bounden duty, and, assuredly, they would discharge it, to find a verdict of guilty against the prisoners.

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* It is not a trifling coincidence, that *such* a work should find its destination in "*Tipperary*," but is a happy illustration of progress.

After several witnesses—chiefly Castle officials—had been examined by the Crown, and cross-examined by the prisoners' counsel,

Mr. Macdonogh, Q.C., addressed the jury on the part of the prisoner, M'Ilwaine. The case of his client was no way connected with that of Hamilton Connolly; he did not intend to say one word, in defending M'Ilwaine, either in exculpation or condemnation of Connolly. The Attorney-General, in this important case, did not tell the jury how, in point of law, he hoped to sustain against M'Ilwaine the indictment for conspiracy and forgery. Where was there the slightest piece of evidence to show that M'Ilwaine ever committed forgery in any of the mass of papers that filled the table? There was none. Neither was there evidence to prove that M'Ilwaine conspired with Connolly to commit the frauds charged. The charge was that M'Ilwaine, a man who had passed a long life bearing the highest affirmative character for honesty and sincerity—a man of means, too—conspired and forged to commit frauds; but the jury would be satisfied before the trial was over that, however he may have been connected with irregularities, he certainly did not stain his hitherto high character, with the crimes charged against him. There was a wide line of demarcation between irregularity and crime, and the jury should bear that in mind. It should be stated who John M'Ilwaine was. For thirty years he had pursued a laborious and industrious career. He had necessarily to depend much on others in respect to his accounts and claims. Gradually M'Ilwaine raised himself in life. He was well known and highly respected in his business—he was respected, too, in Naas, his native place, and his acquittal was there anxiously awaited, not only by the peasant, but by people of every class, who firmly believed that, however confiding and incautious he may have been, he certainly was not guilty. He had triennial contracts with the government for several barracks. He built largely for himself, and held the position of chairman of the Town Commissioners of Newbridge, and was a guardian of the poor. The want of education was his great defect; his knowledge of arithmetic was imperfect, and he had to confide, almost entirely, to others in reference to his accounts. His military contracts brought him into contact with government officials, and one could well understand how a man in M'Ilwaine's position, regarding officials almost as his superiors, would be desirous to stand well with them, even to the length of negotiating their bills of exchange. Having so many contracts on hand, M'Ilwaine was obliged to give over the management of the greater part of his business to a very correct person, his foreman, named Foley. According as the work was done it was measured by the government officer, in order to be certified for the quarterly accounts. The measurement took place in the presence of the foreman; there was no pretence that the works in the accounts were not done, and the proper sums claimed. And here it should be remarked that had M'Ilwaine's claims been at once put into an envelope and sent across to London, there was no possibility of fraud been committed by any one. There was no allegation that any fraud was committed in respect to any of the bills sent into the War-office by M'Ilwaine, they were all most carefully and honestly detailed accounts. His first account was £323 17s. 2d, that was in every part of it correct, but a monstrous item of £400 was put in for Bangor slates—enough to have covered the whole of the Four Courts. So it was in all five accounts; but what evidence was there that M'Ilwaine had anything to say to the putting in of that item? None. It was attempted to fix M'Ilwaine with the frauds by showing that he received letters of advice from the War Office in payment of his bills. But it turned out that these letters of advice came not at regular intervals, and that these letters of advice often were in reference to more than one claim, and without specifying for what claims they were sent. How did this bear upon the case of M'Ilwaine? He was a man of extensive business—he had, of course, enough to do with his money—when he got letters of advice desiring him to draw for certain amounts, was he to stop to inquire for what particular works the payments were made. But what guilty knowledge could be imputed to M'Ilwaine, that he was aware, in his total ignorance of what his accounts were with the government, that those accounts were fradulently increased? It was the state of M'Iwaine's mind the jury had to try—if he had no guilty knowledge, then he should be acquitted. It was alleged that the papers found in Connolly's office proved the case of conspiracy. Now, papers that were evidence against one person might not be evidence against another, and the papers relied on by the crown proved no conspiracy. There was no evidence whatever given to show that Connolly and M'Ilwaine ever met—that they were associates in private life, or were acquainted with each other at all, except by their correspondence. M'Ilwaine, when under arrest, at once told the police inspector where he would find the key of the office in which were found the letters of Connolly of the 18th July, which were said to establish his guilt. Was the conduct of M'Ilwaine like that of a guilty man? No, it was proof of innocence. The documents found in M'Ilwaine's drawer were said to be evidence of his guilt. On the contrary, they were evidence of his innocence. If they were proofs of guilt, would not M'Ilwaine have destroyed them?—would he have at once given up the key of the office where they were found? Two letters of Connolly's and a piece of paper were found in an envelope. What else was the one dated 18th July but a statement that M'Ilwaine's bills—his true and honest bills—certified by the government officer, checked and rechecked, the proper amounts set out, were sent by the government official to London for payment? Was not that letter powerful evidence of the absence of conspiracy on the part of M'Ilwaine—of his entire freedom from fraud? But the crown relied on the second letter of the same date, 18th July, and what was that letter but a request for accommodation to the extent of £800. Was it proof of conspiracy? Who ever heard of conspiracy couched in such terms? The jury could well understand that M'Ilwaine, believing that the government officer was all powerful, and that in dealing with his numerous claims for work done could procure him payment in advance, would be anxious to accommodate him, and did so, that government officer getting him an advance on account of his claims due and current. That supposition was entirely reconcileable with the notion of M'Ilwaine's innocence—it was entirely opposed to the notion of his guilt. On the document found with those letters were figures in which that £300 required by Connolly, and with which he said he should assist M'Ilwaine, were totted off. That was the whole case, and it entirely failed to support the charges against M'Ilwaine. Witnesses of high rank would depose to the excellence of M'Ilwaine's character—would depose to their belief that he was utterly incapable of doing what was alleged against him. If they had the smallest doubt of the conclusiveness of the case they should acquit; and the case was now left to their impartial and merciful consideration.

Mr. Dowse, in addressing the jury for the prisoner, Hamilton Connolly, reminded them that they were trying a criminal case, in which they should not convict upon probabilities, but upon the conclusive evidence of the prisoner's guilt. The history of the bills alleged to have been altered by Connolly was really instructive. M'Ilwaine, having contracted for works to be carried on in various barracks in Ireland, was obliged to communicate with the War-office in London. According to the blessed system of centralization that was being carried out, the head of every thing—the place containing all the brains (it was supposed) was fixed in Pall Mall, through which the pecuniary blood circulated to the extremities—one of the extremities being in the Lower Castle yard (a laugh). Had the business of the head in Pall Mall being carefully transacted, what happened in the Castle-yard could never have taken place. He ventured to say that a more complicated and absurd machinery, or one tending more to inconvenience and mistake in the transaction of public business, was never exhibited than that, the screws, pistons, and rods of which were laid before the jury during the last two days. It appeared that M'Ilwaine intrusted the works at the various barracks to his foreman, a steady, honest man. The foreman with the aid of his own information, and the assistance of the government official who was to measure the work, made out the quarterly claims. Now, Mr. G. W. S. Scott was the gentleman to measure the work. In all public offices it was the rule to have somebody under somebody else; and, accordingly, Mr. Scott had persons under him who measured some of the works, and he of course adopted their measurements. Now the allegation was that the slator's work, for which the increase was charged in the claims, had not been done at all, but the jury were left without evidence by the crown on that point, and if the jury believed the work charged for had been done, however irregular the practice complained of may have been—however improper or opposed to red tape it may have been, they could never convict the prisoners of conspiracy to defraud. The account for the work certified being sent into the office in the Lower Castle-yard, a "duplicate" of it, as it was called, simply because it was not a duplicate, was then made. One document was retained, the other sent to London, which, as he observed, absorbed everything valuable in Ireland, and could not even leave them Mr. Macdonogh. With the regularity that marked all public departments, Mr. Scott checked only the quantities in the claims. The clerks in the Castle-yard checked only the money calculations, and so on. This double check, which was not a check at all, the Ordinance Office, by a process of reasoning, it was to be hoped, peculiar to itself, arrived at the conclusion that the account was correct. In the process of making each claim of the contractor all right it was first checked by one clerk, then by another, then by another, each clerk checking it by a private mark known to every other clerk, and, finally, it went before the head of the department, Colonel Durnford. That gentleman, like all the other witnesses produced, gave his evidence fairly, candidly, and truthfully. Colonel Durnford certified each account after it had passed through the hands of the previous officials, taking it for granted that it was all right, and the money total of the account, not a copy of the whole account, was then entered into what was called the expense book. After they were certified by Colonel Durnford, they found their way to the office in Pall Mall of the Assistant Accountant-General in the War Office. There is no evidence whatever that after the five claims which were the subject of investigation had been certified by Colonel Durnford, they ever went back to Connolly, the chief clerk—that he ever saw them, or posted them to London. It was alleged that the alteration in the claims were in Connolly's handwriting, but the jury would remember that no evidence was more fallacious than that of handwriting. Colonel Durnford, out of all the files of documents produced to him, only deposed to one line of writing being that of Connolly. For the first time in his (Mr. Dowse's) experience was evidence given of figure writing. And what sort of evidence was that? One official gentleman who was put up to prove that the figures 468 were in the handwriting of Connolly said he believed the 4 and the 8 were, but that the 6 was not in that party's writing (a laugh). Why were not all the clerks engaged in the process of checking those claims produced? They should not, upon light grounds, believe that Hamilton Connolly forfeited his character for honesty and honour—a character of many years standing—because there happened to be accommodation tranactions between himself and M'Ilwaine. If they felt that the indictment was not sustained satisfactorily—if in considering the motives capable of two interpretations, they adopted the more humane, the more merciful interpretation, they would, by doing so, temper justice with mercy—they would, in this criminal case, be acting on the old and honoured canon of the law—that the prisoner should have the benefit of the doubt, and he could only hope that justice would be done by returning a verdict of acquittal.

Numerous witnesses were produced to testify to the high character previously borne both by Mr. Connolly and Mr. M'Ilwaine, and amongst those for the latter were—Alderman and Mr. Richard Martin, Maurice Brooks, William Kelly, Mr. La Touche, D.L., Baron DeRoebeck, Major Borroghs, Rev. James Hughes, P.P., Rev. Mr. DeBurgh (Incumbent of Naas), &c., &c., after which

Mr Justice Hayes charged the jury. He said that everything capable of being said in the case—all that skill and ability could achieve for the elucidation of the case, according to the view which was respectively taken of it by counsel for the crown and counsel for the prisoner, had been done by those learned gentlemen, and, if he could, he very gladly would now leave the case in the hands of the jury. He had, however, a certain duty to discharge, and he would endeavour to do it briefly. In the first place he should state that the jury might find either of the prisoners guilty of forgery, but they should either convict both or acquit both on the indictment for conspiracy. There could be no conspiracy without two or more persons being concerned in it; therefore, if they held one of the prisoners not guilty of that part of the indictment, they should acquit the other also. His lordship then stated in detail to the jury the history of the case, the evidence adduced by the crown to sustain the charges against the prisoners, and the arguments relied on by their counsel in defending them. There really seemed to be no evidence whatever on the part of the accused, whose case resolved itself into one of a consideration of their characters. The character given to M'Ilwaine with such heartiness and good-will by the gentlemen produced was such as any one in court might be proud of; and the same observation applied, although to a smaller extent, to the character given to Connolly. But that evidence of character could only be legitimately used in this way—it should make the jury more vigilantly scrutinise the evidence by which the case against the prisoners was sustained—but it should not induce them to reject the case. If they believed that the evidence in the case proved satisfactorily a concert between the prisoners to commit the frauds which certainly had been committed, the good character of the prisoners should not avail—a verdict of conviction ought to be returned; if, on the other hand, they had any reasonable doubt of the prisoners' guilt—such a doubt as honest, clear-headed, intelligent men, acquainted with the way the affairs were carried on, would entertain on the case—the benefit of that doubt ought to be given to the prisoners by a verdict of acquittal. But, he repeated, if the case of the crown satisfied them that it was complete, they should convict the prisoners.

VERDICT.

After about an hour's deliberation, the jury re-assembled in their box, and the foreman (Mr. Whyte) in reply to the Registrar, stated that they had agreed to their verdict. The prisoner, John M'Ilwaine, was found guilty of conspiracy to defraud; the prisoner, Hamilton Connolly, was found guilty of conspiracy to defraud, and also forgery.

The Foreman—We wish the court to give a merciful consideration to the case of M'Ilwaine, as we believe he was led into this business by the other prisoner.

Mr. Justice Hayes said when the case came before the Court of Queen's Bench, he would take care to inform their lordships of the recommendation of the jury.

Mr. Curran said the offence of which the prisoners were convicted, was a bailable misdemeanour. He now applied that they should be allowed to stand out till next term, when the points saved would come on for argument. Substantial bail would be given. M'Ilwaine could procure bail for almost any amount.

The Attorney-General said the application to bail should be formally made at the proper time. If such were done, the matter would receive every attention. At present he could not consent to Mr. Curran's application.

Mr. Justice Hayes said as a judge at Nisi Prius he did not think he had power to bail the prisoners; as a judge of the Queen's Bench, he could not grant the application without the consent of the Attorney-General.

Carpenter v. *Scott.*—Demurrer taken by plaintiff to defence, also a new trial motion. It appeared that this case was tried before Chief Justice Monahan and a special jury of the City of Dublin, at the last after sittings, when the jury found a verdict for the plaintiffs on one of the issues, and for the defendant on all the others, which in effect amounted to a verdict for the defendants. The facts of the case were these:—It appeared that the plaintiffs were Messrs. Thomas A. Carpenter and John H. Carpenter, of Dame-street, in this city, commission agents; and the defendants Sir Claude Scott, Bart., and other persons, who are the owners of certain slate quarries in Wales; and the action was brought to recover damages for an alleged breach of contract in not delivering slates and slabs. The defendants denied the alleged breach, and pleaded that the plaintiffs had violated the contract in not paying for certain slates which were delivored. The case of the plaintiffs was, that in the month of November, 1860, they entered into an agreement with the defendants to deliver to them 100,000 slates—one half at £9 and the other half at £8 a thousand, as they might require them—and that the defendants neglected to deliver them as they were bound to do. It was also alleged by the plaintiffs that the defendants contracted to deliver to them all the slates raised from a certain quarry between November, 1860, and November, 1861, at the price of £2 3s. per ton; and further, that they contracted to deliver 200 tons of slates called "slabs" at £2 6s. per ton, but only partly carried out that contract, and after delivering about eighty tons, refused to complete it. The case of the defendants was, a traverse or denial of the contracts as put forward by the plaintiffs, that they were always most ready and willing to carry out the real agreement, and that they had in point of fact delivered a portion of the goods in relation to each contract, and only discontinued to do so when the plaintiffs violated the agreement by not paying for the slates and slabs which were so delivered. The plaintiffs obtained a conditional order for a new trial during the present term, and also brought forward the case on demurrer. The demurrers were taken to the defences put in to the fourth and sixth counts of the summons and pliant. The defence to both counts referred to, stated that the plaintiffs did not perform what they undertook of their contract, and that upwards of £408 worth of slates were delivered, and they did not pay for them within the specified time, viz., twenty-four days after delivery, although requested to do so. The plaintiffs demurrers to the two defences in question were similar, and to the effect that the payment of £408 mentioned did not appear by the terms of the contract to be a condition precedent to the right of delivery, and that therefore the plaintiff was entitled to recover in the action.

Butler v. *Cunningham.*—An action by a carpenter, named John Butler, against defendant, Mr. John Cunningham, to recover balance of about £20, alleged to be due on foot of a contract in writing, to complete the woodwork of two small houses, and also to recover damages for the alleged breach of contract. Plaintiff stated that he commenced the work in June last, and was turned out of it before it was completed in the month of September, and he only received £32 on foot of the contract, and there was a balance due to him of upwards of £20, even for the value of the work actually done. The original contract, it appeared, was for a sum of £71 16s. The plaintiff alleged that he did the work well and expeditiously, and that there was nothing to justify the conduct of the defendant; while the case of the defendant, on the other hand, was, that the plaintiff did not attend to the work as he ought, but remained away from it and got drunk, and that he was, under the circumstances, fully justified in putting an end to the contract. It was also alleged for the defendant that he offered the sum of £18 over and above the amount of the contract if he completed the work, and that the plaintiff proposed to accept it, or to finish the work. Verdict for defendant, with costs.

In re G. Robinson, a bankrupt, builder (Ardglass).—The assignees objected that schedule was not properly vouched, and Judge Berwick, after examination of bankrupt, who stated that he lost £500 by one contract, and kept no books, expressed dissatisfaction and contemplation of adjoining the case *sine die*, but subsequently ordered adjournment for a fortnight.

TIMBER SALES.

At Messrs. Martin and Son's sale of wood goods on Thursday last, owing to the inclemency of the weather the attendance was not as numerous as had been expected. All the lots put up were sold without reserve, although they realized much under the rates obtained at previous sales. In consequence of the continued severity of the day, the sale had to be finally adjourned to next Thursday, when it is expected there will be a large attendance of buyers, as the goods which remain are to be sold unreservedly. The following is a note of the sale:—

21 hundred bright Quebec spruce deals, second quality, at £13 12s. 6d. to £13 17s. 6d. per stand hundred.

119 hundred St. John and Lower Port spruce deals, principally long lengths, at £13 to £14; average £13 7s. 6d.

8 hundred bright Quebec pine deals, second quality, at £19 to £19 15s.

16 hundred red deals, long lengths, £18 15s. to £19 10s.

119 tons red pine timber, at £3 to £3 2s. 6d. per ton.

10 tons old red pine, at £2 12s. 6d. per ton.

18 tons yellow pine, at £2 2s. 6d to £2 5s. per ton.

20 tons Sundswall timber, at £2 7s. 6d.

From Commercial article in *Freeman*, we quote that John Martin and Son having been compelled to adjourn their periodical auction of wood goods from the 21st instant, the adjourned sale took place on Thursday, 28th. The attendance of the trade was large and respectable, and the bidding much more active, with an advance on late sales. The following is a summary of the goods sold:—

71 hundred St. John spruce deals, planks, &c., £13 2s. 6d. to £14 12s. 6d.; average, £13 18s.

5 hundred Quebec spruce deals, first quality, £16 5s. to £16 7s. 6d.; average, £16 6s.

28 hundred Quebec spruce deals, second quality, £13 2s. 6d. to £13 7s. 6d.; average £13 5s. 6d.

81 hundred Pugwash deals, £12 10s. to £13 10s.; average, £13 4s.

3 hundred St. John pine deals, £14 to £14 2s. 6d.; average, £14 1s. 8d.

8 hundred Quebec pine deals, second quality, £17 17s. 6d. to £19; average, £18 3s.

10 hundred Norway red deals and battens, £15 15s. to £19 10s.; average, £18 11s.

89 pieces yellow pine, 42s. 6d. to 47s. 6d.; average, 45s. 6d.

4 pieces board pine, 80s.

110 pieces crown Memel timber, 62s. 6d. to 70s.; average, 67s. 8d.

29 pieces crown Dantzic timber, 62s. 6d. to 67s. 6d.; average, 65s.

160 pieces Sundswall timber, 47s. 6d. to 55s.; average, 52s.

9 fathoms Dantzic lathwood, £6 10s.

1 fathom American lathwood, £3 5s.

At Messrs. William Kelly and Co.'s sale on Thursday, the 7th, there was a numerous and highly respectable attendance, and a fair amount of business was done.

15,697 St John's and lower port spruce deals were sold at prices ranging from £14 5s. to £15 7s. 6d. per 120 of 12 feet 9 x 3; 1,000 Quebec spruce deals at £17 5s; 3,916 pine deals, 10 to 12 feet, 7 x 3, 8 x 3, 9 x 3, and 11 x 3, from £18 7s. 6d. to £26 per 120 of 12 feet 9 x 3; 1,564 red deals, long lengths, from £21 2s. 6d. to £25, and 294 pieces of ends at £19 10; 50 tons Quebec oak from £4 7s. 6d. to £4 12s. 6d; 236 tons yellow pine from £2 5s. to £3 15s.; 64 tons small red pine at £3 2s. 6d. The sale of Memel and Sundswall timber was not proceeded with at the rates offered.

Fatal Accident.—A carpenter, named Thomas Cahill, recently engaged fastening a sash in first-floor window of house 12, South Anne-street, fell from some outward scaffolding on the area railings, and met with a fearful death. The deceased left a wife and family.

Incombustible Wood.—Wood may be rendered incombustible by impregnating it with a solution of silicate of potash, commonly called liquor of flint. The liquor is first laid on with a brush in a highly diluted state; this being repeated two or three times, letting the wood get dry each time, common whitewash is applied, and this again, when dry, is fixed by the concentrated solution.

To Prevent Boiler Explosions.—Boiler explosions are generally caused by the water in the pipes or cisterns becoming frozen, under which circumstances, if heat be applied to the boiler, (which is usually unprovided with a safety valve), an explosion will ensue from over-pressure. The best preventive is to keep on a good fire during the frost, and if the supply of water to the cistern be stopped, unless other means be adopted for filling it, no water should be drawn from the boiler.

THE DUBLIN MADRIGAL SOCIETY.

The first concert for the season of this society, took place at the Antient Concert Rooms on the evening of the 29th ulto., and was as usual fashionably and numerously attended. Although the term "Madrigal" is adopted in its nomenclature, the committee very properly have not exclusively observed it in practice, which would simply constitute the presentation at their periodical concerts of nothing but "*Madrigals*," which are vocal glee performances of peculiar character, and however excellent in their way, would without being varied, prove monotonous, at least to the taste of the general public. The selections usually comprise as well as "Madrigals"—which are in the minority—vocal solos, duets, &c., by the best available local artists, amongst whom on Friday evening were the Misses Julia and Frances Cruise (soprani), Messrs. Tracy, Topham, and Fanning (tenori), and Richard Smith (basso), with occasional instrumental performances likewise. Mr. Levey acted as conductor with his wonted ability, to which is due no small proportion of the success of the Society; and Mr. O'Rourke efficiently accompanied the vocalists on the piano.

As the season is now in its infancy, we would urge on such of our readers as appreciate a musical evening in company with a goodly gathering of "Erin's fairest daughters," and can spare a short hour from the matter of fact things of life in rational and instructive recreation, the desirability of joining the ranks of this most excellently conducted and select Society, which for a trifling annual subscription of one guinea, confers many advantages not otherwise obtainable.

THEATRE ROYAL.

An engagement more successful in point of appreciation by the *few* than in financial results arising from the patronage of the multitude, has just been completed here by Mr. and Mrs. Florence, American comedians. Versatile as Mrs. Florence's talents undoubtedly are, whether as actress, songstress, or danseuse—a rare combination—the culminating point of excellence is in her Yankee delineations, though we should also add that the others—viz., the Spanish, the French, and the German are likewise distinguished by uncommon fidelity of portraiture. Mr. Florence as *Captain Cuttle*, in the somewhat dry and uninteresting dramatised version of *Dombey and Son*, is entitled to unqualified praise, but mistakes his *forte* in attempting Irish characters.

Madame Grisi (with a troupe of artistes familiar to the Dublin public, as also Miss Conran) is, we understand, to commence a *real* farewell engagement on the 3rd instant. Signor Mario does not accompany as *primo tenore*, that position being alotted to Signor Galvani, a very mediocre actor and singer, who appeared recently in same capacity with Mdlle. Patti. We presume, however, that the last appearance in the operatic hemisphere of the bright luminary, in her zenith for nearly a quarter of a century, is deemed alone a sufficient attraction to secure overflowing benches.

The works on the extension line between the Kells terminus and the town of Oldcastle—a distance of twelve statue miles—are progressing most favourably, under the superintendence of the contractor, Mr. Burke.

The extension of Cork and Youghal Railway, from Tivoli to the temporary terminus situate a little to the eastward of St. Patrick's Chapel, Lower Glanmire-road, is nearly completed, and the trains may be expected shortly to run on it.

Notices are published to connect the city and county of Cork with some of the richest districts in the county of Waterford. One is a railway between the Cork and Youghal line at Middleton and Fermoy, and the other, a continuation of the proposed Middleton and Fermoy line, to Lismore and Dungarvan. The plans which were deposited in previous years for a connection between the Cork and Youghal Railway and Fermoy, ignored the important town and district of Middleton as the point of junction.

Preparations are being made for the immediate commencement of the railway from Castlebar to Claremorris, and it is believed that the line will be completed by next August. Mr. E. Harrison, C. E.; Messrs. Smith and Knight, contractors.

A sum of £387 has been expended on works at Passage, a terminus of the Cork, Blackrock, and Passage Railway.

The construction of the Tralee and Tarbert line has for the present been abandoned.

A line of railway from Carlow to Tullow and Newtownbarry, is contemplated.

The photographic art in Paris, including all classes of photographic workmen, employs no less than 10,000 persons. The portrait card is the most profitable branch, in which an ever-augmenting trade is carried on. The sporting world, too, of Paris has now its photographic establishment in the Champs Elysee, it being the fashion amongst a certain class to have the portraits of their horses and dogs hung up in their apartments.

Origin of the Word "Tramway."—The *Newcastle Chronicle* denies the accuracy of the derivation of "tramway," which a newspaper paragraph assigns to the father of Sir James Outram, whose iron road at the Butterly Iron Works, of which he was the founder, took the latter half of his name, and was known as *tram*way? Mr. Smiles, in his life of Stephenson, gives a somewhat similar derivation, and says that Mr. Outram's roads were laid down in the year 1800. The writer in the *Chronicle*, however, asserts that "tram" was an old word in the mining districts long before the year 1800. "Follow the tram" occurs in local song; and the word is repeatedly used in "The Pitman's Pay" of the late Mr. Wilson. When, for example, two "drouthy cronies," on "pay night," are talking over old times in the alehouse, one of these veterans says:—

> "But heavy puttin' 's now forgetten,
> Sic as we had i' former days,
> Ower holey thrill and dye's a' spletten:—
> *Trams* now a' run on metal ways."

And in his glossary the author has this definition:—"*Tram*, a small carriage, upon which a corf or basket is placed; or it sometimes means two boys who have the charge of the carriage, the one drawing and the other pushing it;" to which may be added, from the famous glossary of the late Mr. Trotter Brockett:—"*Tram*, a small carriage on four wheels; so distinguished from a sledge. It is used in coal mines to bring the coals from the hewers to the crane. The word is Gothic, and is fully explained in Callander's notes on the old poem of 'Christ's Kirk on the Green,' p. 174." The verse of James I. of Scotland, here referred to, in which the word occurs, runs thus:—

> "Twa that were herdsmen of the herd,
> Ran upon udderis lyk rammis;
> Then followit feymen richt unaffeird,
> But on with *burrow-trammis*.

Here we have the word "tram" in use by a royal poet who died upwards of four centuries ago; and Mr. Wilson, in a note to his verse about quoted, gives us some account of the translation of the vehicle from an earthen and wooden to a metal way. "Previous to this," says he, "bringing out the coals to the crane or shaft, or what is called 'putting,' was the most distressing slavery. It was generally performed by boys, in nine cases out of ten too weak for the purpose—if even the materials had been better than they were over which the trams then passed. What, then, must it have been when a beech board was a godsend? And, more frequently, they had to drag their load over a fir deal or the bare 'thill' [surface]—the former too often split from constant wear, and the latter too soft to bear the load passing over. Now the whole way is laid with plates, even up to the face of the workings, so that a man or lad may run the tram before him both out and in, the plates being so formed as to keep the tram in a right direction. This important improvement made quite a revolution in 'putting,' and enabled *one* to effect with comparative ease what formerly required the most intense labour of *two*—a headsman and a lad." The plates or rails referred to by Mr. Wilson took the name of "tram-plates" from the carriage which ran along them; and have we not here the origin, also, of the word "tramway?" We think so. Its derivation is similar to that of "foot-path," "horse-road," "cart-road," "coach-road," &c., and its date is long anterior to the time Mr. Benjamin Outram.

The Last Patent.—We have been told of a curious invention which will be shown at the Great Exhibition of 1862. By its means a man may turn himself inside out, and a woman too—not exactly in the full meaning the words would convey, but partially. The inventor is Garcia, not the Spaniard who turns the tables against Homburg and Baden proprietors, but a scientific Frenchman, who has been practising the simple performance in which many ladies spend much time without equally valuable results—namely, standing before a mirror for a considerable portion of the day. When he had done that to his satisfaction, and knew every pimple and hair to his heart's content, he wanted to look inside, or, as we say, turn himself inside out; so, being of a highly inventive character, he got the looking-glass down his throat a considerable distance, and then, by means of a light, in a way which will be easily understood by all our readers, of course, he cast a reflection inside himself so powerful, that it was sent back to an outer reflector showing the whole of the high-pressure machinery of man—the wheels, cranks, cogs, and so forth, going on. He fainted from pleasure and astonishment at the discovery on the first application thereof, and declares to the world that this invention, so costly to science in one sense, he will produce at the most nominal figure, so that it will be within the reach of all. Where will this discovery stop? Of course every lady will possess one, and the first response to her lover when he pops the question will not be, as we are told is the case in high life at present, "How much hast thou, Alonzo, per annum?" but, "Alonzo, open thy mouth that I may insert the *mirror Garcia* and look down into thy heart to see if it is black or spotless." Here are discoveries, indeed, awaiting us. How many will freely submit to the inspection.—*Court Journal.*

Constabulary Buildings Surveyorship.—Mr. William Doolin has been appointed surveyor on behalf of the builders who propose tendering for the new Constabulary buildings to be erected in the Phœnix Park, by the Board of Public Works.

The Dublin Builder.

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OUR FOURTH YEAR.

CONCLUDING our *third*, and prior to commencing our *fourth* year, we must, as usual, address a few words to our readers. The same kind spirit that cherished and sustained us during the two first years of our infancy has not deserted us in that of which we are now about to take leave, but on the contrary materially increased. It must however be borne in mind that our responsibilities and duties have also proportionately enlarged with a bi-monthly illustrated journal as compared with a *monthly non*-illustrated, involving double time, trouble, and expense. With any of those we would not find fault, but rather embrace them cheerfully; there is however one point of difficulty to which we must specially allude, and that is the want of promptitude on the part of some—doubtless of our best wishers and patrons—either as advertisers or subscribers, in settling their accounts. We are most willing to suit ourselves, as far as practicable and as courtesy will suggest, to the convenience of parties who so favour us; but while we are met either by indifference, by apologies, by promises (not fulfilled), &c., our responsibilities become more serious with our *employées*, and rapidly tend towards an elucidation of the axiom that, "*while the grass is growing the steed may starve.* In the organization, the maturity, and the conducting of this journal to its present position—conceded by all to be one now of *some* importance—the proprietor has had to work earnestly and *single-handed* in a *double* capacity. Those who know anything even of "editorial labours" must admit that they are quite sufficient tax on one brain without the additional duty of *financier*, and we are quite sure that it only requires us to direct consideration to this point to ensure it, and to lessen considerably, henceforward, the labours in the *other* regard. We harbour no false pride to induce us in concealing the fact, that whereas some speculators project journals with ample capital at back to maintain them for a time, whether the result be successful or not, the proprietor of this had but the good wishes and substantial assistance of an extensive number of friends to rely upon, who, as before conveyed, have generally realized his expectation. It is obvious, however, that where, in a multitude of items, varying from insignificant figure—though the Scotch principle that "every mickle makes a muckle" is not to be disregarded—to important amounts, a large sum to the *credit* of an undertaking is represented, there must, under the circumstances above enumerated, be a corresponding *debit* which will fetter independent action, produce irregularities, cast a damper on the general management, and probably terminate disastrously, while all the elements of success are to be found in its constitution. We, therefore, earnestly impress, not only on the debtors of the journal, but on those who purpose extending a helping hand during 1862, forthwith, on receipt of accounts now being furnished, to remit to the authorized party. The introduction of *new* subscribers will also be appreciated an additional favour.

The course we propose to pursue during the ensuing year will be substantially similar to that hitherto adopted, with the exception that though we shall use every exertion to *maintain as far as possible* the "illustrated" character of the journal, we are precluded from *undertaking as a condition* the presentation of illustrations with *each* number.

Various circumstances justify this deviation, and we hope to be excused for adopting a necessary alternative. In the *first* place, the pecuniary responsibility is too great for our present strength; in the *second*, there is an extreme difficulty in procuring subjects of interest; and in the *third*, in getting them suitably executed. We desire not to reflect in the least on the general competency of our wood engravers and lithographers—and some of our published illustrations will prove their ability to produce most excellent specimens of the respective arts—but the services of those capable of dealing with an architectural subject, which requires "a professional hand," are not always available, and we have on more than one occasion been obliged to delay or disappoint our readers in consequence. We have sometimes found—and doubtless will many more equally liberal hereafter—parties personally interested in certain works who allowed us the use of wood blocks, or of lithographic stones, on which subjects were drawn, for reproduction in this journal, and by this means, or with the addition of small expense, we hope to present frequent illustrations.

In answer to suggestions respecting a reduction in price, in consequence of the abolition of the paper duty, we cannot accede to them, as the Dublin Builder is most expensively produced, and in typographical regard will stand comparison with any periodical in the kingdom; besides, the fractional advantage acquired on each copy since that event would not justify a substantial reduction; therefore, following the course of our contemporaries, we purpose continuing as before.

Whatever may be the intrinsic merit of our journal, we have no desire to act as our own "trumpeter," but must remark that it has at least acquired popularity, and its contents have been constantly quoted—and with much kindness—into the columns of our leading contemporaries. To ensure an acquisition in this regard, to aid in the great cause of progress, local and general, to minister to the relaxation and instruction of our readers—among whom are comprehended various classes besides professionals—shall be our constant endeavour, and pointing with some confidence to past proceedings, we look for a renewal thereof during the year on whose threshold we now stand.

THE RECENT SUNDAY-OPENING OF THE BOTANIC GARDENS.

We are much gratified to hear, by the report of the curator, that "the results of this movement have proved of a very satisfactory nature," and that "with the exception of boys occasionally running through the plants, and leaping over the beds, no further wanton mischief has been done." It is suggested that the conservatories be widened to admit of free access, and prevent the throng not damaging the plants, but a practical difficulty intervenes here, the solution of which devolves on the committee of this section and its officers.

THE TAYLOR PRIZES AND SCHOLARSHIP.

The works submitted in competition for the prizes are reported to be not so numerous as last year, though in the figure department there is some improvement. The scholarship is awarded to Mr. Crowley, and the prize of £10 to Mr. Perry for his picture of "The Baptism of Arthur, King of Munster, by St. Patrick." In the landscape and architectural department, the works of Miss White and Miss Alment are recommended for the consideration of the trustees. The committee suggest that the prize offered for Historical Composition should be at least £50; believing that such a reward would draw forth the best efforts of the young artist, and enable him to throw into his work all the power of his genius.

CONG CHURCH, TUAM.

Mr. Benjamin Lee Guinness is erecting, at his own expense, a tower and spire to this church, according to drawings furnished by Messrs. Welland and Gillespie, architects. The tower communicates with a lateral porch near south-west angle, and though of square form externally with buttresses on each face, is circular internally, 8 feet in diameter below, and reduced to 7 feet in upper stage for belfry. The first stage rises from a battered plinth, and is perforated on two sides by a small narrow open for light, a doorway leading to porch occupying a third. At belfry level double light lancet and louvred opens, with columnard jambs and moulded head, are introduced; and immediately above, at a height of 36 feet 6 inches above level of ground, rises a broach spire, 42 feet 6 inches in height, terminated by a vane; total, 79 feet. Messrs. Murphy and Son are the builders.

ROYAL IRISH ACADEMY.

At a stated meeting of the Academy, on 9th inst., the Rev. Dean Graves, President, in the chair. Mr. W. H. Hardinge read a paper on "The Origin and Continuance of Townland MS. Mapped Surveys of a public character in Ireland," which elicted much discussion. Professor Sullivan also read a communication "On a new Hydrated Silicate of Potash, and on some of the conditions necessary to develope the reniform structure of minerals."

EMPLOYMENT OF FEMALES.

That "woman" has not yet fulfilled her destiny in the social scale, that her capabilities of contributing practical aid in the every day pursuits of life, are not yet fully developed, we are impressed with the deep conviction. However, we may desire strongly to uphold the dignity of that position to which, in the domestic circle, she is so pre-eminently entitled, and with which no undue interference should be had; however, we may advocate the maintenance of her freedom from those occupations for which the physical strength of the "lords of the creation" better suit them, we still believe, that "the customs of our country" have curtailed her sphere of usefulness, and that there are very many occupations in which, both with advantage to herself and the community generally, she might participate. Our continental neighbours seem more alive to this belief than are the inhabitants of this kingdom, as in France, for instance, female clerks are employed at the booking offices of the different railways, as flag-bearers in characteristic uniform at the level crossings, and as "points-women" at the switches. In Paris, manageresses of business establishments, lady cashiers and bookkeepers are most numerous, and for these and other capacities females must graduate similarly to those of the other sex so employed in this kingdom. If "idleness," as is stated, be "the mother of all vices," would there not seem therefore a greater guarantee of absence therefrom amongst females so employed compared with those elsewhere, who, from necessity and want of some occupation whereby to secure a livelihood, are driven to unfortunate pursuits, and if so, ought not agitation to that end be heartily joined in by all philanthropists? The first step would, of course, be to institute a suitable educational training; the second to secure employment in various departments for those on examination found to be competent.

The education of young females of the present day is thought to have attained its maximum; if a lady can skilfully execute crochet work, or ornamental figures and patterns in wool, speak and read a foreign language, play the piano and sing for the edification of "a host of admirers," and perchance write a little poetry too; but though all these are very well for polite society—when circumstances change, when reverse of fortune or other causes cast on the inhospitable world to earn her bread, the fair one who hitherto never knew a wish ungratified, how much more advantageous would prove an education of more practical tendency? In London females have recently been admitted to employment as electricians, as printers, and as sewing machine workers, and are distinguished for their skill in each of those occupations; might they not likewise prove excellent lithographers, engineering and architectural drawers, wood engravers (there is one in Dublin and of extensive practice too), writing clerks, bookkeepers, &c.? We understand that under the auspices of "the Irish branch of the Society for Promoting the Employment of Educated Women," a female class of lithographers has been formed at the Royal Dublin Society School of Art, and we doubt not that some artists of first-rate ability will be the result. If this society extends its operations with the same earnestness with which it has commenced, an important and universal benefit will be conferred.

ASSYRIAN ARCHITECTURE.

This style differs essentially from any other with which we have hitherto been acquainted. Its main characteristics are enormously thich mud-brick walls, covered with painted bas-reliefs, and roofs supported internally by slight but elegant wooden columns, ornamented with volutes, and the elegant honeysuckle, which was afterwards introduced through Ionia into Greece—this Assyrian style being, according to some, the parent of the Ionic order, as the Egyptian was of the Doric order of Greece. The very greatest interest attaches to these architectural remains, and to the records cut in enduring stone which they have handed down to us, inasmuch as they corroborate, in a most remarkable manner, certain statements in the Bible connected with Jewish history. There can be little doubt that the Assyrians and Jews sprang from the same stock; and no one can fail to remark that the physiognomy of the Assyrian, as pourtrayed in their sculptures, bears a strong resemblance to the Israelitish visage. As far as we can judge from description, the architecture of ancient Jerusalem was almost identical with that of Assyria.

STATE OF THE BUILDING TRADE.

Accounts reach us from all quarters of Ireland far from satisfactory. The past season was dull enough—much duller than the preceding—and the approach of winter is never calculated to compensate for an indifferent spring and summer, much less so at a time when "war," with all its horrors and depreciating influences on the money market, stares us in the face. Masters experience difficulty in procuring business, and where same is to be had competition is brisk, perhaps ruinously so, to the successful party. The artizan, consequently, feels the sting more keenly, and we learn with great regret that very many of that class are unable to obtain employment.

Societies should relax the stringency of their conditions, and meet the spirit of the times equitably, or the result may prove more disastrous even than anticipated. Building materials (especially timber) may reasonably be expected—judging from present prices and probable circumstances—to be soon at their highest figure; and the absence of speculation, or even of necessary works, will be proportionate. We should willingly not portend the worst, but *our duty* compels us to present the worst side of the picture, that error may be avoided.

PURE WATER IN THE OLDEN TIME.

The *London Medical Review* says "the importance of a supply of pure water for domestic use appears to have been thoroughly recognised by the Romans. For although the river Tiber flowed through the city of Rome, and the Romans at a very early period had made use of its waters and likewise that of wells, it is now two thousand one hundred and seventy-three years since they discovered the unwholesome characters of such waters, yellow with mud and mingled with sewage as they were. These ancient people were aware of the importance of collecting the waters of rivers near their source, before they had been contaminated with drainage, and hence they brought the supplies to their fountains from the sources of the Anio and Tiber by twenty different aqueducts, at various distances up to sixty-two miles, at an enormous expense. Nothing is more surprising than that, although moderns have devoted so much time to the study of the Roman classics, they should have entirely lost sight of the sanitary knowledge acquired above two thousand years ago, and that we should find ourselves in the middle of the nineteenth century persisting in the metropolis of England in perpetrating experiments upon human health and life, which a little knowledge of history would have served to obviate.

A CONNEMARA DWELLING.

Amongst other pictures of Irish misery in the western districts, graphically painted by a special correspondent of "old *Saunders*," we reproduce the following, relative to some of the inhabitants of Clifden, in Connemara district:—Clifden contains hovels which are a disgrace to any civilised community. I examined one of these the other day and left it with a feeling of amazement as to how it was possible for any man to exist in such a wretched place. There were only two rooms; the rotten thatch admitted the rain, which was falling in torrents and streamed down the walls, rendering the clay floor a mass of greasy mud; in the back-yard there was a great pool of water which, from the want of drainage, trickled under the door and formed small pools on the floor of the bedroom; a spark of fire glimmered only on the hearth. The occupants of this dwelling are an old man seventy-six years of age and his wife. The man is a tinker by trade and a very sharp intelligent person. He complained bitterly of the state of his cabin and said he had repeatedly urged the middleman, to whom he had paid 1s. 6d. a week, to repair the thatch and make some other improvements which were requisite to render the place habitable. I asked him why he continued to live there, and he replied that it was impossible for him to obtain any other lodging in the town unless he paid a much higher rent, which he was unable to do. There are other cabins in Clifden of a similar description, though perhaps not just so bad as the one referred to, and there will be much destitution amongst their occupants in consequence of the failure of their potato (con-acre) crop, and the absence of employment.

Amœna et Utilia.—"Amongst those visited we found none more deserving a special mention than the products of Mr. J. W. Benson, of 33 and 34, Ludgate-hill, and 46 and 47, Cornhill. The beauty and novelty of his designs, engraved on the cases of his watches, which he now appears to give especial attention to, certainly surpass anything of the kind which has heretofore come under our inspection. The variety of his stock is something enormous. Not only may the connoisseur here meet with the most exquisite design, but the utilitarian will find an ample choice of plain watches; while each will find, in the high standing of Mr. Benson as a city manufacturer, ample guarantee of the intrinsic value of the mechanism. Here, indeed, may be found the buyer's desideratum—excellence of design and perfection in workmanship."—*Chronicle*.

Benson's Illustrated Pamphlet, post free for two stamps, is descriptive of every construction of watch now made. Watches safe by post to all parts of the globe.

STREET ARCHITECTURE AND ITS PROPER TREATMENT.*

(Continued from page 694.)

Building Estates.—Year by year whole tracts of land are given up for building purposes; the usual process being, to let them out to be covered by different individuals, who, amongst other conditions, are bound to build houses of a certain class; which may be well, but unfortunately they are frequently further compelled to adopt a certain design, under the impression that uniformity ought to be preserved throughout; and this design almost invariably is of the poorest description, that it may not surpass the ordinary capabilities of field builders; so that, even if so disposed (which there is reason to fear is not very often the case), it is frequently impossible for a person building to make any artistic advance. How preferable would it be to allow each to follow his own design, and even to encourage them in doing so, for then, as the sale of the superior houses must necessarily be more speedy than that of the inferior, a wholesome rivalry would be excited, which eventually would cause competent persons to be applied to for the preparation of the designs, and we might hope for some improvement on the despicable, mediocre buildings, of a vile school, which now disfigure miles of our new streets.

Residences.—Suburban residences require a neat and gentlemanly appearance, not ostentatious even in their art and much less in anything else; and as the object of those who travel some distance from their place of business (a class by whom this style of house is chiefly occupied) is to enjoy something like country after their daily fatigues, we ought to cherish everything which would preserve this effect, both in the architecture and arrangement of the houses and in laying out the estates, when as much as possible of the original beauty of the site should be retained. The system of erecting detached houses is very valuable in this respect, and it is further desirable, as it permits a healthy circulation of air. To all houses which are intended for residences, it is appropriate to give a quiet cheerfulness, both by picturesque treatment and by color, and to render the whole as expressive as possible of that respectability which Englishmen so much value, varying, however, the pretensions of the houses in proportion to the social positions of the inhabitants.

Shops.—Associated with residences we find shops, a class of building in which all architects feel the necessity of improvement. The great complaint against the prevalent mode of shop-building is, that the very large opening demanded by tradesmen for the display of their goods, gives the upper part of the premises the appearance of being either very feebly supported, or else of having no connection whatever with the ground. We should, doubtless, like to persuade such clients that quality and beauty in the space for the display of goods would give a better effect than quantity, which now alone they value; and should wish to introduce an arcade of sufficient strength, both in reality and appearance, to support the superstructure. Stone we should probably prefer, though iron, if made to have a proper connection with the part above, would satisfy us. If, however, the gap must be retained, the honest display of the brestsummer of wood or iron, or of any other means employed to span the opening, would convince the understanding as to the safety of the fabric, and then the work of pleasing the eye is comparatively easy. Our brestsummer must be well supported at the ends, and the piers on which it rests must be very fully pronounced, or the idea of safety will not be imparted to the beholder. This leaves us at liberty to gaze any way we please; if, however, additional supports are used, we may as well show them, as they will thus occupy no more room than when cased in looking-glass. Directly we give to brestsummers the outward appearance and details of classic entablatures, they demand that amount of support which entablatures by rule require, and, failing to receive it, they look weak and insufficient. Instances very frequently occur in which the actual shop fronts project some inches from the face of the wall above, so that the brestsummer itself is necessarily hid; we must then endeavour to suggest through the visible parts that it duly exists in its proper place and is properly supported. In all cases we should preserve the piers in brick or stone, and keep the party piers (so to speak) in one mass, instead of breaking them up by placing imaginary wooden pilasters in front, which are the chief agents in giving the superstructure that appearance of disconnection from the ground of which we have spoken.

Large arches would be satisfactory in shops, but there is so seldom sufficient height, without discomposing the arrangements of the floor above, and the necessary abutments are so rarely to be secured, that practically they can be but seldom introduced.

The old fashion of giving signs to shops is pleasingly quaint, and the symbols of the different trades are not quite extinct, though usually they are but vulgarly expressed. We might refine these, and use them for giving a distinctive character to our decoration. Even where a shop has passed to some other trade, such memorials would be interesting, as telling something of its past history.

Manufactories and Warehouses.—In manufactories and warehouses for the stowing of goods, those buildings appear most characteristic which go directly forward to their object, and which value more the stern requirements of utility than the embellishments of art, though art must be so represented that no doubt should exist in the mind that this is the feeling imparted by the architect, not the chance result of the work of the utilitarian. One not unfrequently meets with absolutely plain erections, thrown by chance into some pleasing form, which one small sign, to assure us of the artist's hand, would transform into noble and grand works. It is, therefore, from the masses and outlines of such buildings that we must chiefly gain an effect. By diversifying the plans of the different departments in those large manufactories which are not included under a single roof, instead of necessarily enclosing everything in a parallelogram, we should attain to very great varieties of form. The mediæval kitchens at Glastonbury and elsewhere suggest this treatment, which we might do well to adopt. We ought particularly to avoid carving or decoration of a trifling or small character. Where carving is introduced, it should be bold, and might, perhaps, be chiefly concentrated at the door or other marked spots, rather than dispersed over the whole building.

As the heart and life of manufactories are generally to be found in the engine-house and its chimney-shaft, these parts claim to be distinguished, and, if possible, to be placed in a position to show their importance. The chimney-shaft becomes so prominent an object that it well repays us and gives us a noble opportunity for displaying our design; and we may remember that none will look with less forgiving eyes on the smoke issuing from its mouth because the shaft itself is beautiful.

Dwellings of the Laboring Classes.—In connexion with the houses of the artizans and others which are usually found in such thick numbers at this stage in our towns, it would be feelingless to speak of artistic requirements until we have bespoken for them the attention of the philanthropist, and acknowledged that architects are pre-eminently called on to aid in this work; but when provision has been made for the healthy circulation and freshness of air, and the decent accommodation of the inhabitants, we may strive to gain that amount of effect which is attainable with a small outlay, or may sometimes be secured without extra expense at all, by bestowing attention on the arrangement and form of the roofs, openings, and all those necessary things which are to be found in all buildings, and our minds quickly perceive and venerate that disposition, which, in spite of difficulties and limitations, still exerts itself to gain any results that may be within its reach, and this thought gives a charm and a nobility to any beauty we may in such cases recognise.

Mercantile Premises.—Passing on, we arrive at mercantile premises and business offices, which should have somewhat of the matter-of-fact appearance of the manufacturing class, though less severely expressed, and modified much more by ornamental features, until, in superior specimens, the dignity itself is expressed by the ornament of an elaborate though grand and costly character. Inlaid marbles and shafts, or other judicious introductions of such expensive materials very appropriately express that wealth which we connect with mercantile pursuits, and a fair proportion of which, we may rejoice to say, is very frequently not denied to the architecture of these buildings at the present day. If the money which year by year is being spent within the City of London be but laid out to the best advantage, at least our principal streets will ere long present a creditable appearance, and render our city much more what we could desire to see it.

Statues.—First among public erections may be mentioned those statues, which we use great efforts to place in our streets and squares, with the two-fold object of commemorating the glory of an individual and of adorning our public thoroughfares, but by the well-nigh universal consent of all they nearly always fail in the latter of these objects, and many diversities of treatment with respect to the pedestal, &c., are recommended to counteract this unhappy result, but, at present, it seems without success.

Now, it appears to me that no individual, though chosen from among our bravest generals, could stand on an exalted pedestal, exposed to the gaze of all beholders, and feel perfectly composed, and, therefore, it may reasonably be doubted whether such a position is not too painfully trying for his effigy; and may not this be the real defect in our statues? The matter can in no way be improved when the figure is placed on the top of a lofty column, for there never was but one man who had any partiality for that exalted and giddy position. The inference, therefore, that I would draw is, that our street monuments should be architectural compositions, governed by the commemorative figure, which surely would be more honored in being reverenced and protected by architectural accompaniments than by being exposed to assert its own dignity before a staring multitude, or amidst the driving snow and pelting rain of our climate.

Public Buildings.—Of whatever kind and wherever they occur, those buildings which are used by large numbers of persons, or for the public service, justly claim to be marked as more important than those dedicated to the uses of individuals, and we naturally expect them to assume a more pretending and ornate character.

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* Prize Essay, by Mr. Lacy W. Ridge. Read before the Architectural Association, London.

Their public buildings form the most tangible elements by which the traveller judges of the relative nobility of cities, and they, longest of all that he may observe, retain their hold on his memory; and more especially do our large national edifices form an important part of that scale whereby we are estimated by foreigners and ourselves, and they will further have a powerful influence over the Fine Art history of our age; so that we cannot overrate the attention they deserve, or use too great efforts, lest any which it may be the work of the present generation to erect, should but inadequately express the real state and the characteristic peculiarities of the architecture of our age.

Further remarks upon our national public buildings are beyond the scope of this essay, and therefore we will proceed to a few thoughts on that particular class of buildings, which represent our religious faith, and a liberal proportion of which, we will trust, will never be wanting to adorn our streets.

Churches.—In town churches we of course pursue somewhat different aims from those we seek for in a country district. Dignity and grace take precedence of that picturesqueness which so well harmonizes with rural scenery; and a certain appearance of size seems almost necessary for the assertion of sufficient importance; even though to obtain it, we are compelled to forego some ornament, or to substitute brick for a more costly facing.

In many of the recently built suburbs of London, the churches present a great sameness of treatment, and this seems to have especially centred itself in the spires, so much so that when we have an extended view over these parts, they all appear so similar, and to be built so much after one type, that there is danger of our tiring through repetition of that beautiful object. When, therefore, a spire is introduced in such neighbourhoods, it may be well to suggest, that more originality should be infused into the composition; but let us not suppose that a spire is an absolute necessity, many towers have more novelty and dignity, and are therefore well suited for town architecture. We may remark, that it would not have occurred to us to leave a larger proportion of church towers without their visible roofs of due pitch, than of other portions of our building, had it not been for the example of the architects of the fifteenth century, and the prevalence, since that time, of the custom of removing such roofs from towers of older date. As in churches architecture has its noblest work, so do we expect to find its noblest achievements, and that not in a style peculiar to themselves, or shared in only by schools and parsonage houses, as though our religion were a thing separate from and having no influence over our daily pursuits. Rather should we combine all the buildings of every class which our streets contain into an harmonious and consonant whole, which shall lead us, through the various scenes of social life, up to those higher things of which our churches are the symbols, and then, like as the mighty dome of the cathedral of St. Paul broods over the dark mass of buildings, which is the City of London, so should all our churches tower above and consecrate the districts that surround them.

The length to which it is desirable this essay should extend being now nearly arrived at, it may be well to observe that our subject has, it is hoped, been treated, as the second part of its title implies, with respect to the practical duties required from architects. We have opened with general remarks on several points connected with street architecture, on the desirable characteristics and wide diffusion of our art, on the materials to be employed, on the question of style, &c. Next, we passed to a consideration of the details of our buildings, endeavouring, with a true economy, to make each subservient to our artistic ends; and finally, we have reviewed the different species of buildings which compose our towns. Much, doubtless, has been omitted, and, indeed, the subject is but opened; the next steps, however, if it is to be continued in the same practical direction, require more the use of the pencil than of words, for it is with pencil and paper that such subjects as this must most fully be studied. It has been considered unnecessary to indulge in speculations as to the results of vast reformations in our towns, as both the character of the English people and the results (or, rather, in many cases absence of results), which have attended former efforts in this direction, lead us to look to the individual exertions of many, combined by their love for their art, for the architectural improvements of our towns. This consideration, as well as the majority of the systems of treatment which are herein recommended, or are being gradually introduced among us, lead us to expect that variety and picturesqueness and a general freedom of treatment will prevail in our future street architecture, and I cannot but suppose that in general points it will incline towards Gothic, although many details, and foremost among them windows, will probably vary considerably from old forms.

I have not thought it requisite to allude to any new buildings which display the desired advances in street architecture, or which illustrate anything of which we have spoken, believing that those to whom this is addressed watch with the same interest as myself the progress of their art, and can, consequently, furnish these examples for themselves. It must be manifest to any who do thus watch, that architecture is undergoing a transition of no ordinary character, but it is beyond our power to discern whether the activity which now prevails will expire as the sharp flash of the lightning, or whether it is the dawning of another day—a day which the scientific discoveries, the wide-spread learning, the historical experience, the ceaseless energy, and the purer religion than any under which art has yet flourished, which adorn our age, may render far brighter, far more glorious than any which has preceded it in the vicissitudes of art. If these our hopes are to be realised, it must be by our exciting a true love for architecture in the hearts of our countrymen, and where shall we find a school so fitted to instruct them—where a rostrum whence we may so readily address them—as the streets of our cities?

THE SUPERINTENDENTS OF ENGLISH BUILDINGS IN THE MIDDLE AGES.

An elaborate paper on this subject, and by way of supplement to a previous one published in the London professional periodicals, was read by Mr. Wyatt Papworth, on the 2nd instant, at a meeting of Royal Institute of British Architects.

The author enumerated the names of masons, the places at which they worked, their customs, wages, workshops, company and guild, constitutions, trade designations, confraternities, and lodges of the seventeenth and eighteenth centuries, and referred to the earliest notice of masons, which was in the eleventh century, when they were engaged at St. Albans, to their employment at Canterbury in the twelfth century, and to works executed by them in the thirteenth, fourteenth, fifteenth, and sixteenth centuries. The paper also embraced a great many extracts from ancient documents relating to the masons, their wages, conditions of engagement, &c. The term master mason was now nearly obsolete, though it was still employed by the Corporation of London. Mr. Papworth remarked that the term freemason was used in Scotland at the period referred to in the paper, and after referring particularly and at some length to the wages paid to masons in various parts of the country in the middle ages, he directed the attention of his audience to the workshop, residence or lodge, &c., also to the subject of companies and guilds, showing there were guilds of masons existing before the fourteenth century. He next brought under review the privileges of the guilds, in the course of which he made numerous quotations from old documents, and referred at some length to the marks of masons, carpenters, &c. He proceeded to give a description of the designations of the masons in the middle ages, which included ingeniator, latomus, cementarius, marmorarius, &c. The first use of the term freemason in England was made in 1396, and was derived (as the lecturer contended) from the mason working in freestone. He next alluded to what were called the travelling masons, who were supposed to have erected the principal buildings of Europe, but he did not believe that any such body ever existed in England. On resuming his seat Mr. Papworth was much applauded.

The following discussion, therefore, was then elicited:—

Mr. Mylne thought the master masons had a great deal more to do with architecture than they generally got credit for. As to ecclesiastical buildings, it was more likely the master mason would have such buildings handed over to him than a royal building. In several towns of Scotland in the fifteenth century, as for instance Dundee, a contract would be made between the ecclesiastics and the municipality to appoint the master mason upon certain conditions. One was led to believe that more than one master mason had been known to work at the building. There was a great distinction in Scotland with regard to the principal master mason and the master mason. The master mason was elected for a time, but he suspected that the principal master mason had more to do with the architecture of the work than the master mason, the principal master mason being appointed for life. And in reference to the works performed, great care should be taken to ascertain whether there was not a principal master mason over the master mason. In 1630, a certain house was built in Scotland, the master mason being John Ritchie, but at the same time he found there was a master of works, who had great taste and a liking for architecture, and he found that to him, whose name was James Murray, a payment of a thousand pounds Scots was made for drawing the model of the fabric and other services. So that they should not at once put down the words master mason and attribute works to him without further inquiry. In 1617, William Wallace, who was employed to build Heriot's Hospital, Edinburgh, was called a carver. He had not found the word freemasons used in Scotland as indicating a company or guild at the period referred to. As to Scotland, where our best masons come from, it was curious to notice that all the principal master masons were originally Frenchmen.

Mr. Street thought that what was true of Spanish buildings might be true also with reference to architects in England as well as in France. Mr. Papworth appeared to prove that the master mason was not the architect, while on the same stone were found the marks of the superior and of the inferior mason. In England our architects were always as much architects as masons.

Mr. W. White said that in several of the conclusions which Mr. Papworth had arrived at he must profess himself to be at variance. One of them had reference to a point mentioned by Mr. Street—namely, the difference of order between the superior mason and the subordinate mason, and there were no less than four or five terms which came into general use, though in different countries different terms had been used, and even in England the same term did not always apply to the same man. For instance, the word "builder" meant in some places "plasterer," and in other parts they called a "plasterer" the "masoner." But what he wished to make special observation upon was the difference between the higher and the lower order of masons, although the body might be in some way connected; but in the present system of freemasonry there was the term "free and accepted mason," which applies, and which he conceived did apply, to the artificers employed in carrying out works in different parts of the country, and the "arch mason," of which none of the lower order had any knowledge, and which was prosecuting the science of freemasonry, brought down from the earliest days to the present time. It would be absurd to suppose the lower order of masons had the same sort of knowledge as the arch mason, but it would be equally absurd to say they had not some common knowledge to enable them to carry out the directions of the superior or arch masons. And more especially because he believed, and he had been able to gain specific evidence of this fact—which he hoped to be able some day to state more definitely and more systematically—that the guild of arch masons carried out the work from the first until the decline of art, upon a systematic, geometrical principle, which enabled them by secret signs to communicate to those under them—the supervisors and the stonecutters—how to carry out the work, without a system of elaborate drawings now indispensable. We had the ancient plan of Strasburg, but he had never heard of the drawings of any detailed works whatever, which he thought was a corroboration of the supposition he had made. With regard to the difference of the terms employed, might he ask what the interpretation of *cementarius* was?

Mr. Robert Kerr proposed a vote of thanks to Mr. Papworth. Who was the architect of the middle ages? On this point there seemed to be several theories advanced. One was that the principal architect of the middle ages was a monk; another was that these were the master masons; and a third was that there was an architect, properly so called, between the two. As to the freemasons as they now existed, he did not suppose any person in his senses imagined they so existed in the middle ages. As to the Scotch masons, the working masons of Scotland of the present day had a sort of freemasonry amongst themselves almost identical, he was told, with the freemasonry of the English society. They had the signs, symbols, and ceremonies of a very elaborate description, and they were "free and accepted masons" amongst themselves as working men, and the consequence was that the Scotch trades' union was in a manner more formidable, except as to numbers, than those in England. He was of opinion that it was clear the ecclesiastics of the middle ages must have had a great deal to do with buildings, there was at that period so great a gulf as to learning between the clergy and the laity. There was much in the theory that the clergy must have had a great deal to do with the architecture of buildings in the middle ages, though they must have had assistants. There might have existed in the middle ages a confederation of masons, which might have served important objects.

Mr. Papworth, in answer to Mr. Morris, said he had found the word "controller" as early as the reign of Edward III. The controller kept the accounts, and clearly had nothing to do but to look after them.

Mr. E. Roberts, in seconding the vote of thanks to Mr. Papworth, observed that he thought there were lodges of freemasons in the middle ages, and also lodges of labourers, and the livery then worn, he apprehended, would be used in the same sense as the livery of the City now, indicating that those who wore the livery were a superior class in the guild. He would ask Mr. Papworth to consider what the word "tile" meant—not that the roof was covered with tiles, as distinguished from slates, but that the roof was tiled, so that no one could get to it and see what was going on within the building. As to working drawings, those who had turned over the stones of mediæval buildings would find the lines cut in the stone. There were lines from which the mouldings were afterwards cut; these, he apprehended, were the production of the master masons, and that the work was the design of a superior mind.

The Chairman (Mr. Digby Wyatt, V.P.), in putting the vote of thanks to the meeting, remarked that Mr. Papworth had collected a great deal of interesting information, but the great difficulty remained unsolved, and further investigation would be required before it was proved who designed the buildings of the middle ages. From what Mr. Street had said, he thought it was clear that it could scarcely fall to the mason only to make such a combination of materials in the buildings of that period. Any information connected with the actual existence of the working classes of those ages was of great importance, and referred to some Florentine papers on the subject, which referred to the conditions on which the men worked, and it would appear that some of those referred to were really architects, as those of the present day. He believed that there were at the time referred to both architects and artists, and he hoped that Mr. Papworth or some other gentleman would dig up further information on this matter.

The vote of thanks was passed by acclamation.

SOCIETY OF ARTS.

At the first ordinary meeting of the 108th Session of this Society, recently held in the Society's rooms, Adelphi, Sir Thomas Phillips, F.G.S., chairman, in the course of his inaugural address touched upon the losses which the society has sustained during the past year by the deaths of Mr. Joseph Maudsley and Sir William Cubitt; secondly, the prospects of the Great Exhibition of 1862; and, thirdly, the examinations conducted by the society. Of the Great Exhibition building itself, he said, that should the Exhibition prove a great success, the charter would secure to the society the possession of the centre of the picture galleries to the extent of an acre; and the Commissioners were required to expend out of the surplus funds so much money (not exceeding, with the original cost of works, £50,000) as, in the judgment of the Commissioners of 1851 and 1862, should be required to render the architectural character of the building suitable for the objects for which it was to be employed by the society. As the buildings were susceptible of much decoration, it was thought desirable to originate a subscription for the purpose of making experiments in the employment of mosaics on the external walls of the front in Cromwell-road. The subscription was begun by Earl Granville; and, should the mosaics be successful, they would give to the buildings a character new in this country, especially suitable to the climate, and hardly to be found on any building north of the Alps.

At the conclusion of the address the society's medals were awarded. About 300 candidates had been proposed for election as members.

THE ARCHITECTURAL UNION COMPANY.

The following is a copy substantially of the report of the directors, read at annual meeting on 4th inst.:—

"The directors are enabled to congratulate the shareholders on the continued success of the undertaking; all the tenants named in the last report, except the Architectural Photographic Association, still occupy their holdings, and since then lettings have been effected to the Motett Choir of the Ecclesiological Society, and Mr. Alfred Gilbert. The capital account is now closed, and a new lease has been granted to the company by the Corporation of the City of London. There are now 1,037 shares on the register, upon which £10,370 has been paid. The following directors retire by rotation, viz.:—David Brandon, James Edmeston, Owen Jones, M. Digby Wyatt, John Whichcord, and J. M. Lockyer, Esqrs., of whom the first five, being eligible, offer themselves for re-election. James Lockyer and Frederick P. Cockerell, Esqrs., retire from the office of auditors, but being eligible, offer themselves for re-election. The revenue account is made up to the 29th day of September last, and the directors propose forthwith to pay a dividend of 8s. per share, free of income-tax, which will amount to £414 16s., leaving a balance in hand of £69 1s. 9d., and £12 1s. on the capital account. The directors beg to point out that one and a-half year's interest on the mortgage has been paid, during the last financial year—and that legal and some other exceptional liabilities have been discharged, which have alone interfered to prevent the payment of the full dividend of 5 per cent. Some expense has recently been incurred in making a separate entrance to the east gallery, which is already let for some evenings of the week, and which, if let as the directors expect for the remainder, will return at once the outlay thus incurred, and will prove a permanent source of addition to the revenue of the company. The directors would remind shareholders that they should make known as much as possible that spacious accommodation in the eastern gallery is to be had, with use of a committee-room, with lighting, warming, and attendance for any one night in each week all the year round, at the moderate rent of £85 per annum. The directors further report that the dividends arising from the Auxiliary Donation Fund of last year amounted to £16, of which, by the express wish of the donors, £5 has been paid to the Committee of the Architectural Exhibition, and the balance of £10 remains to be applied for the encouragement of architectural art or science, as the directors may determine."

Colors to imitate Portland Stone.—Lime whitewash, yellow ochre, and lampblack, mixed up to please the eye; this is for outside work. For inside work, whiting is used instead of lime.

THE "GUINNESS RESTORATION" OF ST. PATRICK'S CATHEDRAL.

Our previous notices of the important restorative works in progress at St. Patrick's Cathedral, through the munificence of Mr. Guinness, fully detailed the character of such portions comprehended in the general task (so nobly volunteered) as had been accomplished to the date thereof; but as eight months have elapsed since our last visit —and designedly so to admit of better judgment being formed from perfect development, and to present some new intelligence to our readers—it must be expected that very much more relative thereto can now be recorded. We left the cathedral in May last, noting that the massive south wall of the nave had been just rebuilt, and the internal stonework of same partially completed; that portions also of the external stonework of the former and of the north wall of nave, including the flying buttresses of choir—which afforded such subject for criticism—were restored, and various repairs throughout effected. But then the work of groining the nave ceiling—rendered more difficult owing to its trefoil outline, and the irregularity of the opens in the opposite walls—or the restoration of the south transept had not been commenced, and the rebuilding of the south aisle was only being partially proceeded with. All these, however, are now in a forward state, and in addition a south porch, 25 by 15 ft., has been built. The ribs for the ceiling of nave and their battened spandrils and soffets are all nearly ready for lathing, except at the western end where an impediment to uniformity of the whole may be presented, owing to the great perpendicular traceried west window rising several feet above the soffet of the ceiling, and which may possibly necessitate the removal of this window, and the substitution of one of lesser height. A question, we learn, has been raised respecting the trefoil outline having existed in the original ceiling which was destroyed by fire, but on what grounds we are at a loss to divine, as there exist on the north wall of nave, next the choir, distinct traces of same, and as a matter of course they were continued throughout that portion (at least) of the building. So far as this section of the work had proceeded, it is to our mind an unexceptionable evidence of skill, judgment, and fidelity; but we must await the completion of the plastering to realise our conception of the general effect. Touching this, we must digress somewhat to mention, that a correspondent (more presumptuous than learned in architecture) of the *Athenæum*, in a recent fugitive sketch of this important national work, is pleased to conclude, first that he cannot "say *anything* in favour of the *new* work, the buttresses and general details being very poor; but is gratified at the evident care which has been taken to *reproduce the old detail* wherever it exists." Again, the same sage authority informs us, that "few architects of the present day understand how to execute vaulting, having learnt certain false rules as to its construction given in text books." With reference to the first, we assume with some confidence, judging from the manifestation of spirit that prompted this restoration, that Mr. Guinness will be satisfied to consign to oblivion the memory of the slight so attempted to be conveyed, and to stand by the admission in qualification thereof, which must attest to his utmost wish "the fact, that he has not sought to be the innovator (as alleged), but simply the restorator," as professed; and in the second, we rather prefer to hand the disclaimer over—for what it is worth—to the *many* architects here and elsewhere "of the *present* day" who build Gothic churches, and are enabled "to lay the flattering unction to their souls" that they *do* "understand how to execute vaulting."

Viewing the south elevation generally, it—as do also the north, east, and west—admittedly presents some incongruous features, owing, as stated in a former article, to various innovations from time to time, and among the principal may be noted the difference in character of the aisle and clerestory windows respectively, the former being lancets with plain splayed jambs and hood mouldings, and the latter—of similar form, though not so tall—with columnared and splayed jambs and ornamental heads. The parapet of the one also presents the discrepancy of triple embrasures to the single of the other. In both instances, however, Mr. Guinness faithfully reproduced the features from models and photographs of the old work, and the only perceptible deviation or addition is the south porch above referred to, on the flanks of which the original form of aisle windows has been continued, and niched buttresses—proportionate facsimiles of those at south side of choir—introduced at the quoins. The south elevation of this porch presents a moulded and columnared doorway, 7 ft. in width, 8 ft. to springing, and about 13 feet in height, and immediately above is a triple trefoil-headed window, the whole surmounted by a gable of lofty pitch, with trefoiled opening in spandril near apex. The doorway is of suitable character, bold and effective, from whatever source the design may have proceeded; but the window above seems too short—a fault, perhaps, attributable to the level of the groined ceiling. The vaulting of the south aisle is being erected, also other works in connection therewith. The rebuilding of the south and part of the west walls of south transept is next in importance to the south wall of the nave, so skilfully completed; and from the *modus operandi* adopted, we have confidence in a satisfactory result. Already the external work of the adjoining aisles, and that portion of the west wall of transept taken down to level of triforium, has been perfectly restored, and the mullions and jambs of the great triplet window are fixed to the springing of the arches. Between this window and the buttress projections at either side, which contain stone staircases to the triforium, are two tiers of niches, and these likewise are completed. There can be no question of the fidelity here observed in this great restorative work, though we may assume that even *it* will not escape the acrimony of captious critics. In the south transept are some remarkable monuments, and the original ball finial of the spire, as likewise its equally unlucky successor, together with portion of the original pulpit, here find a repository, more objects of observation, however, than of care apparently.

On a pier we note a tablet with the following inscription, no less remarkable as a specimen of the orthography of the age, than characteristic of the memorable divine at whose instance it was erected:—

HERE LIETH THE
BODY OF ALEXDR.
McGEE, SERVANT
TO DR. SWIFT, DEAN OF
ST. PATRICK'S.
HIS GRATEFULL
MASTER CAUSED
THIS MONUMENT
TO BE ERECTED IN
MEMORY OF HIS DIS-
CRETION, FIDELITY,
AND DILIGENCE
IN THAT HUMBLE
STATION.
OB MAR. 24, $172\frac{2}{1}$
ÆTAT 29.

The fractional part of the year thus introduced would suggest a conjecture, either of an error of the sculptor or that the dean was uncertain as to whether the event recorded took place in the year 1721 or 1722. In recent excavations, close to this spot, some mortal remains have turned up—and are still to view—which, though possibly erroneously, it may not be altogether unreasonable to assume were those of the person referred to.

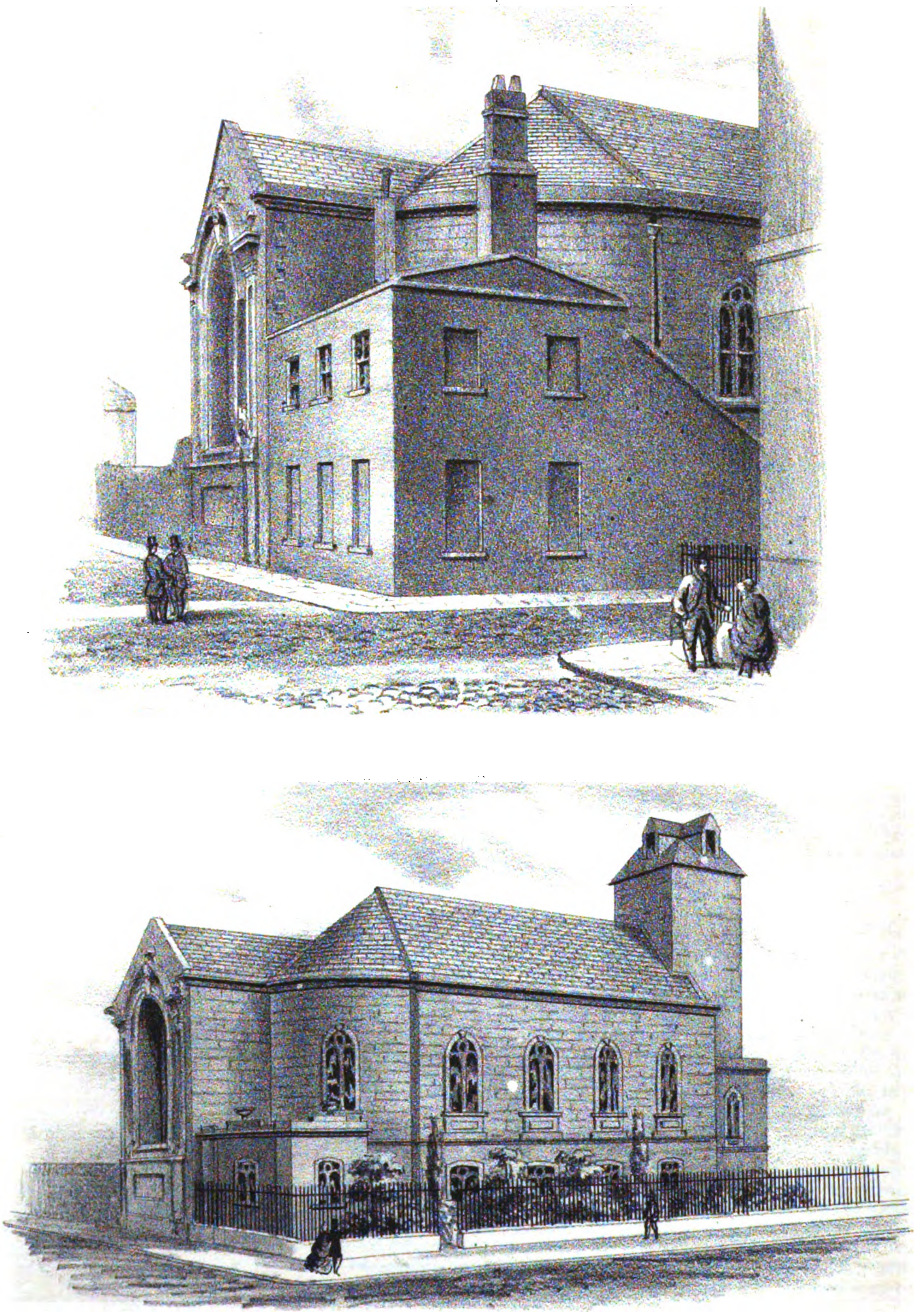
We now conclude this notice, maintaining the conviction originally expressed, that taking in its integrity the great philanthropic work undertaken by Mr. Guinness, it is being performed in a manner as worthy of the beneficent intention, as it is creditable to the judgment, discretion, and fidelity of purpose with which the princely donor directs it, and is rapidly approaching a successful consummation, aided by the intelligence and constructional skill of his builders—the Messrs. Murphy—which does honour to the firm.

We shall complete our survey when "the Guinness restoration" shall have terminated, but the difficulty of defining that period may readily be inferred from the fact, that although the estimated value of the work to present time is some £30,000, it will most probably require a like amount to be withdrawn from the inexhaustible coffers of the most estimable ex-alderman, before the contemplated work shall approach its finale.

ANOTHER SUBMARINE PROJECT.

Engineering skill seems just now to be specially directed to the contrivance of submarine communication between countries separated from each other by narrow channels, and as a subject for experiment the English and French coasts have been selected to establish the practicability of principles which have, as yet, found but little encouragement from the general public. We recently directed attention to two projects for submarine tube, and tube and tunnel respectively, by Mr. James Chalmers, C.E., and Mr. Richard Turner, there being a slight similarity both in the *modus operandi*, the general design, and the selection of the terminal stations. We have now "another" before us, of which Mr. F. Smith, of Leicester, architect and C.E., is the author, who proposes to carry a railway through a wrought-iron tube of vesica form in section, and laid on its side, at a level of about six fathoms below the surface of the sea. The length of the tube would be about 23 miles, kept level throughout by a sufficient quantity of ballast, and with Lewises in the rocky bed of the sea. Chain weights, 50 feet apart, would also be employed, and masonry piers constructed every mile apart. At either shore towers 100 feet high, to mark the whereabouts of the tube, also tunnels, with easy gradients for egress and ingress, are comprehended by this plan. Provision for ventilation is effected, or rather *proposed* to be, by passing currents through the tube, or by floating ventilators, at intervals. The total cost of the tube and appendages is estimated at *ten and a half millions sterling.*

The Dublin Builder, Decr. 15th. 1861.



PROPOSED IMPROVEMENT IN MARY ST.

MORISON LITH DUBLIN

PROPOSED IMPROVEMENT IN MARY-STREET.

DESIRING that at all times any matter appertaining to local improvements should find fitting publicity in our columns, we herewith include a separate sketch of a projected work in connection with St. Mary's Parochial Church; and by presenting both sides of the picture, we hope more clearly to illustrate the desirability thereof. The point of view is taken at corner of Jervis-street, next Messrs. Todd, Burns, and Co.'s monster establishment, and, contrasting the upper and lower figures, it will be seen that the contemplated improvement comprises the removal of an unsightly block at north-east corner of church, where Mary-street and Jervis-street intersect—containing vestry and sexton's rooms—and the substitution of a neat wrought-iron railing, returned on flank and eastern end, with the addition of a neat low building, as shown. The aspect both of the church, which has a fine east window, and of the locality generally, will be materially enhanced by this arrangement. As is usual in such cases, some philanthropic spirits were not slow in coming forward with substantial aid, and we learn that upwards of £100 have been already collected—Messrs. Todd, Burns, and Co. contributing £20; Messrs. Cannock, White, and Co., and Mr. George Tickell, £5 each, &c.; but about £100 more are still required, which doubtless will be forthcoming, and reward the energy of the rector—the Rev. E. S. Abbott—under whose auspices the improvement is proposed to be effected. With reference to this gentleman we may remark, that the citizens are materially indebted to him for an act of self-devotion in assenting to the closing of the church-yard, whereby his income was materially lessened, and personal interest sacrificed at the shrine of the public good. It is not, therefore, unreasonable to assume that in acknowledgment thereof—if from no other reason—he will be enabled to complete his present undertaking, as also the finishing of the tower and spire hereafter, a work very much to be desired.

THE BOYD MEMORIAL.

As announced in recent No., the final completion of this structure—the purpose of which is well known—was an event to be looked for immediately, and we have now to record that the last stone of the obelisk, which forms the crowning feature, was, on the 12th inst., fixed in its position, leaving the architectural *toute ensemble* of the memorial a subject of criticism and regard. We are not much in favour of the *obelisk* form for monuments or memorials generally, preferring those which furnish scope for greater originality and comprehensiveness of treatment, nor do we in this instance deviate from our opinion, yet the design—so far as it may be so termed—is somewhat judiciously and suitably handled. In addition to the particulars already noted, we may remark, that the height of the memorial is about 80 feet above the base, and a panel, on which is an inscription commemorative of the sad calamity and displaying the names of the brave captain and his fellow-sufferers, is introduced. The work was constructed by Mr. Patrick M'Donogh, of Kingstown, under the direction of the architect, Mr. Trevor Owen—the material employed being local granite.

"THE HANDSOMEST STRUCTURE IN EUROPE."

CANOVA, when he visited London, was pleased so to designate Waterloo-bridge, and few will yet be found sufficiently hardy to attempt a controversion of the great sculptor's opinion, though we may anticipate the probability of admiration being in the future diverted therefrom to the magnificent Westminster-bridge, now in course of construction, or to that at Blackfriars, as contemplated. But what would Canova now say if he were capable of learning the monstrosity proposed to be perpetrated on that admired work, in the erection of a combined iron, glass, and slate structure to cover in, as an arcade, the entire structure? One of the most magnificent views of its character in the world is obtained by a spectator standing on one of the many bridges that span the Thames; and placed somewhat central, as "Waterloo" is, perhaps about the most so is afforded therefrom; but the proposed erection will materially impede that hitherto obtainable from the other bridges, and disfigure the structure itself.

Much authority in matters relating to metropolitan improvements is vested in a special Board of Works, and although the bridge in question is private property, we hope that that authority is sufficient to prevent private individuals doing that "with their own" which would prove detrimental to the public interest, and to the degeneration of art.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AN ordinary general meeting of this body was held on the 2nd inst., Mr. Digby Wyatt, V.P., occupying the chair, in the absence of Mr. Tite, president. Several donations were announced, and some new members elected, after which the attention of the meeting was occupied with Mr. Papworth's paper on the "Superintendents of English Buildings in the Middle Ages," more particularly described in another column.

NEW BRIDGE AT LENDAL, YORK.

A PHOTOGRAPH of a handsome bridge to be erected over the river Ouse at the above town, and somewhat similar to the Victoria-bridge at Windsor, has been kindly forwarded to us, and we acknowledge it with thanks. The Town Council have adopted the design, which is by Mr. Page, C.E.—one of the most eminent bridge builders of the age—in lieu of that which fell a couple of months ago while in course of erection, and which comprehends a cast iron structure in the Tudor style, with graceful elliptical curve, parapets perforated with quatrefoils, and spandrels enriched with the arms of the city and the bishopric. Span 175 feet. Cost, £31,000. It will be lighted in the centre by lamps of graceful design secured to the parapets.

DEATH OF THE PRINCE CONSORT.

THAT man—"the paragon of animals"—be he prince or peasant, must one day make communion with the dust, has been strikingly illustrated by the sad and comparatively unexpected demise of the Prince, who for the last twenty-two years has reigned supreme in conjunction with his royal wife—Great Britain's Queen—in the affections of the people of these realms. Apart from the sympathy—in which all will most heartily unite—to be felt for her Majesty (herself the best of wives and mothers) for that melancholy domestic bereavement which has, in the inscrutable disposition of an all-wise Providence, torn from her by the agency of death the best of husbands and fathers, we must in a general point of view regard the event as a national calamity. On his attainment to the proud position of consort of the greatest monarch in the world, with all its concomitant ease and independence, Prince Albert might have abandoned himself to a listless, idle life—a great personage, no doubt, but a more useless member of society than the humble artizan who lives by the sweat of his brow. But with eyes undazzled by the bright sun that had beamed upon him, with mind of extraordinary capacity, and with heart which knew how "to feel another's woe," the Prince immediately on his marriage earnestly commenced a career of usefulness, and step by step became the champion of scientific and artistic progress, the keystone of a nation's pride. Were the origination and the maturing of the conception of the Great Industrial Exhibition of 1851 the only acts by which the Prince Consort signalized himself, they would have been of themselves sufficient to render his name memorable; but in every movement of progressive tendency originated during his time, we have found him at the helm, not as mere nominal patron, but counselling and aiding by the prestige of his presence, his judgment, and his eminently practical mind. In sanitary and social improvement, the deceased Prince took a lively interest, and his model lodging-house at Kensington was a first illustration in that regard. As an agriculturist, it is well known that Prince Albert acquired considerable skill, and maintained an extensive farm of his own. But in the hallowed sanctuary of domestic life, as a fond husband and an affectionate father, his late Royal Highness shone pre-eminent, and his virtues will be handed down in the pages of history to that generation on whose happiness his good example to England's future rulers exercised such beneficial influence.

INAUGURAL MEETING OF THE INSTITUTE OF CIVIL ENGINEERS IN IRELAND.

THIS event took place on the 11th inst., in the Museum Building, Trinity College, and numerous members and visitors attended.

Sir Richard Griffith, having taken the chair, said—That this was the second session of the first year, that the Institute had become, in a measure, affiliated with Trinity College. He referred to the great and manifold advantages which resulted from this arrangement, as the members had a large and handsome room in which to hold their meetings, also fire and light, without any expense to the association. The annual subscription, which hitherto went to pay for those necessaries, would in future be expended in the publication of the valuable papers which were read from time to time, and thereby the public would have the benefit of them as well as those who might be present. Many thanks were due to the Rev. Professor Haughton for his kindness in giving up his own rooms to their use. Here were deposited their library and all other documents belonging to the institution. It was not expected that the present meeting would be largely attended, as the county surveyors, of whom a great number throughout Ireland are members, are at this time of the year engaged in their professional duties. He was glad to perceive that a large number of civil engineers, particularly those engaged on railways, had joined the society since they became connected with Trinity College. The Earl of Rosse, the Rev. Dr. R. Robinson, and Professor Haughton had been added to the institution as honorary members. Four gentlemen had joined a new class, called student members, which was to be composed exclusively of those belonging to the university. Since the last session there had been, in all, 17 new members added to the association.

Mr. Stoney, secretary, read a short description of photographs which were exhibited by Mr. A. M'Donnell, showing the appearance presented by a locomotive steam-boiler which burst at Newport in April last. The explosion was supposed to have occurred on account of the rivets in the plates being placed too closely together, which, it was said, materially weakened them. Remarks were made by several members on the comparative merits of drilling and punching holes for connecting iron plates by rivets.

Mr. Anderson, a member, communicated a paper by Mr. C. H. Maberly, C.E., on "the conveyance of light draft steamers from England to the Volga." This was a kind of journal kept by the author, who had charge of their transmission, in which were detailed various circumstances and difficulties attendant on the journey, also the constructive arrangements of the vessels, whereby they could be taken asunder, so as to navigate the canal which connects the Lake of Onega with the Volga. Several drawings and a map of a part of Russia were made use of to illustrate the subject. The whole distance of 960 miles was accomplished in 6 weeks, or averaging about 23 miles a day.

Amongst the recent accessions to the ranks of the Institute are Messrs. Price, Devonshire Rowan, James Barton, C. P. Colton, Marcus Harty, J. Smyth, and Thomas Going, C.E's.; W. Anderson and G. S. Strype, M.E's., as members; and as associates, Messrs. Thomas Fitzgerald, B. T. Patterson, Charles Geoghegan, R. J. Boylan, and the Hon. King Harman.

The new members having been confirmed by ballot, the proceedings terminated.

NORTH WALL *V.* SMITHFIELD AS A CATTLE MARKET.

Apropos to a certain project for establishing a great cattle market at the North Wall, and for the consequent removal of that department from Smithfield—particulars of which have already appeared in this journal—a lengthened discussion on the relative merits of the sites took place on the 9th inst., at a general meeting of the Corporation. Mr. O'Brien opened the debate by bringing forward the following resolution referring to the act of parliament sought for —viz., that "it is the opinion of this Council that such an act, if passed into law, would seriously injure that portion of the city in which the present cattle market is situate, and considerably depreciate a large extent of the property of this Corporation, and that it would be prejudicial to the interests af the public at large; therefore, that a special committee of this Council be now appointed to take immediate steps to place the Municipal Council in a position effectively to oppose the passing of such an act, and to protect the rights and interests of the public and of the Corporation, and that such committee be, and is hereby empowered, to do and direct all necessary acts to be done, to effectually carry out the objects of this resolution and reference." The speaker urged that the site being a low swamp, and distant from the Great Southern and Western Railway, was most unsuitable, and believed that the project was got up by interested parties; adding that the only objection to Smithfield was want of space, and additional could be procured.

Alderman Martin, in an able and comprehensive speech, stated that cattle were deteriorated by the unsuitableness of Smithfield, which, according to the report of Mr. Cahill, C.E., it would cost £50,000 to place on a proper footing, that he was in favour of the North Wall as the site, owing to the facilities for ample pasture in the vicinity, and especially for its contiguity to the Liffey branch of the Midland Great Western Railway and to the packets for shipment to England and elsewhere, whence both live and slaughtered cattle, as proposed by Mr. Hemans' plan, could be transported.

Alderman Reynolds said he had heard from Liverpool and London slaughterers that Smithfield was the best cattle market in Europe, and that all it needed was a little enlargement. It had been established more than 150 years, and he hoped that this bill to transfer the market to the North Wall would be strangled. St. Paul's parish contained 15,000 houses, most of which were dependent in some degree or other for their support upon Smithfield. Men had invested tens of thousands of pounds relying on the existence of that market; and if it were abolished the surrounding district would become a second edition of the Liberties. The swamps at the North Wall had no doubt greatly improved of late years, but their progress would not be accelerated by a market. The people of Dublin, let it be observed, did not derive any advantage from the mere transit of cattle through the city to other places of consumption. The conversion of tillage grounds into pasture was ruinous to the country. Smithfield could easily be enlarged by purchasing blocks of buildings at Queen-street and Red Cow-lane. It was time to tell such persons as the originators of this preposterous railway to cover in the Liffey, and other speculators, that henceforward the Corporation were determined to be masters of those matters which were so entirely within their province, and that they would allow no interlopers. They had surmounted all difficulties as regarded the waterworks, and were now not in hot but in cold water, and therefore they would not allow other persons to interfere with the markets. Interference of the kind was a degradation not practised in other cities, and which seemed to be specially reserved for Dublin.

Mr. John Martin then moved, as an amendment—"That the proposed bill for the establishment of a new market, and the subject of the state of Smithfield Market, be referred to No. 2 Committee for their consideration and report, and that the Council do adjourn to the 17th inst. for the special purpose of considering and acting on the report; and in the event of the report of the committee not being ready, that this Council shall, if they think proper, on that day proceed to consider the subject, and to do all the necessary acts in relation to the market bill or bills."

After some discussion this was unanimously agreed to.

CARLISLE BRIDGE.

The project for reconstructing this incommodious structure is again on the *tapis*, not to be consigned, we hope, to the same oblivion as before.

On the 9th instant Alderman Reynolds, according to notice, brought forward a resolution at the Municipal Council to the effect that, "a committee be appointed to enquire and report on the necessity of rebuilding Carlisle-bridge, and the probable expense." In introducing the subject the Alderman proceeded to remark that his proposal was, that the bridge should be built the entire breadth of Sackville-street, measuring from Mr. Law's house at one side of Sackville-street, to Mr. Kelly's at the other. He was informed by Mr. Hammond, who came from London last August to inspect the proposed work, that he could erect a bridge across the river, with one arch, which would be, as near as possible, a copy of the arch of Westminster-bridge. It would cost between forty and fifty thousand pounds. There were some persons who said Carlisle-bridge was a handsome bridge. The man who thought that must know very little of such structures. He did not think there was an uglier bridge in Dublin. It was built at a time when there was not one-tenth of the traffic for it that there is at present, and was certainly not sufficient to meet the requirements of the present generation. What embarrassed Carlisle-bridge so much was, that there were eight distinct approaches to it. The Ballast Board some time ago obtained some interesting statistics through the agency of the police relative to the traffic over Carlisle-bridge. There were direct from streets laden carts and drays on the 7th March, 1,433; on the 8th there were 1,412; on the 9th there were 1,537; on the 10th there were 1,648; of empty carts and drays there were 944 on the 7th; there were 1,321 on the 8th; there were 1,238 on the 9th, and 1,199 on the 10th; of carriages, cars, and cabs, with fares, there were, on the 7th March, 3,567; on the 8th there were 3.680; on the 9th 3,608; on the 10th 3,616; of empty cars, carriages, and cabs, there were on the 7th, 1,514; on the 8th, 1,405; on the 9th, 1,342; and on the 10th, 1,418. These passed directly over the bridge. Of those that came a circuitous course over the bridge, that was from the quays, there were of laden carts and drays, &c., 1,227 on the 10th; of empty drays and carts that came circuitously to cross the bridge, there were 800 on the 10th; of cars, carriages, cabs, &c., with fares, there were 619 on the 10th; of empty cars, carriages, cabs, &c., there were 179 on the 10th. Total over the bridge from streets and quays, on the 7th March, 9,779; on the 8th, 10,426; on the 9th, 10,419, and on the 10th, 10,869. Laden drays and carts across the ends of the bridge, and not passing over the bridge on the 10th of March, there were 821; empty drays and carts on 10th, there were 790. Of carriages, cars, and cabs, with fares, there were on the 10th, 156; of empty ditto, there were on the 10th, 97. Total passing over the bridge or coming circuitously, on the 7th, 1,163; on the 8th, 1,556; on the 9th, 1,707; and on the 10th, 1,864. The total for ten hours crossing the bridge was 9,779. Let him now draw attention to a curious calculation and comparison which had been made as to the traffic over London bridge, across which, every one supposed, there was more traffic than across any other bridge in the world. The average number of vehicles that passed over London-bridge in an hour was 1,091, while the average that passed Carlisle-bridge in an hour was 1,037. If the plan which he (Alderman Reynolds) suggested were carried out, Carlisle-bridge would be the handsomest bridge in Europe. Some were anxious that a bridge should be built at the Custom-house; so was he. He was anxious to open up Luke-street, and also to have the nearest communication between the Dublin and Drogheda and the Dublin and Kingstown Railway Termini. They had plenty of money to build both bridges without calling on the public. If they had a bridge from the Custom-house to Luke-street, that portion of the city would not remain in its present neglected condition. The Ballast Board might say that the river accommodation at this part would be interfered with, but the Ballast Board should not oppose the project on such a ground, for there was plenty of room farther down. How the funds were to be obtained was to be found in a report which had been submitted to the Lord Lieutenant in March last, in which they claimed from the government the restoration of a sum of local revenues, amongst them the carriage rents and fines, amounting in the aggregate to £16,000 a-year. They had determined to send Sir Robert Peel a statement of their claims, to have these revenues given to the city. They felt they had been badly treated by the government here and in England. When the address was presented to the Lord Lieutenant he said their claim was worthy of attention, and that it would be transmitted to the government, and he gave them to understand that everything right and just would be done to restore this income of £16,000 a-year to the citizens, who paid it for the support of the police force, over which they had no control whatever. He would at present merely move the resolution in question as on the paper, for the appointment of a committee to inquire and report upon the necessary and probable expense of rebuilding Carlisle-bridge. He was happy to say that the feeling in the city was so strong in favour of the movement that several influential citizens called on him to remind him that he should bring the question on again, and they told him that they were about to sign a requisition to the Lord Mayor to call a meeting at the Rotundo for the purpose of co-operating with the council in their efforts to rebuild Carlisle-bridge. It was also stated to him that Sir Edward Grogan and Mr. Vance had promised to give all the assistance in their power in the matter.

Captain Knox, T.C., with some apposite observations seconded, and an interesting description followed, after which the resolution was carried.

WHAT IS AN ARCHITECT?

ON the 4th instant a paper descriptive of the building now in progress for 1862 exhibition was read by Capt. Phillpotts, R.E., at a meeting of Society of Arts, after hearing which, and in the course of other remarks, Mr. Ottley enquired if any architect had been consulted? Mr. Henry Cole, C.B., in answer thereto said that he came prepared to hear that question asked; and in return he would ask that gentleman to have the kindness to define what an architect is? He (Mr. Cole) had taken some pains to find out; and confessed himself rather puzzled. He had gone to past times, in order to ascertain who had built some of the most striking buildings in Europe, and to find out whether they were or were not architects in the sense in which the term was understood. In the first place, they had the exquisite belfry of Giotti, at Florence, who was bred a shepherd, and became a painter, and subsequently an architect; but he found no facts to substantiate that he was brought up professionally as an "architect." He next took Brunelleschi, the inventor of domes, who was originally a goldsmith; after that a sculptor; then a painter. He then became enamoured of construction; and as a self-taught architect built the dome of Florence, the constructive principles of which were adopted by Michel Angelo in St. Peter's at Rome. He had never heard that Michel Angelo himself was ever articled in a professional architect's office. He began his career as a sculptor, was eminent as a painter, and subsequently took up with architecture and military engineering. Bramante, he dared say, had been heard of. He began as a painter, and subsequently erected a great part of the Vatican: hence he had been called an "architect." Leonardo da Vinci was in the first instance eminent as a mathematician, then as a modeller, then became a painter: subsequently he wrote some poetry, and afterwards became a water and military engineer, and in the latter capacity defended a number of the strong posts of Italy. Subsequently he erected a number of buildings, and became what was called an "architect." Palladio—a name which he had no doubt heard of—began as a geometrician; he never heard that he served his time to an architect: he had no systematic education in that profession; and yet he erected buildings which made him renowned. San Gallo, another eminent constructor, began as a sculptor, and subsequently became an "architect." He supposed the questioner had also heard the name of Inigo Jones: he began as a carpenter, afterwards he became a landscape painter, and met with patrons who sent him to Italy, where he turned his carpentering to good account, learned to erect buildings, and became "an architect." They had all heard the name of Wren. He (Mr. Cole) should like to challenge anybody to show that he was an architect in the sense in which they understood it. He was very ingenious in making mechanical toys. He was a professor of mathematics at the University of Oxford. He happened to be acquainted with the Crown Surveyor of the time; who, having got into difficulties with a building under his charge, consulted Wren; and Wren, not being a professional architect, gave him sound advice, which led to his stepping into the place of his friend; and he erected St. Paul's Cathedral against much architectural advice: hence posterity called him an "architect," and it was commonly supposed that he was well entitled to that appellation. Then there was another person following him—Vanbrugh. They knew that he covered England with a great number of buildings, but he had no professional education as an architect. However, some people thought that he had a special genius for building. He built Castle Howard, Blenheim, and other mansions. The next most eminent name that occurred to him—coming now to modern times—was that of Sir Charles Barry, for whose talent he had much respect. Now he fancied that Sir Charles was what is called a real, professionally-bred architect. Sir Charles Barry's works they all knew: as to whether or not his Houses of Parliament were a great success, the world was divided in opinion: some thought them all wrong: others thought them approximating to right. But of this point there could be no question: having been deputed to build Houses of Parliament, in which people should be able especially to hear, and talk, or parley, he did not succeed in making rooms in which people could hear fairly well, if at all. Sir Charles Barry was also deputed to make a picture gallery for Lord Ellesmere. He had made a pretty architectural building, but unluckily not a picture gallery, as neither by day nor by night could the pictures in it be well seen. He was, however, an eminent professional architect; and, notwithstanding his great reputation, the military engineer whose construction was now before them had been consulted how to make Sir Charles Barry's picture gallery suitable for the purposes for which it was designed. When it was decided what was an "architect," he (Mr. Cole) would answer the other questions which had been put by the same gentleman, who did not appear to know the difference between a perspective drawing and a geometrical elevation.

The speaker, after detailing some particulars connected with the design for the Crystal Palace of 1851, proceeded to eulogize Captain Fowke, the engineer architect of the building for 1862, in the following terms, viz:—Captain Fowke, who had the highest constructive ability—amounting to genius—had been employed as secretary to the Paris Exhibition. He had built *the National Gallery at Dublin*, and designed the Industrial Museum of Scotland: he had also been employed in laying out the ground plan of the Royal Horticultural Society at Kensington. That ground, almost from its first purchase, was viewed as providing a home for future exhibitions. Nothing, therefore, was more natural than that in laying out the ground he should have made provision for the site of the future Exhibition. Accordingly, when the Royal Commissioners for 1862 entered upon their functions, Capt. Fowke had plans ready. He (Mr. Cole) supposed the most partial advocates of architects and competition would not contend that the process of 1851 ought to have been repeated as regarded the building for 1862.

[Without entering into the other matters referred to, we must observe that it would have been mere prudence for Mr. Cole not to have associated, by way of compliment, Capt. Fowke's name with "the National Gallery at Dublin," which externally is a mere stereotype of a corresponding wing, designed—whatever be its merits or the reverse—by a local Board of Works official; and internally was proceeded with by piecemeal, in the dark, without drawings, and under the directions of another superior official from same establishment, and "a doctor" to boot. The friends of the patient, however, thought at latest moment a consultation desirable, and "*Dr.*" Fowke was called in sufficiently early to prolong an existence, the benefits of which, to art and society generally, time alone must proclaim, though the *nostrums* displayed at recent exhibition here suggest little reason for a favourable opinion.]

COMPETITIONS.

OUR readers are aware that plans had been invited in competition for new buildings for the Londonderry Penitentiary, and several having been submitted and under consideration, the committee have at length decided on adopting those by Messrs. Frazer, Ferguson, and Frazer, local architects.

The 14th instant being the last day for receiving plans for intended pedestal for Captain Crozier's memorial at Banbridge, several drawings were received by the secretary, and we await the result.

About £700 has been subscribed to the Marsh testimonial, and it has been determined to employ the amount in procuring a statue of the deceased baronet and M.D. from the chisel of Mr. Foley, to be placed in the hall of the new College of Physicians. Some of the faculty consider that it would be more desirable to appropriate the fund to the Medical Benevolent Fund Society, or in founding a Marsh Exhibition or Scholarship.

EXCLUSIVENESS OF PATRONAGE.

Sir—You would render an essential service to many who, like myself, contribute to the support of your independent and well-conducted journal, by drawing *special* attention to the fact, that the architects of a certain public department in this city, and having much patronage at command, confine it by their specification in the articles of "*plaster and cements*" to one particular English firm, locally represented, and to the exclusion of *all others*, however excellent their manufacture may be. This is the height of injustice, and is doubly reprehensible in a public department, supported by *public money*, and presumed to be impartial in its dispensation of patronage. I import as good—if *not a better*—article as the firm in question manufactures, yet I am precluded from the slightest business advantage in connection with the numerous buildings erected here and throughout Ireland, from plans and specifications so provided. You will not, I am sure, by refusal to expose this abuse, belie the good opinion already formed of your publication.

A Cement Importer and Manufacturer.

[Several communications of similar purport to the above having been previously received, we commented on them in a previous No., and having done so, conceive that our correspondent's object will be fully achieved by mere insertion of his letter.—Ed.]

LAW NOTES.

COURT OF EXCHEQUER.

Sitting of Nisi Prius, before the Lord Chief Baron and a special jury—5th December, 1861.

Luke Doyle v. W. C. Thompson.—Action brought by a builder and contractor in Temple Bar against a gentleman resident at Glenageary, near Kinstown, to recover £111 3s. 8d. for work, and labour, and materials supplied in the building of two houses at Sunning-hill, Adelaide-road.. The amount claimed was for penalties for eleven weeks beyond the time for completing the contract, also for amount of extra bill furnished, after the award of Mr. Papworth, the architect, and for some lead which defendant refused to give, believing it to be his property. The plaintiff's case was that he was not supplied with the ironmongery, plate glass, and chimney-pieces in time by the defendant, which he was bound by his contract to fix up; and also that extra works were ordered, which were so mixed up with the contract works that it was impossible to complete the contract by the time agreed on, and that therefore the penalties should not be enforced. The defendant's case was, that he supplied the articles required when the plaintiff was ready for them, and that the extra works were not so mixed up with the contract works, which were ordered so early that if he had used proper exertion, and employed a sufficient number of workmen, the contract could have been completed by the time specified. The plaintiff was subjected to a long and enquiring examination, as also was the defendant and the architect, Mr. Papworth, and the case terminated on Saturday by a verdict for the defendant substantially on all counts.

Messrs. Whiteside, Q C., Heron, Q C., and E. Johnson, with Mr. F. Kiernan, attorney, appeared for the plaintiff; and Messrs. Sergeant Armstrong, Chatterton, Q.C., and Exham, with Mr. Henry Reily, attorney, for the defendant.

Sullivan v. O'Rorke.—This was an action brought by a lime manufacturer of Upper Baggot-street, against a hardware merchant in New-row, to recover a sum of about £53, for goods sold and delivered, &c. The summons and plaint stated that the defendant, having employed Mr. George Robinson to erect certain buildings for him, and Mr. Robinson being in want of lime to carry on the works, the defendant undertook, with Mr. Robinson's consent, in consideration of the plaintiff supplying Mr. Robinson with what lime he required, to retain out of certain moneys which would become payable to Mr. Robinson sufficient to pay him for the value of the lime he so supplied; and that after lime to the value of about £53 was supplied by the plaintiff to Mr. Robinson, in pursuance of that agreement, and there was money in the defendant's hands due to Mr. Robinson, he did not pay the plaintiff's demand. The defendant pleaded that he never promised to pay for the lime, as alleged; and also, that after the lime was supplied, and the £53 became due to the plaintiff, there was no money in his hands applicable to pay the amount of the plaintiff's bill. Upon these pleadings the issues raised were—whether there was any such promise made by the defendant as alleged, and whether he had in his hands any money properly applicable to pay the plaintiff's demand. It appeared that the houses in question were erected in or about the year 1859, at Sandycove, near Kingstown, and that the defendant entered into a contract with Mr. Robinson to build them for a specific sum, Mr. Robinson supplying all the necessary materials, and to assist him in doing so advanced him some money for the purpose on the security of his bond.

The jury found a verdict for the plaintiff for £50, and costs.

John M'Elwaine v. the Baron De Robeck.—Mr. Levinge, on the part of defendant, moved for liberty to lodge in court £563, the amount for which the action had been brought, the sum in question not to be drawn out by the plaintiff without notice to the Attorney-General. Counsel stated that the action had been instituted to recover the amount of a building account. The plaintiff was lately convicted of a conspiracy to defraud, and the defendant's object in making the motion was to avoid having to pay twice, as might be the case if the property of the plaintiff was forfeited to the crown.

Mr. Martin, for the plaintiff, resisted the motion. He said that Mr. M'Elwaine had been convicted, not of felony, which would involve a forfeiture, but of a misdemeanour, which did not. The motion, therefore, was untenable.

Baron Fitzgerald refused the motion with costs.

In re J. Lynch, a bankrupt builder.—The meeting was for final examination. Council appeared for the assignees, and examined the bankrupt in reference to some building contracts he had been engaged in, and among others a contract he had with Dr. Kavanagh, of Kingstown, to build four houses at Blackrock. There was a dispute as to the execution of the contracts having been delayed, and ultimately the houses were finished by another contractor. He was also examined on the part of creditors. The case was then adjourned till the second week in term, the schedule to be amended in the meantime.

Notes of New Works.

Mr. Meade, the contractor for the newly erected buildings and other improvements in connection with the Four Courts, is about commencing another large block, 200 feet in length by 75 feet, as a Record Office, much additional accommodation in that regard being needed. The plans have been furnished by the architect to Board of Public Works.

A new Roman Catholic Church is to be built at Butler's-bridge, according to designs by Mr. William Hague, jun., architect, Cavan.

It is expected that the new convent of the Sisters of Mercy at Newry will be completed next spring.

The skeleton of St. Mary's Church, Granard, approaches completion, and the walls will shortly be ready for roofing.

It is proposed to erect a new church in Kingstown for the Rev. Denham Smith.

The newly-erected bridge of St. Patrick at Cork, already described in the Dublin Builder, has been formally handed over by the engineer, Sir John Benson, to the Mayor, and opened for public traffic. The event was attended with the eclat of a procession, christening with a bottle of champagne, and a sumptuous dinner at "the Imperial."

The new graving dock at Derry, which will accommodate vessels of the largest size, will shortly be completed.

The new organ recently erected in St. Patrick's Church, Ballymena, by Messrs. Bevington and Sons of London, was opened on Sunday, the 8th inst. It is fixed in the vestry, the front presenting itself towards the chancel and nearly flush with the chancel arch. The case is in the Gothic style, and constructed of pine, stained and varnished, so as to harmonize with the other wood-work of the building; the front pipes elaborately ornamented in mediæval columns, vermillion, green and gold, oak leaves and acorns being prominent. The tone of this instrument is said to give every satisfaction. Two new benches of memel, stained and varnished, with trefoil pannels in front and elaborate traceried pannels at ends, have likewise been provided and fixed on each side for the choir, according to drawings by Messrs. Welland and Gillespie, architects.

St. Mel's Cathedral, Longford.—The great campanile in progress of erection to this structure has already reached to considerably over 100 feet above the surface of the ground. The massive stone columns which surround the bell chamber are nearly half completed, and the structure already gives promise of the striking and imposing effect it will have when crowned by its graceful dome and decorated cross 166 feet over the entrance steps. The works have been suspended until the return of favourable weather, when it is expected another season will complete this, the most striking feature of the greatest of our modern cathedrals in Ireland. After its completion the great portico will still remain to be erected, but there is little reason to doubt that at no very distant time this great cathedral will possess all the adjuncts requisite to render it complete in all its parts. The new diocesan seminary, it is expected, will be commenced early in spring on a site adjoining the cathedral.—*Freeman.*

The town of Castlederg has been lighted with gas at the cost of Mr. Smyley, Q C., and with apparatus erected by Messrs. Edmundson and Co., of Capel-street, in this city.

Portion of the new railway between Castlebar and Claremorris is being lockspitted by the contractors.

THE CRYSTAL PALACE, SYDENHAM.

Unity in architecture is one of the most requisite and agreeable of its qualities; and certainly no building possesses it in a greater degree than the Crystal Palace. Its design is most simple: one portion corresponds with another; there is no introduction of needless ornament: a simplicity of treatment reigns throughout. Nor is this unity confined to the building. It characterises the contents of the glass structure, and prevails in the grounds. All the component parts of the exhibition blend, yet all are distinct; and the effect of the admirable and harmonious arrangement is, that all confusion in the vast establishment, within and without, is avoided. "The mighty maze" has not only its plan, but a plan of the most lucid and instructive kind, and the visitor is enabled to examine every court, whether artistic or industrial every object, whether of nature or of art, in regular order; so that, as in a well-arranged book, he may proceed from subject to subject at his discretion, and derive useful information without the trouble and vexation of working his way through a labyrinth.

All the materials employed in the Exhibition of 1851, with the exception of the glass on the whole roof, and the framing of the transept-roof, have been used in the construction of the Crystal Palace. The general principle of construction, therefore, is identical in the two buildings. The ground ran rapidly down towards the garden, and Sir Joseph Paxton accordingly constructed a lower or basement storey towards the garden front, by means of which not only increased space was gained, but a higher elevation secured to the whole building, and the noblest possible view. The lower storey is sufficiently large to serve as a department for the exhibition of machinery in motion, and a very interesting exhibition of agricultural implements, which important branches of science and human industry will thus be contemplatad apart from other objects. Behind this space, towards the interior of the building, is a capacious horizontal brick shaft, 24 feet wide, extending the whole length of the building, and denominated "Sir Joseph Paxton's Tunnel." Leading out of this tunnel are the furnaces and boilers connected with the heating apparatus, together with brick recesses for the stowage of coke. The tunnel itself is connected with the railway, and is used as a roadway for bringing into, and taking from, the palace all objects of art and of industry: an arrangement that leaves the main floor of the building independent of all such operations. Behind the tunnel, and towards the west, the declivity of the ground is met by means of brick piers of the heights necessary to raise the foundation pieces of the columns to the level at which they rest on the summit of the hill.

The building consists, above the casement floor, of a grand central nave, two side aisles, two main galleries, three transepts, and two wings. The building above the level of the floor is entirely of iron and glass, with the exception of a portion at the west front, which is panelled with wood. The whole length of the main building is 1,608 feet, and the wings 574 feet each, making a length of 2,756 feet, which with the 720 feet in the colonnade, leading from the railway station to the wings, gives a total length of 3,476 feet; or nearly three-quarters of a mile of ground covered with a transparent roof of glass.

Though not exactly in the direction of the cardiaal points, the two ends of the building are generally called north and south, and the two fronts east and west.

The floor consists of boarding one inch and a half thick, laid as in the old building, with half inch openings between them, and resting on joists, placed two feet apart, seven inches by two and a half inches thick. These joists are carried on sleepers and props eight feet apart. The girders which support the galleries and the roof-work, and carry the brick arches over the basement floor, are of cast-iron, and are 24 feet in length. The connections between the girders and columns are applied in the same manner as in the building of 1851. The principle of connection was originally condemned by some men of standing in the scientific world; but experience has proved it to be sound and admirable in every respect. The mode of connection is not merely that of resting the girders on the columns in order to support the roofs and galleries, but the top and bottom of each girder are firmly secured to each of the columns, so that the girder preserves the perpendicularity of the column, and secures lateral stiffness to the entire edifice. Throughout the building the visitor will notice, at certain intervals, diagonally placed, rods connected at the crossing, and uniting column with column. These are the diagonal bracings, or the rods provided to resist the action of the wind; they are strong enough to resist any strain that can be brought to bear against them, and are fitted with screwed connections and couplings, so that they can be adjusted with the greatest accuracy. The roof, from end to end, is on the Paxton ridge-and-furrow system, and the glass employed in the roof is 1-thirteenth of an inch in thickness (21 oz. per foot). The discharge of the rain-water is effected by gutters, from which the water is conveyed down the inside of the columns, at the base of which are the necessary outlets leading to the main drains of the building. The first gallery is gained from the ground floor by means of flights of stairs about 23 feet high; eight such flights being distributed over the building. This gallery is 24 feet wide, and devoted in a great measure to the exhibition of articles of industry. The upper gallery is 8 feet wide, extending like the other round the building; it is gained from the lower gallery by spiral staircases, of which there are eight. The greater number of these staircases are divided into two flights, each flight being 20 feet high; but in the central transept the two staircases contain four flights of the same altitude. Round this upper gallery, at the very summit of the nave and transepts, as well as round the ground floor of the building, are placed louvres, or ventilators, made of galvanised iron By the opening or closing of these louvres—a service readily performed—the temperature of the Crystal Palace is so regulated that on the hottest day of summer, the dry parching heat mounts to the roof to be dismissed, whilst a pure and invigorating supply is introduced at the floor in its place, giving new life to the thirsty plant and fresh vigour to man. The coolness thus obtained within the Palace will be sought in vain on such a summer's day outside the edifice.

The total length of columns employed in the construction of the main buildings and wings would extend, if laid in a straight line, to a distance of sixteen miles and a quarter. The total weight of iron used in the main building and wings amounts to 9,641 tons, 17 cwt., 1 quarter. The superficial quantity of glass used is 25 acres; and weighs 500 tons: if the panes were laid side by side, they would extend to a distance of 48 miles: if end to end, to the almost incredible length of 242 miles. To complete our statistics, we have further to add that the quantity of bolts and rivets distributed over the main structure and wings weighs 175 tons, 1 cwt., 1 quarter; that the nails hammered into the Palace increase its weight by 103 tons, 6 cwt., and that the amount of brick work in the main building and wings is 15,891 cubic yards.

From the end of the south wing to the Crystal Palace Railway station, as above indicated, is a colonnade 720 feet long, 17 feet wide, and 18 feet high. It possesses a superficial area of 15,500 feet, and the quantity of iron employed in this covered passage is 60 tons; of glass 30,000 superficial feet.

(To be continued.)

TENDERS

For additions and improvements to Armagh Lunatic Asylum. Mr. J. Boyd, architect, Belfast. Quantities taken off by Mr. B. T. Patterson, 206, Great Brunswick-street, Dublin:—

T. H. Carroll, Dublin	£6,900
C. Gregg, Belfast	6,270
T. Ross, Armagh	6,125
F. M'Gaughey, Omagh	5,800
R. Cherry, Loughgall (accepted)	5,663
M'Manus J. Marshall, Caledon	4,416

How the Telescope was Invented.—"We have spoken," says *Macmillan's Magazine*, "of the telescope as an *enfant trouvè*. The matter of its invention is said to have been in this wise: Once upon a time—two hundred and more years ago—the children of a spectacle-maker were playing with some of their father's glasses before his door. They poke them here and there, till—what is it they see? The distant steeple appears to be brought almost into their own street. Paterfamilias is apprised of the phenomenon. He verifies it, but it passes his philosophy to tell the youthful inquisitors 'the reason why.' Like a sensible man, he screws the glasses on to a board, casts a covering about them, and secures the fact. The 'spyglass' played subsequently far too grand a *role* not to attract the envious glance of national rivalry; and we have, in fact, the same legend repeated by more writers than one, always, of course, with a patriotic change of the place. The learned and unfeeling *savans* of the present day declare the stories to be all fudge. 'The number of the competitors for this honor,' observes Sir David Brewster, 'affords the most unequivocal evidence that the telescope was brought into the condition of a portable and efficient instrument by steps so gradual, that no individual had any real claim to be considered as its inventor.' Ugh! for the Herod of our Innocents of Invention! We claim the honor for our little Flemings, and crown Middelbourge as the 'Stammort' of the numerous and refined family of the Dollands of our day."

To Prevent Boiler Explosions.—Boiler explosions are generally caused by the water in the pipes or cisterns becoming frozen, under which circumstances, if heat be applied to the boiler, (which is usually unprovided with a safety valve), an explosion will ensue from over-pressure. The best preventive is to keep on a good fire during the frost, and if the supply of water to the cistern be stopped, unless other means be adopted for filling it, no water should be drawn from the boiler.

PUBLICATIONS.

WE have received a pamphlet by Mr. James Mills respecting alleged delusions in the scheme of Indian Railway and Indus Flotilla Guarantees (London, W. Wilson and Co., Cheapside), on the merits of which, as the subject matter concerns but a comparatively small section of the public, we are not disposed to enter. The bare announcement of its existence may conduce towards the author's purpose.

NEWS AND LITERATURE.

The Dublin Library.—The early advent of a "new year" reminds us that the committee of this library is making strenuous exertions for additional enlistments to its ranks of membership. Professional gentlemen and others extensively frequent its reading-room, which is spacious, centrally situated, and in which may be found all the respectable current periodicals, political or otherwise, and telegrams during the day and evening. The library is one of the most important in Dublin.

The Dublin Mechanics' Institute.—Independent of sect and party this institute now steers a steady, useful course, after being tossed for a lengthened period on the shoals and quicksands of political and party animosity. The olive branch has been securely grasped by the belligerents on both sides, a happy result of better judgment, and long may they retain it! To the general public, but to the artizan especially, facilities are afforded through its medium for perusing the organs of daily and weekly intelligence, the professional and scientific periodicals and magazines; while its capacious library amply satisfies the numerous demands of the members for the wherewith to pass a leisure hour in combining instruction with amusement. Competent masters in music, the languages, drawing, &c., are associated therewith, and the lecture theatre is one of the most spacious and best arranged in the kingdom. Recently the directors have added the inducement of periodical concerts by local artistes, with admission at a low figure, and we hope the result may prove successful. Thanks to the good feeling of the Queen's Theatre lessee, the members are allowed reduced tickets to that popular place of entertainment, and an acknowledgment of the same privilege is due to other public establishments likewise.

The Catholic Young Men's Society.—Since its formation this society has considerably progressed, owing to the energy of its promoters—of whom the zealous Rev. Dr. Spratt was the principal—and its managing committee, which comprises gentlemen of great judgment and intelligence. The reading-room is well supplied with political and non-political journals, serials, &c., and the library is fully stocked with select volumes appertaining to science, art, ancient and modern literature, &c. A trifling annual subscription ensures membership for Roman Catholics. The society has recently taken the old church of St. Saviour in Denmark-street, and converted it into a spacious lecture and class rooms.

The Dublin Athenæum.—This recently formed establishment in Anglesea-street, comprising general reading-room, lending library, class-rooms, &c., offers numerous educational and other advantages and instruction to the classes for whom it is intended, and is exclusively Protestant.

THEATRE ROYAL.

SINCE our last impression Mesdames Grisi and Lemaire, Mdlles. Dario and Ellen Conran (both of Irish birth), and Signor Galvani and Swift (tenori), Cresci (baritone), and Ciampi (basso), have appeared in a succession of Italian operas. In *Norma* Madame Grisi still maintains her supremacy as the greatest delineator and vocalist, and was most admirably supported by Mr. Swift as *Pollio*, and Miss Conran as *Adalgiza*. In the other operas also the veteran prima donna still displays so much vigour, grace, and exquisite vocalism that a sincere regret is experienced at her contemplated secession from the scene of her triumphs; a feeling which we doubt not will be enthusiastically conveyed on the occasion of her farewell benefit next Saturday evening. The mantle of Catherine Hayes has descended on Ellen Conran, who, as an Irish star of the first brilliancy, her countrymen may regard with unqualified admiration. We should prefer, however, witnessing a different mode of expressing that feeling than by uproarious conduct of the gallery occupants, illustrating "bedlam let loose," or "a menagerie in confusion," neither appreciating the performance themselves, nor allowing the remainder of the audience to enjoy it comfortably. The systems of encoring, calling before the curtain, and interrupting the opera to compel an "Irish song," as adopted in this theatre, are outrages on the decencies of modern society. If Mr. Harris would equalise the prices of the galleries with the pit, even for one night of a favourite opera, we apprehend that the experiment would have a salutary effect, and not affect him pecuniarily. Signor Galvani improves with acquaintance; and Signors Cresci and Ciampi are both clever artistes. An engagement with Mr. Drew, Irish comedian, is announced. A Christmas pantomime, of great splendour and merit, is in preparation, and will be entitled, "Aladdin, or the Wonderful Lamp."

QUEEN'S ROYAL THEATRE.

FURTHER than what we note of this place of amusement when we occasionally visit it *and pay*. we are unable to record its proceedings. Why *we* should be selected for exclusion from the ordinary press privileges is somewhat inexplicable, even making due allowance for the many demands of similar character on the lessee, to whose abilities as an actor and manager, and claims for support from the public we were always willing to pay fitting tribute. Our London contemporaries of mission equivalent to *ours* enjoy *all* the privileges in this regard, and to the extent of the *political* organs; and we, though *personally* indifferent to the right of free access to this Theatre, as by favour of Mr. Harris we enjoy at the Royal, as also elsewhere in usual course; must therefore regard, on *principle*, the unjustifiable exclusion in question by Mr. Webb with at least *some* regret.

THE PHILHARMONIC SOCIETY.

ON the 6th instant a charming concert was given by this society at the Antient Concert Rooms; the troupe of Italian artistes at that period under engagement at the Theatre Royal constituting the principal vocalists. Madame Grisi excelled herself in the rendering of "O meo Fernando," by Donizetti; and Miss Ellen Conran in the cavatina "Bel raggio," was rapturously applauded. The singing of Signori Galvani, Cresci, and Ciampi in the trio from "Pappatacci," by Rossini, and of Madame Lemaire in the aria "Nobil Signor," from *Les Huguenots*, were amongst the chief attractions of the evening.

Miscellaneous.

IMPURE WATER AND DISEASE.—So late as even 1851 we find three chemists appointed to analyse the London waters, stating that "the shallow wells of London have never been pronounced unwholesome," yet in 1847 much public discussion resulted from a report which I made to the magistrates of Glasgow, in which it was demonstrated that sewage was present in greater or less quantities in all the wells of that city, and which I, therefore, pronounced to be unwholesome. In 1850, at the request of the magistrates of Liverpool, I reported on the wells of that city, and gave a similar opinion of their unsanitary character. In the case of Glasgow, a proposition had been made to the magistrates to expend a large sum of money in sinking new wells, but the unfavourable report of their impurity led to the project being abandoned. Companies were subsequently formed for the supply of water to Glasgow from streams in the neighbourhood, of which I had the chemical examination, and the result proved that the purest water which could be obtained was that of Loch Katrine, a noble lake, containing the drainage of a mountain range. When the water was first introduced into the main pipes the total impurity amounted to as much as 3·3 grs. or degrees per gallon, although when I first examined the water in the lake the impurity was 2·3 grs. in the gallon. It was obvious that some impurer springs had mingled with it in its passage to the city, which has now been remedied, as in March last the impurity was 2·35 degrees, of which ·605 was organic. The authorities of Glasgow have expended on this scheme somewhere about three-quarters of a million, and, probably, before the plan is complete the expenditure may not be less than nearly a million sterling. Allowing for the difference of population this would be equivalent to between seven and eight millions for the inhabitants of London. For this sum it is believed a pure mountain drainage water might be made to supersede the present supply from the Thames, which acts as a sewer to the whole of the populous country which it traverses. Manchester and Liverpool, which, like Glasgow, suffered intensely from cholera, and where well-water was much used, have now obtained pure supplies of water from mountain or pastoral drainage. The importance of these improvements has been fully borne out by the facts which have come under the cognizance of those who have made sanitary science their peculiar study.—*Dr. Thomson in London Medical Review.*

A WONDERFUL LOCK.—The *Leeds Intelligencer* announces that there is now in course of manufacture at Wolverhampton a new patent keyless lock, having 244,140,625 combinations. This lock is the invention of Count Kersolon, a Frenchman, but is now the property, in this country, of a Mr. Loysell. It has five rollers, and each roller is marked with twenty-five letters of the alphabet. If the letter at which it is set should not be discovered, the exhausting of all the variations necessary in that case to the opening of the lock would require an immense expenditure of time. It is intended to place one of these locks upon some iron safes that are being made for exhibition at the forthcoming World's Fair. In one of the safes it is proposed to place the sum of £500, which is to full to the lot of the person who may be fortunate enough to effect an opening of the safe.

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